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مؤسسة محمد بن راشد آل مكتوم
MOHAMMED BIN RASHID
AL MAKTOUM FOUNDATION

Arab Knowledge Report 2014

Youth and Localisation of Knowledge

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Foreword

Chairman of the Board
Mohammed bin Rashid Al Maktoum Foundation

Arab World's Transition to Knowledge Society

Knowledge is considered as one of the key pillars of a nation's development and advancement, and critical to the society's progress and prosperity. It is an incentive for intellectual and social mobilisation as well. The current era is called the "knowledge era". If every era had its own wealth, this era's wealth would be knowledge. The knowledge society is the society of the digital revolution, which has contributed to the change of relationships in the developed societies and perceptions about of the outside world. Information and knowledge have contributed to enhanced standards of living, defined artistic tastes and values, and helped speed up development and industrial progress. Knowledge accumulation also plays a major role in sustaining economic growth.

By projecting the mobilisation of global knowledge on Arab realities, we find a big gap in the level of education and curricula and the volume of investments in education and research. Distinctions are evident in terms of the number of patents, and the volume of community participation, as well as in youth enrolment in the transfer of knowledge and the shift from consumer societies to productive societies. Together, these issues form an integrated system for building knowledge-based societies.

From this perspective, we find it necessary to empower youth by reviewing the school and university curricula, promoting research through well-equipped schools and universities, and supporting researchers in specialised centres. We need a comprehensive vision based on a series of factors such as: freedom of thought, promotion of creativity in arts and sciences, equal opportunities for all citizens, transfer of knowledge through translations into Arabic, experiments, methodical research, exchange of expertise, continuing education, review of records and documentations, seminars, workshops and trainings, as well as other channels.

The Arab Knowledge Report comes as an indicator of the status of knowledge in the Arab countries. It presents a diagnosis of the situation to help those in charge to evaluate performance and implement development policies for building knowledge societies capable of facing challenges, and contributing to comprehensive and sustainable development. The third Report focuses on the importance of integrating youth in the transfer and localisation of knowledge processes in terms of its definition as well as economic and social benefits and priorities. The elements of localisation of knowledge are limited to two major integrated elements; the first being the production of knowledge and the second the employment of knowledge in human development in its cultural, scientific, social, political and environmental dimensions.

We present before you the "Third Arab Knowledge Report: Youth and the Localisation of Knowledge" that includes a special report of the status of knowledge in UAE. We hope that both the reports will present a clear and comprehensive picture

of our local and regional knowledge status, highlight the strengths and the ways to exploit them, and identify the areas that need further development. We believe that the reports will act as a road map for decision makers, providing them an overview of the means and methods in the transfer and localisation of knowledge in our Arab world.

Sheikh Ahmed bin Mohammed bin Rashid Al Maktoum
Chairman of the Board
Mohammed bin Rashid Al Maktoum Foundation

Preamble

Regional Director
Regional Bureau for Arab States,
United Nations Development Programme

This third publication of the Arab Knowledge Report series establishes a new and steady step on the path of the strategic partnership and the shared vision that brings together the Mohammed bin Rashid Al Maktoum Foundation with the Regional Bureau for Arab States at the UNDP for the support of the Arab and international efforts towards building a knowledge society and economy, as a main gateway to reform and development in the Arab region.

After previous reports addressed the knowledge performance and status in the Arab region, the shortcomings and the available opportunities and possibilities, the current Report moves on to one of the most important and urgent issues in the Arab development journey; that of the "active integration of the Arab youth in the processes of knowledge transfer and localisation", which the authors of the report have rightly deemed a vital issue for the present and the future.

In addition to presenting a regional comprehensive view of the status, capabilities, cognitive, cultural, economic and societal effectiveness and available enabling environments, and in line with the field approach that the series of Arab Knowledge Reports have tailored for themselves, the current report includes studies and surveys conducted in a number of Arab countries to address the status of the Arab youth. The studies aimed to measure their ability to interact in a productive manner in the processes of establishing a knowledge society, and to garner their opinions about the most important and relevant topics, including values, practices and conceptions of the enabling environment that surrounds them. While these studies presented a real, unique and distinguished field illustration of the statuses, opinions and aspirations of the Arab youth in the countries where the surveys were performed, they also showed the necessity for immediate action to address a great number of issues that relate to the transitional phase the Arab region is currently in, which is facing various developmental challenges, in particular with regard to knowledge. This phase also presents an opportunity for investing in change for the better. We can have, if we want, a historical opportunity to build the knowledge society, fuelled by the momentum of the rising youth and their energies and desires to change for the better to achieve sustainable human development and ensure the welfare of the Arab people.

As the report shows, the Arab communities are no longer capable of sustaining traditional development approaches. They need to adopt innovative approaches to development that would enable them to effectively address the growing challenges on various social and economic levels, as well as on local, regional and international levels. Given the association of knowledge with power and progress, building the knowledge society and economy in the Arab region has become a necessity for prosperity and competitiveness in the current age of globalisation. We must speed up the establishment of the knowledge society, make more efforts to form the youth and provide them with the skills and competences required for active integration in the transfer and localisation of knowledge, in addition to the necessity

of expanding the provision of the required enabling environments based on social justice and the values and principles of enlightened citizenship.

What we have before us is a distinguished work on development and knowledge that will support both the decision-maker and planner in development, as well as the Arab citizen in general. I can only present my most sincere thanks and appreciation to everyone who participated in this great endeavour, including experts, researchers, writers, core team members and editors, as well as the UNDP and the Mohammed bin Rashid Al Maktoum Foundation teams.

Finally, I express my deepest appreciation and gratitude to H.H. Sheikh Mohammed bin Rashid Al Maktoum for his essential and continuous role in supporting the initiatives of progress, development and knowledge in the Arab region and the world. We at the UNDP once again express our honour to have this partnership with the Mohammed bin Rashid Al Maktoum Foundation, along with our dedication to its sustainability and development in order to support the Arab region in its process towards establishing the knowledge society and achieving the highest levels of sustainable human development in the Arab countries and the world as a whole.

Sima Bahous
Assistant Secretary General
Regional Director - The Regional Bureau for Arab States
United Nations Development Programme

Report Team

Readers Group
Ahmed Ouzzi, Ekhleif Tarawneh, Samia Satti-Nour, Adel Al-Shayea, Abderrahim El Atri, Abdelkader Latreche, Ali Said Al-Kaabi, Omar Al Bizri, Kaltham Al-Ghanem, Malek Zaalouk, Moudy Al-Homoud, Nour Eldine Doqi, Walid Zibari, Yousry ElGamal.

Core Team
Hassan ElBilawi (Main author), Najoua Fezzaa Ghriss (co-author).
Members: Driss Bensaid, Amna Khalifa Al-Ali, Khaled Al-Wazani, Abdelwaheb Ben Hafaiedh.

Report Director/Coordinator
Ghaith Hamdi Fariz (UNDP)

Authors of Background Papers
Ahmad Chakran, Ahmad Hajji, Tamer Taha, Hussein Abaza, Khaled Wasef Al-Wazni, Dina Abu Al-Futouh, Sara Hashash, Samia Sati-Nour, Salwa Trabelsi, Sirine Elci, Sherif Kandil, Shukri El Feda, Abderrahim El Atri, Abderrahim Al-Maslouhi, AbdelGhani Mandeeb, Omar Al Bizri, Awatef Sayyah, Kamal Abdellatif, Kamal Naguib, Leila Kabalan, Maged ElCherbiny, Maher Trimech, Mohammad Maleki, Mohammad Zebian.

Questionnaire Design/Tools and Statistical Analysis
- Najoua Fezzaa Ghriss (Questionnaire Design and Analysis Review)
- Hany Torky (Statistical Analysis)
- Faculty of Commerce - Alexandria University (Data Entry)

Implementation of Field Surveys
Report team in collaboration with:
- Jordan: The University of Jordan
- Tunisia: Social Science Forum
- UAE: United Arab Emirates University
- Morocco: Multicom Communication

Mohammed bin Rashid Al Maktoum Foundation (MBRF)

Jamal Bin Huwaireb (Managing Director), Faisal Bujesaim (Executive Director), Saif Al-Mansoori (Corporate Affairs Advisor – MD Office), Hussain Al Shamsi, Lina Al Anani, Wes Harry.

United Nations Development Programme (UNDP)
Sima Bahous (Assistant Secretary General, Regional Director -The Regional Bureau for Arab States), Adel Abdellatif (Chief, Regional Programmes Division, RBAS), Ghaith Hamdi Fariz (Report Director and Coordinator), Tala Khanji, Dima Al-Khatib, Sara Bittar, Stephanie Boustany, Saif Pederson, Tarek Khairallah, Mary Jraidini, Mariam Itani, Hany Torky, Yakup Beris.
Administrative operations: Regional Programme Support Unit

Editors
Arabic: Fayiz Suyyagh
English: Christina Curran

Translation
GMTranslations.me

Cover Design
Ahmad Mohammed Al Khalifi

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CHAPTER ONE:

PREAMBLE

Introduction

The integration of the youth and the localisation of knowledge in the Arab World is a vital issue for the present and the future. In addressing this issue, the current report offers a pivotal step in the journey towards establishing the knowledge society, for which the Arab youth are the main pillar. It is a quest to enable the Arab youth to actively participate in achieving sustainable human development in their countries through the wide horizons of the knowledge society.

As the region's population steps into the 21st Century, the Arab communities are no longer capable of sustaining traditional development approaches. They need to adopt innovative development approaches to enable them to effectively address the growing challenges on various social and economic levels, as well as on local, regional and international levels. Given the association of knowledge with power and progress, building the knowledge society and economy in the Arab region has become a necessity for prosperity and competitiveness in the current age of globalisation. At this stage in history of science and technology, and with the implications of this knowledge and technological revolution in terms of population bulge and a tremendous openness to various nations that constantly compete over the control of knowledge sources and world leadership, the Arab states are facing major challenges. The question is no longer about how to constantly adjust to this "globalised" and "renewable" reality, or how to deal with its impacts and challenges while incurring the least possible damages and maximising its benefits. It is rather about how to change the facts of our reality, including opportunities and challenges, how to deal with these challenges and how to increase the opportunities and transform them to support the empowerment of minds and spirits capable of establishing knowledge societies in the Arab region, while effectively contributing to the global knowledge system and the advancement of human civilisation.

Given the importance of the youth at all stages, addressing the challenges at the present time is of utmost importance. The development phase that the Arab region is going through clearly shows the growing role of the Arab youth and their emergence as a critical mass. The youth are the most powerful age group in society, with the greatest impact on determining the overall developmental course and trends as well as on instilling change and hope for progress in the Arab future. The youth are the pillar of every nation and the most important resource to invest in for achieving integrated and sustainable development. As the Arabic proverb states: "investing in humans is better than investing in stones". Targeted initiatives and effective strategies should be devised to develop the capacities of the youth and turn them into a positive productive force. They must not be merely a force of criticism and objection, but rather one that builds and develops society on all levels. The most important of these levels is knowledge, as it is the foundation from which communities and nations can rise.

The integration of the youth and the localisation of knowledge in the Arab World is a vital issue for the present and the future

The Arab region today – at a time when its people are aspiring to achieve comprehensive and sustainable development – needs to concentrate on two vital areas: establishing the knowledge society and actively engaging the youth in the establishment of this society, while providing the required enabling environments through social justice and supporting the values and principles of enlightened citizenship. We are suffering from a knowledge gap that is driving us further apart from the world and are facing challenges in finding the required enabling environments. Yet, there still exists a historic opportunity to build the knowledge society, fuelled by the momentum of the rising youth and their energies and desires to change for the better to achieve sustainable human development and the welfare of the Arab people.

The Necessity and Challenges

Continuous Steps for Building the Knowledge Society in the Arab World

The two previous knowledge reports established the basic steps towards the goal of building the knowledge society in the Arab region. The first Arab Knowledge Report 2009 "Towards Productive Intercommunication for Knowledge" aimed at exploring the cognitive performance in the Arab region, at a time where the importance and role of knowledge had increased, with all the horizons it opened up in various community aspects. The report identified the developments in relation to countries that had achieved a knowledge society. It showcased the status of Arab knowledge with all its gaps and shortcomings, as well as the promising opportunities that await exploitation. The report, therefore, established a referential diagnosis on the status of Arab knowledge and the spectrum of potential knowledge gains. It also assessed the available opportunities and challenges in relation to establishing the required social, economic and political conditions for knowledge investment. The report concluded that "the Arab region is importing and consuming knowledge products without producing them", let alone localising and nurturing knowledge. It recommended studying the status of the "emerging youth" in the Arab region, and their readiness to assume the responsibility of achieving progress and establishing the knowledge society.

The Arab region is importing and consuming knowledge products without producing them, let alone localising and nurturing knowledge

The second Arab Knowledge Report 2010/2011 "The preparation of future generations for the knowledge society" addressed the foundation for building the knowledge society. Towards that end, the report developed principles on the methodologies and mechanisms of preparing and forming future generations to actively participate in building the cognitive future and accessing its wide horizons. The second report indicated that bridging the knowledge gap was possible if the political will was made available as a first condition, then through mobilising the capabilities and resources required for building the aspired-for knowledge society. The report targeted the youth or the new generations of less than 18 years of age; which represent, on the education scale, the period starting from early childhood until the end of the secondary cycle. This orientation was at the core of the second report that focused on the extent of availability of the necessary triad of skills, values and enabling environments among this age group in the Arab region. The report concluded by identifying the weaknesses of the enabling environments and their failure to prepare the future generations and provide them with the required skills and values to move forward into the knowledge society. The conclusion of the report emphasised the necessity of continuing to study the methods of transfer, localisation, diffusion and employment of knowledge, as well as youth integration in building an Arab development, based on the knowledge society requirements, in order to achieve the welfare of the Arab people and assert their right to a free and decent life.

Within the framework of the Arab Knowledge Reports' enlightening journey, comes the third Arab Knowledge Report 2014, entitled "Youth and Localisation of Knowledge". It is a continuation of the efforts that have started with the first and second knowledge reports and a pursuit of identifying the capabilities and mechanisms that enable the Arab region to achieve the objective of building a knowledge society and participating in the advancement of the global civilisation. The current report aims to discover how to address the integration of the youth, the 19-29 age group, in the processes of knowledge transfer and localisation. It attempts at exploring the opportunities and challenges by identifying the status of the Arab youth with respect to their possession of knowledge, cultural, economic and political skills and activities that enable them to contribute to building the knowledge society. The report also explores the status of the enabling environments and their capability to extend these opportunities to the youth. This approach places the third Arab Knowledge Report 2014 directly in the context of preparing and forming the

Arab people to increase the opportunities of building the knowledge society and benefiting from its fruits, within the wider context and greater objective of achieving sustainable human development.

The Inherent Relation between Knowledge and Development

The organic and dynamic relationship between knowledge and development remains one of the basic principles that has been highlighted in both the first and second knowledge reports. We have established that knowledge is a tool and an outcome of development and have associated the right to knowledge and development with renaissance and enlightenment.[1] This was also confirmed by the World Bank Report 2013 that measured the relationship between the per capita GNP and readiness to the knowledge economy indicated by the Knowledge Economy Index.[2] The connection between knowledge and development is clearly showcased in EU countries, the United States of America and Singapore for instance. These are all countries with a high level of income and readiness, where the annual per capita income is about $52,000 (USA), and $72,000 (Singapore),[3] and the readiness level in terms of the knowledge economy index exceeds 8.7 and 8.2 points out of 10 respectively.[4] This does not deny the existence of other models of wealthy states that have been incapable of turning their natural and physical resources into a knowledge-based capital towards establishing the knowledge economy. This is mostly due to their inability to develop the required enabling environments such as appropriate education policies, the localisation of technology and transparency in the exchange of information.

Far from these exceptions and in conjunction with several reports, one can say that it is hard for the economy of a society to grow and become competitive without investing in its intangible assets, with knowledge at their core. Researchers are unanimous in stating that factors of economic growth are embedded in knowledge, innovation, education, ICT and the impact of developmental research on economic development and job opportunities. Knowledge is a renewable source that accumulates through usage, investment and innovation in contrast to natural resources that are limited and continuously depleting.[5]

What we must emphasise in the context of the inherent relation between knowledge and development is that the core of the development we aspire to supports freedoms. Freedom is development; and freedom takes numerous forms.[6] First, it is the liberation of the individual from poverty and the provision of minimum requirements for a decent life for all members of society. Second, it is the liberation of the individual from unemployment while expanding opportunities for self-fulfilment, and engaging in life and society as a productive member. Labour is the first step in social participation. Third, is guaranteeing the individual's freedom in choosing a job. Fourth, expanding the margins of choice in the labour market to be able to choose the appropriate job. Fifth, the freedom to build oneself and one's own capabilities by expanding education opportunities and guaranteeing the right to healthcare. Sixth, the freedom to move in space and time in search of sustenance and enjoy life according to the options and opportunities brought about by development. As we will explain in a subsequent chapter, these six foundations represent the social and economic conditions that can guarantee the individual's political freedom and the broader participation in the community, as well as social justice and citizenship. Without these social and political conditions there can be no talk of political participation or enjoyment of citizenship rights for any individual. This includes supporting women's freedoms and guaranteeing children's rights.

Studies show that the internal growth expected in the long term, in any contemporary society, is directly and proportionally linked to the productivity of research and development activities (R&D), as well as to the human capital growth rate.[7] Innovations and R&D are the drivers

The organic and dynamic relationship between knowledge and development remains one of the basic principles that has been highlighted in both the first and second knowledge reports

Innovations and R&D are the drivers of internal growth

of internal growth.[8] According to one theory,[9] the investment in these facilities of knowledge is considered to be a major factor explaining the size, structure and dynamics of the industries. Based on this, some studies show that the discrepancies in productivity and growth across countries are related to the quality of human capital and production factors, in particular the capability of creating, producing and employing new knowledge. The studies note the importance of non-materialistic/intangible human capital represented by investments aimed at producing and disseminating knowledge (i.e. the formation, education, R&D, ICT) and investments aimed at supporting the development of the human capital.

Modern literature on development is further evidence of the increasing relative importance of intangible human capital as part of the total wealth productivity and the rising GDP share.[10] For instance, in the United States in the late 1960s, the then-current value of intangible capital supply (dedicated to knowledge and the creation of human capital) exceeded the value of tangible capital (physical infrastructure, equipment and natural resources). This reflected in the development leaps the USA had witnessed in that period. During the last two decades of the previous century, the rates of annual investment in R&D, public education and software steadily grew at an annual rate of 3% in the Organisation for Economic Co-operation and Development (OECD) countries.[11]

Tracing the history of development in the modern age reveals that obtaining scientific and technological knowledge coupled with the ability to use it have become among the critical strategic factors in the economic performance of various countries, particularly with the increase of globalisation and economic competition. The leading countries in knowledge, science and technology have sustained a long-term economic growth rate much higher than that of the developing countries. From 1986 to 1994, the average growth rate for the group of leading countries in knowledge, science and technology was approximately three times higher than that of other countries, where the average per capita income wealth grew by 1.1% per annum, while the per capita income decreased in the group of countries with the least successful performance in those fields by 1.5% per annum during the same period. All these results point to a new breakdown of the global economy, based on the extent of access to knowledge and the ability to benefit from it and employ it.[12]

This also confirms the importance of addressing the transfer and localisation of knowledge as a doorway to development, with an emphasis on the centrality of the human element in this correlation, especially the youth. Thereafter emerges the pressing need to highlight the issue of enabling the Arab youth and inspect the enabling environments available to them, in view of assisting the officials and stakeholders in setting plans and strategies for achieving active integration of the youth in the processes of knowledge transfer and localisation.

But before addressing this vital issue, we must identify the specifics of the Arab context, as well as the opportunities and challenges that need to be addressed.

While the Arab countries are striving to access the knowledge society, certain disquieting reports and studies have emerged during the past two decades

The Arab Context for Development, Knowledge and Youth Integration

A Multi-Faceted Knowledge Gap

While the Arab countries are striving to access the knowledge society, certain disquieting reports and studies have emerged during the past two decades. The two previous Arab knowledge reports showcased the size and dimensions of the knowledge gap in the Arab region. The second AKR 2010/2011 revealed a worrying status of the Arab youth in light of the results of field studies conducted in five major cities and four Arab countries to assess the availability of cognitive, emotional and social skills, as well as the enabling values and environments. It indicated low levels of readiness among the youth in terms of the tools and mechanisms they possess for knowledge-based progress and global

competition; they have not yet mastered the qualifying skills for this purpose. However, the report also showcased certain strengths that can be invested in, and indicated the major elements required for mobilisation,[13] which are also highlighted by the current report.[14]

The two AKRs were not alone in raising the alarm and calling on people to seize the historical opportunity to integrate knowledge, innovation and technological advancement to drive development and prepare the future generations and the youth for this task. International and Arab reports on the status of Arab development and its enabling environments, as well as results of international and Arab tests of cognitive skills of the youth and adolescents in the region, strongly support the existence of a large knowledge gap between the Arab region and the developed world, which is cause for concern and highlights the necessity of mobilisation and action. Most reports show that the pace of progress in knowledge and development across the Arab region remains below the expected levels. This has led to many calls during the last decade to bridge this gap in knowledge and development. One major cause for concern is that reports, studies and experimentations have highlighted a deficiency in the ability of the youth to assume their historical responsibilities in the transfer, localisation and employment of knowledge in the Arab region to keep up with global developments. Several reports and studies attributed this to an inability to provide enabling environments that support and develop the capacities of the Arab youth, or at least protect the youth, especially women, from poverty, unemployment and poor educational service. Worse still, many Arab youth have long been prone to marginalisation and exclusion.

The Arab Human Development reports 2002 and 2003 confirmed the existence of a deficiency in the process of enabling the generations to acquire knowledge in its broad sense, and a decline in many areas of knowledge production, especially in research. It was clearly noted that the Arab countries must take action to create opportunities for the generations to come. This would occur through the adoption and implementation of active policies and strategies for acquiring knowledge and diffusing information technology, in addition to addressing the inefficiencies in education and creating social arrangements that address the issue of youth employment and enable women to participate economically and politically. This in turn supports the creation of a human capital capable of contributing in building the knowledge society. This is the biggest challenge facing the Arab states, and it is not restricted to catching up with other countries on the knowledge indices. It rather transcends this to encompass the hard work needed for effective institutional structures and an accomplished political will backed up by sufficient resources in the region to produce knowledge and employ it in developing high-level technological exports, as a main precondition for achieving the sought-after technological and knowledge revival.[15]

The Arab Human Development Report (AHDR) 2004[16] attributed the deficiency in human development in the Arab countries to the absence of freedoms including societal freedoms, women's freedom and inequality. These all are factors that weaken knowledge effectiveness among the youth, who are the main human capital, and hinder development. In this context too, the AHDR 2005,[17] which focused on "the Rise of Women in the Arab World", stressed that the Arab countries would achieve tremendous gains once it established equality between women and men, especially in the opportunities of acquiring and employing knowledge and societal advancement. It added that what is actually depriving the region from achieving this is the discriminatory practices hindering community advancement and knowledge development.[18] In addition to that, the human development indices indicated that the Arab world was unable to turn its material wealth into a human wealth. The knowledge indicators pointed out that the Arab reality in general was still far from reaching knowledge levels that enable it to achieve "the knowledge economy" required for advancement and

Most reports show that the pace of progress in knowledge and development across the Arab region remains below the expected levels

Despite the progress achieved by some Arab countries in certain knowledge indices, the Arab World KEI prepared by the World Bank for 2012 (which included 17 Arab states) has a much lower value than most of the regions in the world

that constitute a substitute for the current development patterns, which did not lead to significant achievements in developing an Arab knowledge capital.[19]

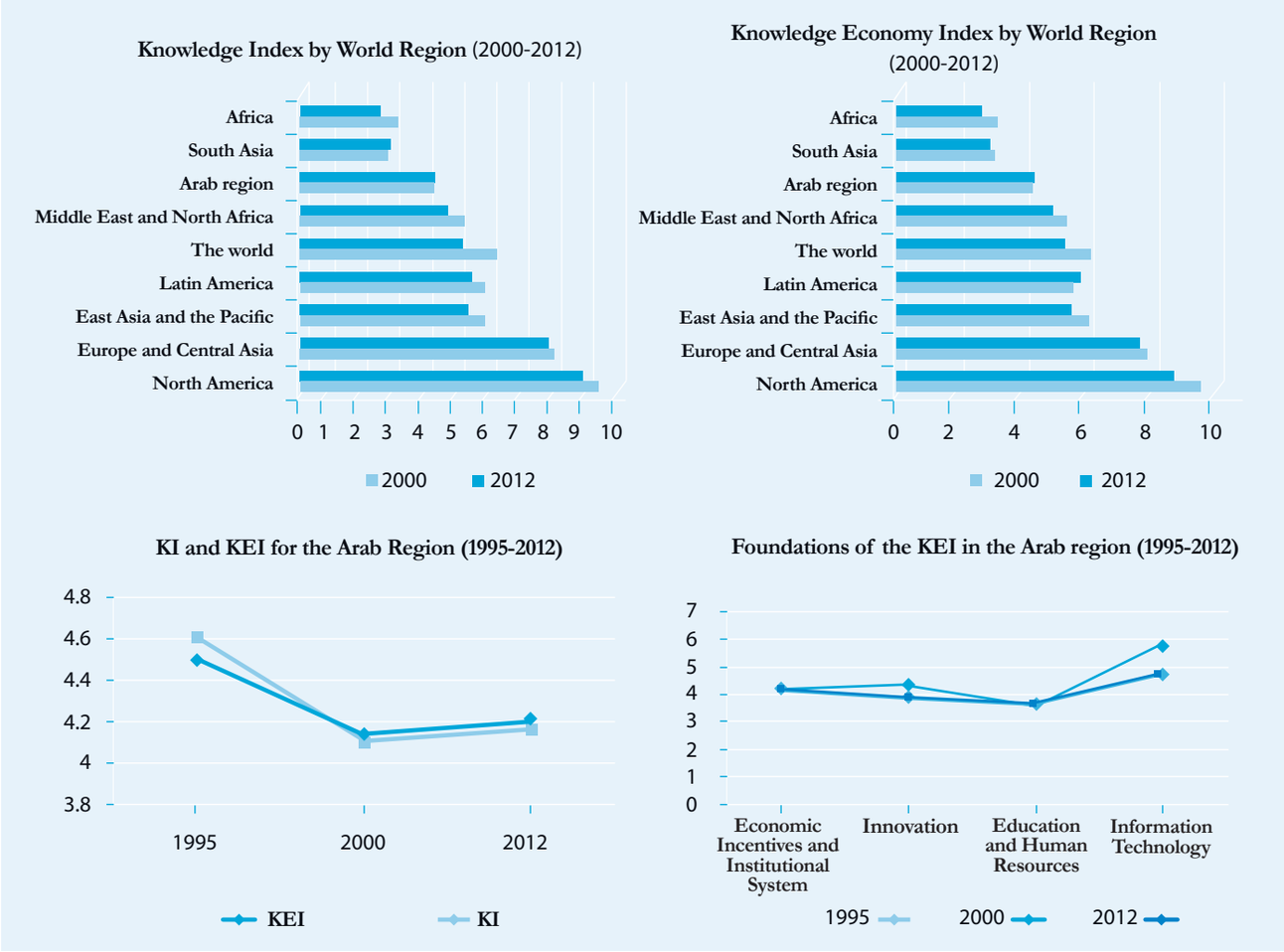
The Evolving Knowledge Gap as Reflected in the Knowledge Indices[20]

The Knowledge Index (KI) prepared by the World Bank[21] indicates a mediocre Arab performance and an increasing gap between the Arab region and other regions of the world, in both KI and KEI from 2000 to 2012. Progress in the Arab region is reported in minute increases in few indices (the KI, the KEI, the Innovation System sub-index, the Education and Human Resources sub-index...). And despite the progress achieved by some Arab countries in certain knowledge indices, the Arab World KEI prepared by the World Bank for 2012[22] (which included 17 Arab states) has a much lower value than most of the regions in the world. These indices confirm the severity of the gap between the Arab region and other regions, where the average performance of the Arab region exceeds only the average performances of both Africa and South Asia but remains much lower than that of North America, Europe, Central Asia, East Asia, Pacific, Latin America and the world. This is evident in Figure 1.1, which shows the progress in the KI and the KEI for the Arab region, compared to other regions of the world from 2000 to 2012.[23]

The World Bank Index also reveals some discrepancies in the performance of

Figure 1.1

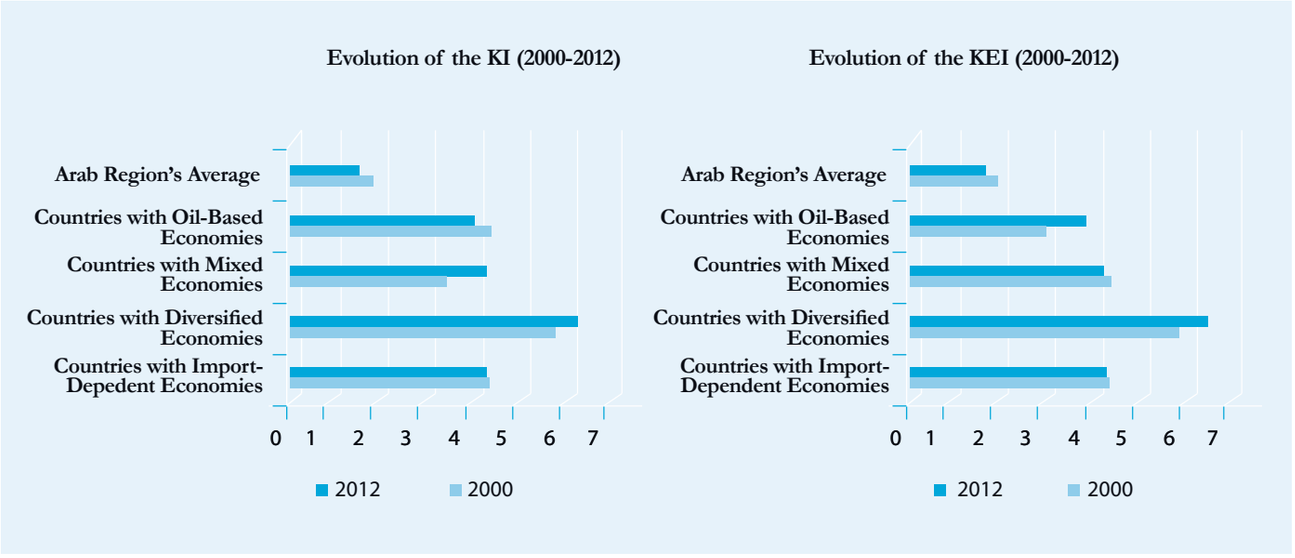
The Evolution of the KI and the KEI for the Arab Region and Other Regions of the World between 2000 and 2012



Source: World Bank data and statistics KAM. World Bank 2012.
Note: The statistics for the Arab region were calculated based on the data for the Arab countries available in the World Bank Database (Samia Satti, background paper for the report).

Figure 1.2

The Evolution of the KI and the KEI for the Arab Region According to the Type of Economy between 2000 and 2012



Source: World Bank data and statistics. World Bank 2012.
Note: The statistics for the Arab region were calculated based on the data of the Arab countries available in the World Bank Database (Samia Satti, background paper for the report)

knowledge indices across the Arab countries, asserting the precedence of the oil-based economies, the Gulf States, over other Arab states. While the countries' ranking in 2012 compared to those of 2000 revealed advancement in the positions of some Arab states and the regression of others,[24] the data also clearly shows that the advancement of the Arab region towards the knowledge economies and in bridging the knowledge gap is still insignificant. This is particularly true when compared to the increase in the developmental requirements and challenges resulting from structural changes, including the increasing population, the change in living patterns and the rise of the youth.[25]

The Evolving Gap as Reflected in International and Arab Competitiveness Indices

The consecutive global competitiveness reports are considered among the important references and indicators on the economic and social conditions of the countries, as well as their relative rankings.[26] "Knowledge", with its components and indices, is of major importance in determining the competitiveness rank of countries in the Global Competitiveness Index. This index features many sub-indices that are directly related to the pillars of the knowledge society, such as education, technology, formation and creativity, where the cognitive element is reflected in indirect forms in all the indices used in the Global Competitiveness reports.[27]

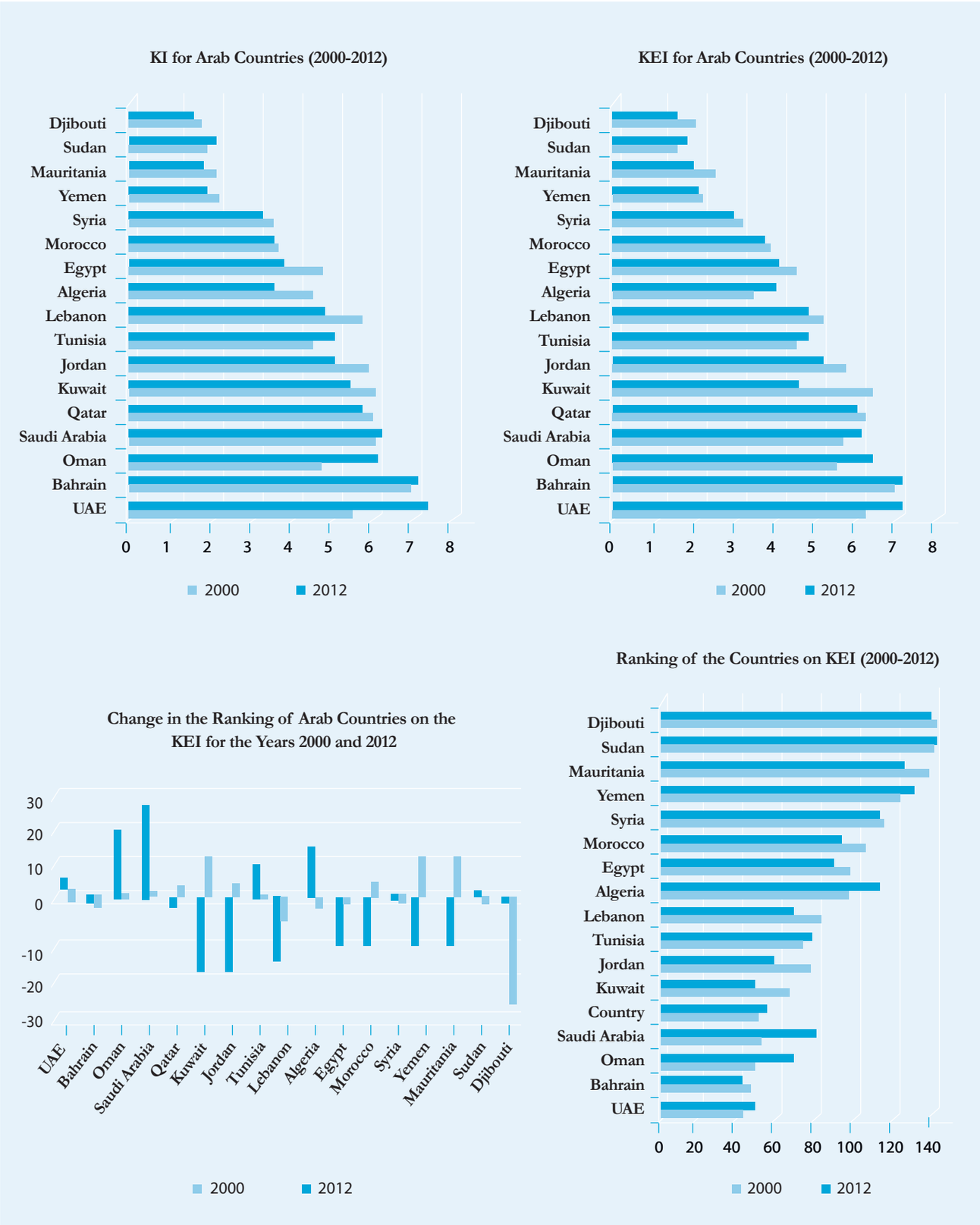
The ranking of the Arab states in the Global Competitiveness Report 2013 – 2014 reflects the developmental economic and social conditions. And to a great extent, it reflects the knowledge conditions with all the gaps and discrepancies they entail, whether across each other or with other world countries. Among the 148 states that were listed in the Global Competitiveness Report published by the World Economic Forum, the Gulf countries in general have occupied relatively advanced positions, reflecting their economic advancement, and their advancement in the knowledge axes. Qatar ranked 13th worldwide, followed by the UAE at 19th and Saudi Arabia at 20th. On another hand, other Arab states came at low positions on the international list, where Mauritania ranked 141st and Yemen 145th.[28]

There has been a recent increase in the interest in competitiveness as a theoretical concept and as a topic linked to development and social welfare. In light of this, the concept

Among the 148 states that were listed in the Global Competitiveness Report published by the World Economic Forum, the Gulf countries in general have occupied relatively advanced positions, reflecting their economic advancement, and their advancement in the knowledge axes

Figure 1.3

The Evolution of the KI and the KEI for Selected Arab Countries between 2000 and 2012



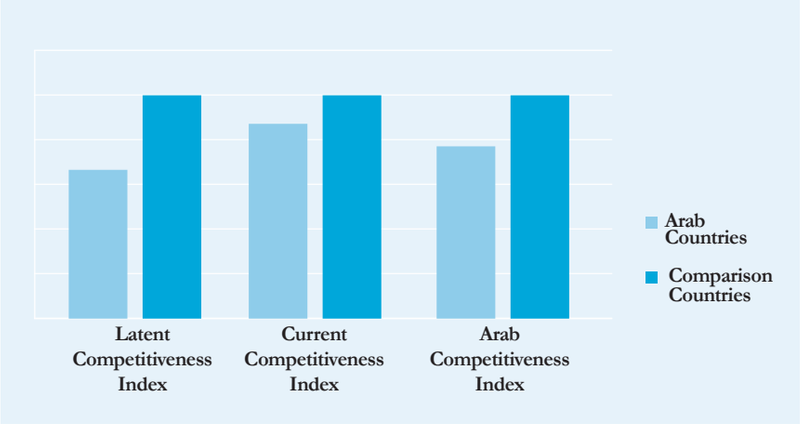
Source: World Bank data and statistics KAM. World Bank 2012.

of "Competitiveness" was reformulated and removed from the scope of traditional economic theories which rely on the revealed comparative advantage represented in the availability of natural resources and production factors. It was placed within the acquired competitive advantage, which can be developed by adopting a targeted and conscious policy aimed at building a national competitive ability, particularly if there is an absence of resources.[29] In this context, the Arab Planning Institute in 2003 came to develop the competitiveness concept and the methodology for its measurement. This led to the creation of an indicator to measure and monitor the competitiveness of the Arab states in international markets. The index is composed of two sub-indices. The first focuses on the current performance and the factors that influence it, such as market structure, business climate and companies' operations and strategies, while the second is the latent competitiveness; the deep-impact capabilities which guarantee the sustainability of competitiveness, then the sustainability of growth and the achievement of economic and social development objectives, especially if coupled with policies directed towards achieving these objectives. Three main areas have been defined to determine the latent competitiveness: the human capital, the localisation of technology and the technological infrastructure.[30]

It is to be noted that the Arab Competitiveness Report differs from international reports in terms of the number of countries listed in the ranking and their selection based on their relative performance, which relies in its calculations on the comparison of Arab states to a group of non-Arab countries representing a benchmark to the Arab performance in international markets.[31] These countries have been selected because their performances were at some point in the past similar to that of the Arab countries, but they surpassed them in competitive performance.[32] This report revealed the superiority of the comparative performance and individual performance of the concerned states over the performance of the Arab region, whether at the level of the aggregate indices or sub-indices (0.5 for the comparison countries on the competitiveness index versus 0.39 for the Arab countries).[33] The chart (Figure 1.4) indicates the gap between the performances of the Arab states as a group, versus the group of comparison states.

Figure 1.4

The Arab Competitive Performance and That of Comparison Countries



Source: Arab Planning Institute 2012.

As for the ranking of the countries in the Arab Competitiveness Index, Bahrain came 4th (an average of 0.53) and UAE 5th (an average of 0.52). These are the only two Arab rankings among the top 10 countries, headed by South Korea (an average of 0.68), then Ireland (an average of 0.65), Malaysia (an average of 0.53), while Sudan, Yemen, Mauritania and Syria held positions in the last five ranks.

The Arab region's index for the year 2012 compared to that of 2009 reveals a decline from 0.33 to 0.11,[34] a drop that the report attributed to the performance of the Gulf States which achieved advanced positions, where their average reached 0.48. The decline included the current competitive gap, where the region had an aggregate economic performance index equal to that of the comparison states (0.51), and slightly surpassed them in terms of the government intervention index (the average for the Arab states is 0.62, the comparison states 0.59). The region recorded averages that were close to those of the comparison countries in most of the other current competitiveness sub-indices, except the governance and

institutions' efficiency index, where the gap amounted to approximately 30%, and the cost of doing business (a gap of 21%).

In latent competitiveness however, the Arab region needs to make long-term efforts and investments, particularly in developing technology infrastructure, the human capital and innovative energy. The gap reached 30% between the Arab region and comparison countries; South Korea ranked first scoring 0.74 on the Latent Competitiveness Index. The two Arab states that ranked in the top were Bahrain (8th position, scoring 0.48) and the UAE (9th position, scoring 0.47).

The Global Innovation Index 2014 indicates a major gap in the innovation indices and knowledge indices in the Arab region

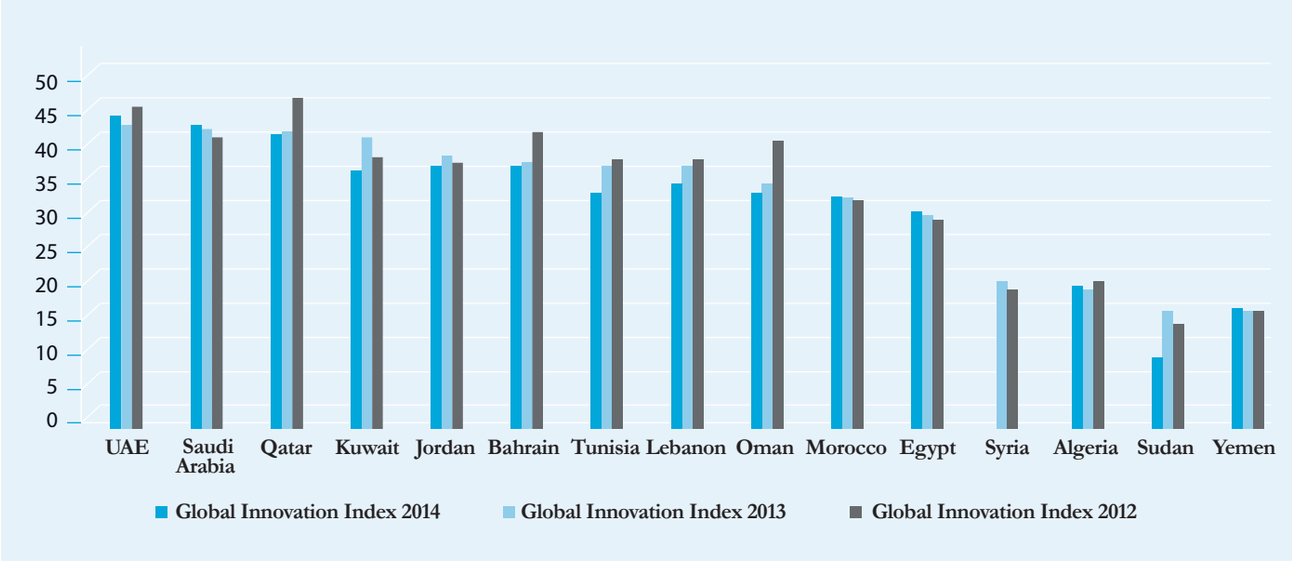
There is no doubt that the indices on which latent competitiveness is built are closely and organically related to all of the development pillars, as well as with the knowledge status and the other competitiveness indices. The Innovative Energy and Localisation of Technology Index, in which the Arab region shows a gap of 50%, has an impact on other basic indices, such as the Human Capital Index. The report mentioned several problems facing the Arab countries in this regard, of which include: "the few resources allocated to R&D, the scientific research options, fields, quality of outputs and prospects of its application, in addition to weak basic ties between education, technology and production, as they work separately".[35]

The Evolving Gap as Reflected in the Global Innovation Index

Business School for The World, known as INSEAD, has been publishing the Global Innovation Index (GII) annually since 2007. The 2014 report was published in partnership with the World Intellectual Property Organisation (WIPO) and Cornell University. This index is not only concerned with measuring the inputs and outputs of the innovation process, but rather with the wider innovation policies that aim at creating the innovation links through the partnership between industry and knowledge, the formation of innovative groups and the spread of knowledge. The GII 2014 indicates a major gap in the innovation indices and knowledge indices in the Arab region, reflected in the value, rank and progress of the "Global Innovation" indices for the region, in comparison to other regions of the world. The Index also shows the discrepancy in performance in some knowledge indices across Arab countries, with the Arab Gulf countries of oil-based economies being more advantaged (Refer to Figure 1.5).

Figure 1.5

The Evolution of the Global Innovation Index (GII) for Arab Countries (2012 – 2014)



Source: Cornell, INSEAD & WIPO 2014.

On the sub-indices level, Kuwait ranked first in the per capita average of the Electricity Output Sub-Index. Qatar ranked second in the Technology & Organisational Model Creation Index and first in the Innovation Linkages Index, where UAE ranked second. UAE ranked first in the Ease of Paying Taxes Sub-Index, followed by Qatar in second place and Saudi Arabia in the third. UAE shared the first place globally with Oman, Jordan and Bahrain in the Cost of Redundancy Dismissal of Workers Sub-Index. UAE also shared first place globally with Oman, Qatar and Jordan in the Strategic Alliance Deals sub-index. UAE has also ranked first globally in the Intangible Creative Outputs Assets index, followed by Saudi Arabia in fifth place.[36]

It appears, from what preceded, that the situation of knowledge in the Arab region has witnessed a slight progress, with the persistence of discrepancies of varied importance from one country to another and from one field to another, as well as the widening of the gap between the Arab region and other regions of the world. This is evidenced in several indices: the implicit knowledge, the written knowledge and the World Bank indices, which include the KI and the KEI (the pillars of economic incentives and the institutional regime, education and human resources, the innovation system, and ICT). All of this confirms the currently limited capability of the Arab countries to produce, employ and diffuse knowledge in the Arab region, which requires drafting optimal strategies that can support the development of knowledge, and this is to be addressed in subsequent chapters.

The Youth Bulge in the Arab Region

The Arab region is considered among the regions of the world with the highest population growth rates, estimated at approximately 2.4% annually between 1980 and 2010,[37] and 2.06% in 2013.[38] The total population in the Arab states in 2012 was estimated at approximately 370 million people.[39] The available data indicate that the proportion of the population in the Arab region belonging to the economic activity age group (15 – 64) is approximately 63% of the total population according to 2013 estimates.[40]

The Arab Development Challenges Report 2011 estimates, for instance, the population of the Maghreb states [Morocco, Algeria and Tunisia] at around 84.7 million in 2010, expected to increase to 90.5 million in 2015. The percentage of the youth in the age group 15-24 in these states reached 20% in 2010, and it is the same percentage for the entire Arab region; while the age group 25-64 had a percentage of 48% in the Maghreb states and 43% in the Arab region for the same year. It is to be expected that this percentage will in 2015 reach around 51% and 45% in the Maghreb states and the Arab region respectively. In Egypt, the population reached 84.5 million people in 2010, and is expected to reach 91.8 million in 2015;[41] the youth (15-24 years) constituted 20% of the population in 2010, and the percentage is expected to decrease to 18% in 2015. The Arab Development Challenges Report states that the expansion of the youth proportion in the region will increase to its highest levels in 2015 in countries such as Yemen and the state of Palestine, while it is expected to decrease in other countries like UAE, Tunisia, and Qatar.[42] The general percentage of the youth will drop in 2025 to 17% approximately, but the actual numbers of youth between 15 and 24 years are expected to increase by more than 7 million people for the total regional population.[43]

What raises concern in this demographic situation is that the estimates of the age group under 15 years for the year 2015 amount to 32%,[44] and that more than half of the population in the Arab region is under 25 years of age. In addition, and according to some estimates, one in every five people in the Arab region is aged between 15-24 years.[45] These percentages indicate that the Arab youth will, for the years or decades to come, put increasing pressure on resources in the Arab region to provide education, work and social services. If these needs are not fulfilled, this will lead to the spread of illiteracy and ignorance, with an increase in unemployment and poverty rates and

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Table1.1

Statistics and Proportion Estimates for the Population under the Age of 24 in Selected Arab States (%)

Country	2000	2020	2030
Egypt	55.7	32.5	28.1
Iraq	61.7	53.9	47.2
Yemen	65.3	68.4	65.7
Algeria	56.5	40.9	37.4
Morocco	55.1	43.4	38.4

Source: Cabras 2010.

what this entails later in terms of negative social effects, an increase in instability and escalation of radical movements. The mobilisation of the youth since the end of 2010 and to now, must be seen as a possible result of neglect by the Arab societies. Such results can include regression of personal, social and economic development, in addition to threatening the foundations of cultural cohesion and social stability in these communities.

This demographic challenge exists in all countries of the Arab region; the rich and the poorer ones

The youth status constitutes a challenge, particularly with the high rate of population growth in the region; even if it has relatively decreased in recent years. This places a lot of pressure on policymakers to establish a clear development vision and effective strategies in light of the accelerating global variables and culture requirements of the knowledge society era. This is possible by leading the process of investing in the youth capital, or more appropriately, asset, not only to drive economic growth, but also to achieve the historical task of Arab advancement. This demographic challenge exists in all countries of the Arab region; ther rich and the poorer ones. The countries that produce oil and enjoy wealth need labour, and they have become targets for willing workers. However, as the numbers of incoming workers are growing, exceeding sometimes more than double the numbers of the citizens themselves, new challenges and concerns are arising, especially over the economic and social compositions of these states. However, this does not overshadow the challenge of active integration of young citizens in the Gulf States in the development process, including the participation in the transfer and localisation of knowledge. As for less developed countries, such as Yemen, the challenge lies, in addition to poverty, in the mixture of the tribal and religious composition with the demographic constitution.

There is also preliminary evidence that raises concern over the current policies and their ability to make a change in the development pattern, achieve a historical quantum leap in terms of preparing the youth and expand the opportunities and capacities of participation and advancement in the Arab region. These challenges are exacerbated by the different forms of marginalisation and social and political exclusion of the youth in many countries,[46] the insufficient environments of equality and deficiency in social justice policies,[47] the continuity of some forms of gender discrimination,[48] the weak quality of education,[49] the deficiency in health and food[50] and high unemployment rates among the youth (27%) which significantly exceeds the global rate (12.6%).[51]

All these issues raise concern about the future of the youth and the capability to prepare them for the historical mission of establishing the aspired-for knowledge society.[52] They also raise concern about the future of the Arab region in an era of globalisation where only those capable of competing in education, knowledge and technology shall prevail.

On the opposite side, there are many successful models worldwide on youth welfare and empowerment; in relatively small states (such as Finland and Singapore), middle-sized states (such as the Republic of Korea), and other large states (such as

China and India). These have been able, in varying degrees, to invest their human resources in building a cognitive human capital that encompasses education, knowledge, skills and technology, thereby gaining a technological grasp and effectively competing in the world economy. The question to be posed here is: can Arab states adopt serious policies and strategies that can transform this demographic challenge of youth inflation from a developmental threat into a developmental opportunity? Can these policies succeed in forming the youth and engaging them in the processes of knowledge localisation while achieving a social and cultural change coupled with economic growth? Can this be achieved while also transforming the youth into a knowledge-producing force that contributes to the achievement of economic growth, in areas where only developed countries or countries that are earnestly striving to access the knowledge society will thrive?

The demographic status of the Arab youth oscillates between optimism and pessimism. There is a sociological and economic truth indicating that when job opportunities increase, the youth group becomes a source and a support for an incentivising force. This status of the youth in the Arab world can create a favourable opportunity for the success of development; if the Arab countries succeed in integrating the youth effectively in the development process. The labour force in the region outnumbers the retired elderly. This is an opportunity that will remain until 2050, as is the case in Iraq, Yemen and Gaza.[53] However, the situation might change when job opportunities become scarcer. This youth could become a dangerous force that might threaten social stability and hinder development. Therefore, the status of distorted development might transform the youth inflation in Arab countries into a channel of exhausting resources instead of being a source of strength and economic and social development.[54]

Herein lies the root of the problem: the youth represents, in any given society, a force for change and a lever for advancing towards the transfer and localisation of knowledge with what they own in terms of cognitive and economic efficiencies, participation in production, high productivity and strong incentive in knowledge economies. Nevertheless, in the Arab world, we find them to be marginalised and excluded. The question therefore becomes: what is the cost of excluding and marginalising the youth (in aspects of unemployment, idleness, dropouts, the weakness of education quality and vocational formation, immigration, poverty and weakness of participation)?

The Challenges Facing the Integration of the Youth in Knowledge and Development

The knowledge gap and the youth bulge are two major indicators that raise concern over the future of the knowledge society in the Arab region. They point out the necessity of economic and political reforms to expand the opportunities for growth and development and integrate the youth as a productive force in the process of the transfer and localisation of knowledge. This would pave the way for a move towards the knowledge economies and political and developmental systems capable of integrating into the global culture for the welfare of the Arab people. However, the Arab region is facing, in addition to the knowledge and youth integration gap, a series of challenges in moving towards the knowledge economy. These differ in their nature and intensity according to the diversity of the countries in the region, which vary between those that are rich in resources and/or labour; and others that are rich in resources or that import labour; and underdeveloped countries.

The first challenge to the processes of transfer and localisation of knowledge lies in the weakness of education, training and scientific research institutions, on which the preparation of the human capital capable to achieve this mission depends. This results in the spread of illiteracy and technological illiteracy, and the emergence of a knowledge and skills gap between education outputs and the needs of the labour market. This is due to the weak foundation of human

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capital which has led to a lack of young people trained in knowledge management, a limited capability of benefitting from advanced ICT, and a lack of information systems and databases for disseminating and employing knowledge. Furthermore, the new projects in the region were restricted to the transfer and use of technology instead of the processes of the transfer and localisation of knowledge and technology. The lack of technical cadres has also led to the weakness of both research and development networks and innovation and renovation ones. This has resulted in the absence of relations and networks of communication between research centres and universities and between research centres and production and investment sectors.

The second challenge is embodied in the expansion of the governmental public sector, and its ability to attract young job seekers. With employment being solely based on diplomas and not on merit and competency, the youth have lost the motivation to acquire new skills and knowledge that prepare them for the knowledge economy; as long as the governmental sector is guaranteeing them a secure job they will accept it, even if it offers lower wages. The reports indicate that the public sector in the countries of the region has expanded to great degrees, providing 22% of the total jobs in Tunisia, approximately one third of the jobs in Syria, and 35% in Jordan and Egypt; while if the agriculture workers are not to be included in the number of workers, this percentage will increase to 42% in Jordan and 70% in Egypt.[55]

The third challenge is the weakness of the private sector, which in turn leads to the weakness of the manufacturing industries. For instance, a study conducted in Sudan in 2010 linked the limited benefits from foreign projects and their returns in terms of technologies, to the weakness of the local producers and suppliers. Another study confirmed that the absence of the private sector and the weakness of entrepreneurship were hindering the localisation of knowledge and technology. The obstacles lie in the scarcity of supply and local resources necessary for producing knowledge, as well as in the shortage of internal demand that motivates production and not appropriately benefiting from the knowledge and technology that are transferred.[56]

The fourth challenge is related to the weakness of the private sector and the expansion of the public sector, and lies in the weakness of the entrepreneurship public policies in the countries of the region. A report on world competitiveness indicators in the Arab region showed that while the project registration rate for every 1,000 workers aged 15-65 years was 4 in the high-income states in the world, this rate was around 0.666 projects per 1,000 workers in the MENA countries, which are mostly Arab states; an average that slightly exceeds that of the countries of Sub-Saharan Africa. The report stated that Tunisia and Oman ranked first among the Arab states in the averages of entrepreneurship projects, with approximately one project for every 1,000 workers of the labour age.[57]

The fifth challenge lies in youth unemployment. As previously noted, the youth bulge in the Arab region is among the highest in the world, and features at the same time the highest unemployment rates. This marginalisation of young men and women in the labour market will lead to their marginalisation in all areas of public life (e.g. the inability to own a home, consumption, delayed age of marriage), and will hinder them from moving into adulthood. This makes the Arab region lose the force that can bring about the transfer and localisation of knowledge, and its transition to the knowledge society. In this context, the UNDP Report confirms that the Arab countries are in need of around 17 million new job opportunities until 2020, in order to maintain a constant level of unemployment. It is to be noted that this number would increase to about 28 million if the Arab region seeks full employment, and a more challenging 56 million jobs to achieve full employment with a high level of women participation in the labour force.[58] [59]

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the Arab brain drain. Among all region in the world, the Arab region is one of the most affected by the emigration of highly skilled academics and researchers. Migration estimates show that between 10 to 15% of the Arab youth migrate, and that the migration rate is high among graduates of higher education institutions (9% on average) in the MENA region, which is constituted mostly of Arab countries. This is double the global rate. The rate increases to reach 35% in Lebanon and 17% in Morocco. This results in a loss of human capital in these countries.[60]

The seventh challenge lies in the weakness of governance, especially with respect to the mobilisation of institutions, and the lack of transparency. Economic researchers agree that transparency and integrity play a role in motivating the markets and incentivising the capitals. The absence of these factors weakens the economic mentality. In this respect, the Global Transparency Index points to a decrease or stagnation in the vast majority of the Arab states regarding the value of the Index between 2012 and 2013. Most of the Arab states occupied positions below the top 50, except UAE (rank 26 of 177) and Qatar (rank 28), while 6 Arab states recorded positions among the last ten. These are: Yemen (167), Syria (168), Iraq (171), Libya (172), Sudan (174) and Somalia (175).[61]

The eighth challenge is that of the Arabic language. There is no doubt that language is a receptor that fosters, feeds and establishes the pillars of culture and knowledge. Within this scope, especially if we consider the pivotal role of language in fostering and feeding knowledge, the creation of the knowledge society calls for continuous care, development and reform of the language, in line with the changing and increasing requirements of the knowledge societies and economies. Furthermore, neglecting such a need can be very costly when it comes to the cognitive, cultural, social and economic aspects. Reform and support in this context refer to enabling the language to play its knowledge-incubating role, as well as its role as a facilitator and a yielding instrument for creativity and productivity, instead of holding on to rigid undeveloped moulds. Within this general scope, the Arabic language is facing a number of challenges in which the cultural, institutional and internal factors mix, as will be elaborated in Chapter 4.

In conclusion, despite the major importance of human capital on all levels of sustainable human development and in building the knowledge society, as well as the impossibility of moving forward without the human element, the Arab states are still far from what is required to achieve tangible results. The outcomes and facts revealed in international and Arab reports, as well as scientific research, highlight the great responsibility that has been placed on Arab researchers and intellectuals to continuously research and investigate issues of knowledge and youth empowerment and approaches for preparing them for the transfer and localisation of knowledge as well as providing enabling environments in politics, economics, society, culture and language. This shall assist Arab governments in assuming their historic responsibilities and adopting national policies that can effectively achieve the aspired-for quantum leap in Arab development and move from traditional economic activities with low knowledge added-value, to a new development structure aimed at building a knowledge society with the active integration of the youth in the global competition arena. This would result in greater advancement and welfare for the generations to come; a decent living, justice and freedom for the people in the Arab region. This is what makes the integration of the youth in the processes of knowledge transfer and localisation a multi-dimensional and challenging issue.

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General Methodology

This report adopts three approaches for critically and comprehensively addressing the central issue; "the efficient integration of the Arab youth in the transfer and localisation of knowledge". The first approach is based on a desk review that offers a critical analysis of the results of the available international reports, scientific research, as well as international

and Arab literature, that are relevant to this report's intellectual frameworks, and thus providing a continuation of the methodological journey towards the establishment of the knowledge society in the Arab region since the first AKR report in 2009. A comprehensive critical review has been carried out on the most important and relevant regional and international literature, including those issued by the United Nations, international organisations, the World Bank, the Arab Monetary Fund, the International Monetary Fund, the International Labour Organisation and the Arab Labour Organisation, as well as the most important studies and research issued by Arab and international research centres and bodies.

In continuation of the field approach adopted by the previous Arab Knowledge Reports, a field survey was conducted in 4 Arab countries (Jordan, UAE, Morocco, Tunisia)

The second approach, and in continuation of the field approach adopted by the previous AKRs, is the field study carried out by the AKR team on the status of the youth and their integration in the process of the transfer and localisation of knowledge. The research included four case countries: the UAE, Jordan, Tunisia, and Morocco. It adopted two testing tools to measure a range of cognitive skills and on a questionnaire to gather the views of students and their perceptions concerning the mechanisms of the transfer and localisation of knowledge and the associated enabling environments.

The third approach is also an inclusive one, and it included the organisation of national and regional meetings and brainstorming workshops with a selection of participants from a variety of backgrounds related to the topics of this report. Brainstorming workshops were organised in Tunisia, Jordan and the United Arab Emirates. They brought together, in addition to groups of university students, influential intellectuals, researchers and specialists from various Arab countries and from different sectors related to the topic of the transfer and localisation of knowledge.

Structure of the Report

Within the developmental context in the Arab region and the surrounding obstacles and difficulties faced by the region in building the knowledge economy and the knowledge society, the issue of the integration of the youth in the process of the transfer and localisation of knowledge requires addressing three dimensions:

- The first dimension is the challenges posed by the knowledge gap: the Arab world experiences a "knowledge gap" as shown by the various knowledge indicators as well as Arab and international competitiveness indices. This gap is represented by the fact that the Arab region lacks the main engines to bring about tangible development with regards to the requirements of the knowledge economy and the knowledge society.

- The second dimension is the challenges associated with the youth bulge: the Arab world faces a demographic reality characterised by a large and unprecedented "youth bulge". The Arab world has yet been unable to transform this bulge into a "human capital" capable of effective engagement in the processes of knowledge transfer and localisation.

- The third dimension is the challenges of the surrounding environments: the Arab world faces a range of challenges related to knowledge, youth and the surrounding environments (cultural and institutional). Such challenges weaken the efforts aimed at the transfer and localisation of knowledge and at integrating the youth in these processes, and thus hinder the bridging of the knowledge gap and prevent the building of the sought-after knowledge economies and societies. This inability means that there is a necessity to rehabilitate the Arab environments to become more supportive and empower young people to carry out their vital role in achieving a knowledge renaissance.

These are the most important dimensions that constitute the essence of the issue addressed in the present report, which

aims at enriching the intellectual dialogue on the situation of Arab knowledge, and putting further pressure on the Arab region to find ways to address the challenge of the transfer and localisation of knowledge through reinforcing the role of the youth and increasing their readiness to effectively integrate into the process. This would set the foundations for a new Arab development based on the knowledge engine and achieve at the same time cognitive security, economic growth, social justice and progress in civilisation.

In addressing the issue of youth integration in the processes of knowledge transfer and localisation, this report builds on an in-depth understanding of the importance of knowledge and its necessity to bring about the economic development capable of expanding the opportunities for young people and unleashing their creative abilities. The report comprises six main chapters. The introductory chapter addressed the importance of knowledge and the challenges faced by the Arab region in its pursuit of knowledge economies and the knowledge society. The chapter noted the widening knowledge gap in the Arab region based on the available standards, including those from the World Bank, the Arab competitiveness and the GII. The second challenge according to the chapter is the youth bulge, which should be transformed from being a burden on development to a lever for development and progress brought about by the transfer and localisation of knowledge. The third challenge is related to the pattern of economic and social development which, as data and analysis show, is a rentier system that neither provides sufficient employment opportunities for the Arab youth nor predisposes the establishment of knowledge societies and knowledge economies. This is reflected in high unemployment, the inflation of the public sector, the weakness of the private sector and the inability to create systems of equality and participation, as well as the weakness of scientific research systems necessary for development processes that lead to the knowledge economies.

The second chapter discusses the key concepts related to the variables needed to address the knowledge gap and build competitive economies that focus on scientific research, development and innovation. The discussion highlights the importance of four factors – knowledge, youth, development and globalisation – as an integrated system in which each factor interacts with the other. The chapter goes over the intellectual efforts to define the youth, taking into account the different concepts and classifications, and justifying the selection of the age group, 19 to 29, for the field studies sample; the category of young people pursuing undergraduate and graduate studies and on the verge of stepping into the labour markets. In all cases, youth is a state of psychological and social awareness that reflects the period of transition to adult life and the integration in it. As for the concept of globalisation – the third concept – the chapter also discusses its meanings, historical developments and the relation between this and the technology and knowledge revolution, the emergence of giant multinational corporations and the associated tools in the regulatory and governing institutions, including the World Bank and the World Trade Organisation. In addressing the fourth concept that completes the quartet, namely development, the discussion focuses on the concept of the knowledge society in its broader social, cultural and economic dimensions. This leads to an emphasis on the fact that the elements of the knowledge society are not only limited to knowledge but also include elements of social justice and cultural contexts based on the triad of: the development of individual capacities, the enabling environments and positive citizenship based on participation, equality and women's empowerment.

In light of what is presented in Chapter 2 in terms of frameworks and concepts, the third chapter addresses the issue of efficient youth integration in the transfer and localisation of knowledge. It addresses the issue through four axes: the cognitive effectiveness, the cultural effectiveness, the economic effectiveness,

In addressing the issue of youth integration in the processes of knowledge transfer and localisation, this report builds on an in-depth understanding of the importance of knowledge and its necessity to bring about the economic development capable of expanding the opportunities for young people and unleashing their creative abilities

and the social effectiveness. The cognitive effectiveness is identified in four levels: the first refers to the extent to which young people master the minimum basic level of required knowledge and skills. The second level refers to the extent to which young people have distinctive knowledge and skills that enable them to interact with the requirements of globalisation and the building of a knowledge society. The third level deals with young people's capability in dealing with technology, notably ICT. Then comes the fourth level, which discusses the ability of young people to conduct scientific research and innovate, given that these are some of the most important pillars in contributing to the development of a country and supporting its capacity to compete globally. The chapter also addresses cultural efficiency, noting the various factors influencing the formation of culture, values and identity among young people in open worlds that are expanding with knowledge societies, globalisation and the ICT revolution. The chapter explains the different influences of multiple factors; from what people are exposed to or what they inherit, the openness to the world, the absence of cultural development policies, the emergence of an intergenerational cultural disparity, and the emergence of a hybrid culture among young people. This chapter also addresses the economic and social efficiency of young people through the analysis of the states of unemployment, the absence of social justice, weak protection policies and the marginalisation of women.

The report emphasises the role of universities and higher education institutions as incubators and as a key mechanism in the preparation and rehabilitation of young people to this historic task of dealing with knowledge, globalisation and development in their countries

The fourth chapter then discusses the enabling environments that are favourable to the formation of young people, with and through which they deal with the processes of knowledge transfer and localisation. The chapter stresses that these enabling environments are either supportive or inhibitive to the ability of the youth and their integration into the processes of the transfer and localisation of knowledge. The chapter emphasises the role of universities and higher education institutions as incubators and as a key mechanism in the preparation and rehabilitation of young people to this historic task of dealing with knowledge, globalisation and development in their countries. It also discusses the status of scientific research and innovation in terms of regulatory policies and the governance of incubating institutions and their structure. The chapter then tackles the third element in enabling environments, i.e. development, in terms of its nature, the level of conduciveness of governance, the labour market atmosphere, the foreign direct investment, and the poverty situation that cripples all human capabilities.

The fifth chapter presents the results of the field study conducted by the AKR team on a sample of higher education students in four Arab countries (the UAE, Jordan, Tunisia, and Morocco). The study was based on tools that were developed and tailored specifically for the purposes of this report. One such tool was a test to measure a number of cognitive skills and a questionnaire to collect data on youth activities, the surrounding enabling environments and youth's relationship with the issue of the transfer and localisation of knowledge. The results revealed a lack of required skills, along with a low level of cultural, economic, social and political events. They also showed a variation in the degree of satisfaction with the various components of the higher education system, and with the role of economic and youth institutions in empowering young people and helping them integrate into the processes of the transfer and localisation of knowledge. The chapter concludes with a set of major findings and recommendations to better enable young people to perform their role in achieving the development of their society at all levels.

The report concludes with a sixth chapter that sums up the challenges identifies and indicates the dilemmas and problematics of the status of the Arab region in its interaction with this historical process aimed at the efficient integration of young people in the transfer and localisation of knowledge. Following the approach of the previous knowledge reports, the chapter provides a future vision on how to navigate the "ship of Arab knowledge". The sail of this ship relies on building the capacity of youth, its base is

the enabling and supportive environments, its body is the processes of knowledge transfer and localisation, and its main engine is the mechanisms to activate the efficient participation of the youth in the transfer and localisation of knowledge. These elements are only complete with the activation of the mechanisms of governance, accountability, openness, communication and institutions, and on the basis of active citizenship, justice and knowledge.

In presenting these perceptions, this report aims ultimately at establishing a fruitful dialogue on the needs and approaches for action to grasp the current historic opportunity and its elements represented in the knowledge revolution, youth bulge and wealth of countries in the region. This happens in a changing world that heads towards a globalisation that is based on knowledge, sciences, innovation and creativity as well as the foundations of social justice.

ENDNOTES

1 UNDP and Mohammed bin Rashid Al Maktoum Foundation 2009. (Reference in Arabic)
2 Utz & Aubert 2013.
3 GNP per capita 2013, according to UNDP 2014. (Reference in Arabic)
4 World Bank 2012a.
5 Utz & Aubert 2013, UNDP 2009 (Reference in Arabic) and UNDP 2003 (Reference in Arabic).
6 Amartya Sen 2004 & Kishore Mahbubani 2009. (References in Arabic)
7 Aghion & Howitt 2004.
8 Klette & Griliches 1998.
9 Nelson & Winter 1982.
10 Abramovitz & David 1996.
11 David & Foray 2002.
12 OECD 1997.
13 UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012. (Reference in Arabic)
14 Refer to Chapter 5 of this report for the field study.
15 UNDP 2002 & 2003. (Reference in Arabic)
16 UNDP 2004. (Reference in Arabic)
17 UNDP 2005. (Reference in Arabic)
18 UNDP 2004 & UNDP 2005. (Reference in Arabic)
19 UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012. (Reference in Arabic)
20 This part is largely based on a background paper prepared by Samia Satti Nour for the report
21 The World Bank uses the Knowledge Index and the Knowledge Economy Index, which explain the rating of the countries based on their capability of producing, employing and diffusing knowledge. The KEI is used to compare knowledge across the countries of the world. This approach is based on the assumption that the knowledge economy comprises four sub-indices: economic incentives and the institutional regime, education, the innovation system, and the ICT. The economic incentives and institutional regime sub-index comprises the tariff and other restrictions, the regulatory quality, and the rule of law. The education and human resources sub-index includes literacy skills, average years of education, enrolment in secondary and university education.
The innovation sub-index includes Royalty and License Fees Payments and Receipts for Intellectual Property, Utility Patents Granted by the US Patent and Trademark Office, and Scientific and Technical Journal Articles. The Information and Communication Technology (ICT) sub-index comprises the telephone, mobile, computers, and internet users. The KEI value is calculated based on data for twelve indicators. The index value falls on a scale of 0-10 (for more details about the structure of the KI, refer to Annex 1, Figure A 1-1).
22 World Bank 2012a.
23 Samia Satti Nour (background paper).
24 Samia Satti Nour (background paper).
25 For more figures explaining the evolution of the sub-indices of the KI and the KEI, refer to Annex (A 2-1, A 2-2, A 2-3).
26 It is to be noted that the competitiveness reports rely in some of their indices on opinions surveys that take place in all the countries included in the report, and encompass, among others, the business schools and certain decision-makers. For more details on the index elements, refer to Annex 1, Figure A 1-2.
27 For more details on the composition of the Index, refer to Annex 1, Figure A 1-2.
28 World Economic Forum 2013.
29 Arab Planning Institute 2012. (Reference in Arabic)
30 Arab Planning Institute 2012. (Reference in Arabic)
31 These countries are Ireland, the Czech Republic, Mexico, South Korea, Chile, Portugal, Malaysia, South Africa, Argentine, Brazil, China, Greece and Turkey.
32 Arab Planning Institute 2012. (Reference in Arabic)
33 The index value falls on a scale of 0 (for worst performance) to 1 (for best performance)
34 It is to be noted that the sample of compared states in the Arab Competitiveness Report 2009 is different from the sample for the same report for the year 2012, which is reflected on the relative performance of the states.
35 Arab Planning Institute 2012. (Reference in Arabic)
36 Cornell University, INSEAD & WIPO 2014.
37 Mirkin 2013.
38 Report team calculations based on the World Bank data. The geometric mean was used for calculating the ratio, if the arithmetic mean was used, the ration increases to 2.45%. For more information, please refer to Annex 4, Table A 4-1. Source: World Bank 2014a.
39 Report team estimations based on the data of the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat for the year 2013. World Population Prospects: The 2012 Revision. New York: United Nations.) Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. Please refer to Annex 4, Table A 4-1.
40 For more details, refer to the annex. Source: US Census Bureau 2014.
41 UNDP 2011.
42 UNDP 2011.
43 Cabras 2010.
44 Report team calculations based on the UNDP database UNDP 2011.
45 UNPY & ESCWA 2011.
46 Bush & Ayeb 2012.
47 Salehi-Isfahani & Dhillon 2008.
48 World Bank 2013. (Reference in Arabic)
49 World Bank 2008.
50 UNDP 2011.
51 Mirkin 2013.
52 Refer to a more detailed discussion on the effectiveness of the Arab youth – Chapter 3 of the Report.
53 Cava et al. 2010.
54 Cabras 2010.
55 Ahmed et al. 2012.
56 Nour 2011.
57 O'Sullivan et al. 2012.
68 UNDP 2011
59 Cabras pointed out (Cabras 2010) that in order for the rate of workers to reach 64% in the year 2020, the MENA region needs 80 million job opportunities.
60 Chaaban 2012.
61 Transparency International 2013.

CHAPTER TWO:

THE CONCEPTUAL FRAMEWORK OF INTEGRATING THE YOUTH IN THE TRANSFER AND LOCALISATION OF KNOWLEDGE

Introduction

Knowledge lies at the centre of the elements of production in modern economies. It is a tool of economic growth, job creation and development in a modern economy, or knowledge economy. Knowledge has become increasingly salient, as a result of globalisation and scientific and technological developments in recent decades, notably information and communication technology (ICT).[1] The transfer, production, localisation and usage of knowledge, in all economic and daily activities has become the key to growth and development. It is only when knowledge is employed, institutions assume its management and people can assimilate it, that creativity, innovation and renovation expand, and knowledge is actively and genuinely localised, to achieve further economic and social development. Growth and productivity are linked to the growth and intensity of knowledge and to technological advancement in the production processes. Both, i.e. the intensity of knowledge and technological advancement, are characterised by a dynamism in their link to outputs and highly-skilled employment growth. This requires the preparation of a highly qualified human capital, through increased attention to education, training and institutional development. These factors are considered the tools of progress in knowledge-based development. And herein lies the importance of the youth, a resource ready to be turned into human capital, as well as into knowledge assets that would form a lever for the process of knowledge transfer and localisation. The youth bulge in the Arab region represents these assets and potential wealth.

The Tetrad of Knowledge, Globalisation, Youth and Development: A Complex Relation

The current Arab Knowledge Report (AKR) takes up from the Arab vision of knowledge, established by the two previous AKRs. These reports presented an integrated concept for this vision; a concept that is not merely limited to science and technology. Knowledge is an integrated whole that represents all human innovations in the fields of science, technology, humanities, arts and the extensive human experience. Based on this broad concept of knowledge, the second AKR 2010/2011 also established an integrated perspective for the knowledge society, "as a state of historical progress on the ranks of human civilisation; to be understood in its broad connotations. It is a society of intensive knowledge in terms of production, use and distribution, and its members are characterised by their knowledge, behaviour and values. These characteristics interact in social, political and cultural environments which nurture and stimulate them and support the creativity and innovation capabilities among society members."

In line with this broad vision of the knowledge society concept, the relationship included in "the integration of the Arab youth in the transfer and localisation of knowledge" is not a simple linear one. It is rather a dialectical complex relation that involves profound challenges. There are multiple parties in this case and each with its own problems, opportunities and challenges, centred around four elements: the first is knowledge, with regards to its transfer and localisation and the global and local contexts that surround it. The second is the youth, with the report taking specifically the age group 19-29 for study purposes, as this age category finds itself amid a demographic composition that is inherently problematic, not only in terms of its diversity and its different geographical and social characteristics, but also in terms of the need to equip it with values, skills and knowledge that qualify and enable efficient integration into the knowledge localisation process. The third element is globalisation, its relation to knowledge, technology, economy and development, and the great contentious debates revolving around the opportunities and challenges of development. But, regardless of the nature of the disagreement over this phenomenon, globalisation has become an essential part of our civilisation and is something we must address. The fourth element is the structure of Arab development in

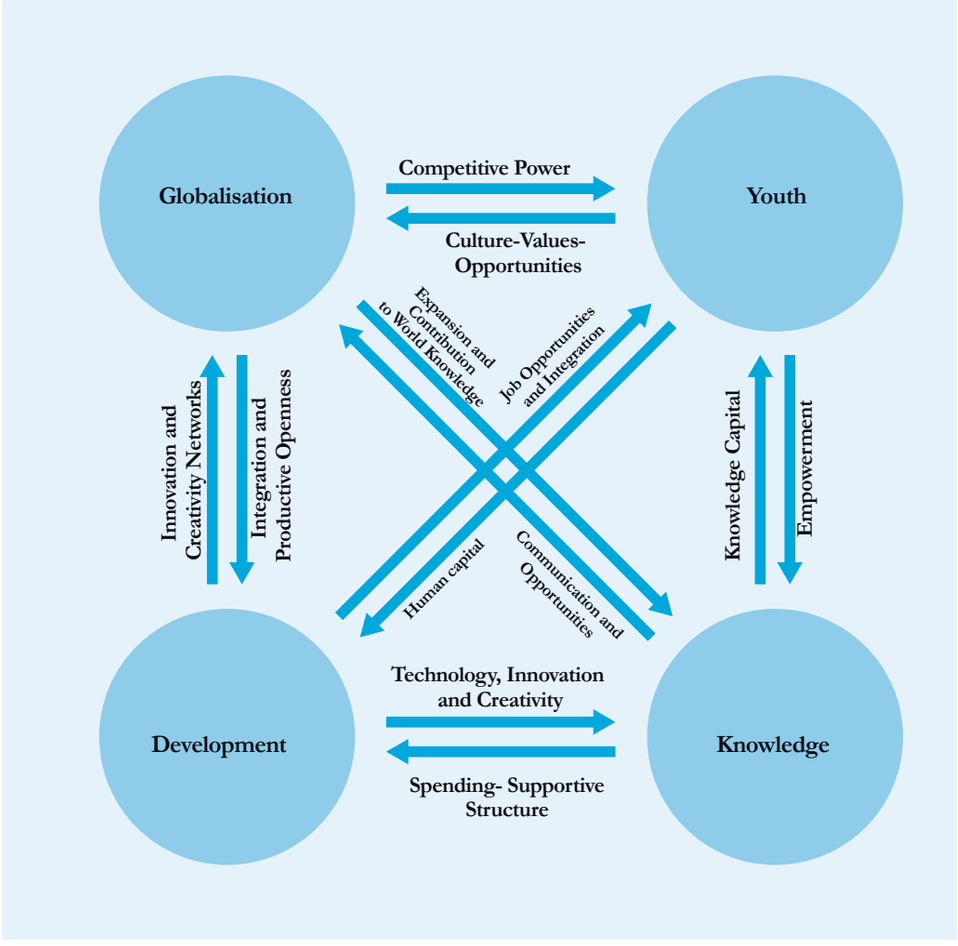
Knowledge lies at the centre of the elements of production in modern economies. It is a tool of economic growth, job creation and development in a modern economy, or knowledge economy

its social, cultural and political contexts, through which young people interact with knowledge transfer and localisation processes. This also includes the extent of opportunities, capabilities and choices available to the youth in this reality; and the challenges they entail. Figure 2.1 explains these interactive relations between these variables or the four elements.

In line with this broad vision of the knowledge society concept, the relationship included in "the integration of the Arab youth in the transfer and localisation of knowledge" is not a simple linear one. It is rather a dialectical complex relation that involves profound challenges

Figure 2.1

The Tetrad of Knowledge, Globalisation, Youth and Development



The call for the localisation of knowledge and the efficient integration of the youth put us face to face with four key interacting variables: knowledge, globalisation, youth and development. These four variables constitute the favourable environment for achieving economic and cultural development and make available the institutions to train the youth and prepare them as a force that carries knowledge and is efficient for the economy amid global competition. In view of this, the current chapter focuses on these four variables to determine the following key concepts:

- What is the meaning and nature of knowledge; and what is the meaning of the terms associated with it, such as the knowledge society and the knowledge economy specifically?
- What is globalisation and what are its impacts on knowledge, the knowledge society and the knowledge economy? And how do we deal with it in the process of the transfer and use of knowledge in order to localise it?
- What do we mean by the youth as a force that needs to be integrated efficiently?
- And what is the active characteristic in development that should be available as a

necessary condition for the achievement of a just human development that ensures the efficient integration of the youth in the process of knowledge transfer and localisation, in the framework of open scientific relationships that surpass the limits of time and space? And what is the role of cultural enlightenment in achieving this development?

Knowledge: Intellectual Contexts and the Concepts of Transfer and Localisation

The Concept of Knowledge and Its Classifications

First of all, it is necessary to distinguish between knowledge, information and data. Data is recordings or statistics on specific facts, such as reading of certain numbers or measurements, while information is the processing of this data and the drawing of logical and statistical relations between its various parties, to conclude generalisations or formulate relations between several variables. Knowledge is the product of information processing to arrive at ideas, concepts and theories. Knowledge goes beyond information, and includes awareness, understanding, interpretation and theorising as a product of information processing, in the context of a live experience based on education, higher education and scientific research. Subsequently, the relation between knowledge and information is dialectical, as the production of knowledge depends and is based on the analysis, application and processing of information. And in turn, information is produced in the context of knowledge guidance, awareness and concepts in a particular area. Reliable databases and statistics remain the foundation representing the quality and relevance of information and knowledge.[2]

With regards to classification, we are particularly interested in distinguishing between explicit knowledge and tacit knowledge. What is the nature of this knowledge and its importance in the processes of transfer and localisation? And how is it transferred and invested?

Box 2.1

Knowledge Classification

Traditionally, knowledge has been classified in four categories:
- "The knowledge of what": it refers to the knowledge of facts and information; this is a type of knowledge that can be encoded, transferred and contained in various combinations of information and data.
- "The knowledge of why": it refers to the principles and laws of nature, society and the human mind.
- "The knowledge of how": it refers to the inherent skills and understanding of how to perform a specific job or make something. Although this kind of knowledge is not explicit in a specific meaning for just physical capacities, it generally indicates an ability to understand how to produce something or do a certain job.
- "The knowledge of who": it refers to the knowledge of who knows what, and it also means knowing an individual's ability to grasp initial knowledge and appropriate expertise to solve a specific problem.

Sources: Gorman, 2002 and Johnson et al., 2002.

Explicit knowledge is the knowledge that can be embodied and coded, so that it can be learned and invested (in fields such as education, research centres and ICT development centres). This knowledge is encoded when it is registered and transferred as codes (writings or drawings) or when it is embodied in physical forms (machine or device). Through coding operations, knowledge is reduced to information, which in turn can then be converted into knowledge by passing to the minds of individuals to whom an analytical symbol or framework is available. In this way, knowledge is spread across borders, either embodied in concrete forms or through electronic networks or any form of documentation.

Tacit knowledge[3] is a knowledge that cannot be coded or documented, but is implicit in the minds of individuals and their behaviour, inherent in their technical and life expertise. Unlike explicit knowledge, it is only transferred through direct interaction, learning, training and dealing with raw experience. This type of knowledge is often referred to as the know-how. And because of its nature, the acquisition of tacit knowledge requires a long time of engaging in direct

Tacit knowledge is a knowledge that cannot be coded or documented, but is implicit in the minds of individuals and their behaviour, inherent in their technical and life expertise

experience with the ones who possess it. This is why this type of knowledge is less prevalent and harder to transfer than explicit knowledge. Tacit knowledge is complex and can be analysed, based on studies of knowledge, in three patterns:[4]

- The first pattern of tacit knowledge can be called as such, when equal to competence. It includes physical abilities and skills that refer to the individual's ability or capacity to learn how to perform or carry out a particular activity without being able to describe the knowledge used to perform the task. This knowledge pattern has an unreflective and automatic feature (knowledge of how to breathe, for example). It can be knowledge resulting from learning, training and a life experience (knowledge of how to play a musical instrument), or knowledge of how to perform a skill (swimming or riding a motorcycle). This pattern is rather the carrying out of activities that follow a set of rules which are not clearly or explicitly known to those who perform them. This applies in all life practices that require specific capacities to be performed or are carried out through activities that are difficult to describe accurately in clear details. This knowledge is difficult to transfer and learn, unless transferred through imitation and apprenticeship based on face-to-face interaction. One of the most effective training patterns is education and on-the-job training, which is learning by doing.

- The second pattern is tacit knowledge as background knowledge of an individual or group. It can be defined as a set of cultural and biological capabilities that involve pre-theoretical assumptions, trends and consensus. This pattern constitutes cognitive pre-conditions in the process of accumulating cognitive theoretical formations. This pattern of background knowledge is gained and formed through the process of upbringing and acculturation, or rather through the individual's life and professional experience, in its broad historical sense. This is what makes background knowledge familiar to the individual. It requires self-consciousness, so as to change it or use it by transferring it to third parties or by third parties absorbing it. This pattern of tacit knowledge acquires great importance for those who work in the field of theory, production of ideas, innovation and research development.

- The third pattern refers to tacit knowledge as implicitly-held cognitive rules, reflected in the individual's self-justified doctrines, the information he or she believes is valid or the rules employed in how he or she thinks and realises. Chomsky notes that this knowledge pattern does not appear in the form of specific meanings or skills. It is rather considered a realistic cognitive system determined to be a state of mind and builds a knowledge that cannot be explained in words or described in a whole language. It is a pattern of knowledge that is not taught but learned by the individual through life experience.[5] This pattern of tacit knowledge is close to what Thomas Kuhn[6] called paradigm, i.e. the intellectual pattern embraced and adopted by a specific scientific group in practicing and producing science/knowledge. These principles and methodologies are transferred to the new members (research students) through offered scientific products and the academic socialisation and integration among the members of the scientific group. That is the basis of the formation of schools of intellect and science.

Tacit knowledge is a procedural knowledge, a practical ability and a cognitive system. It plays an important role in the development of science and modernisation of technology

In all cases, tacit knowledge in its previous three forms is a procedural knowledge, a practical ability and a cognitive system. It plays an important role in the development of science and modernisation of technology.[7] One of the most important elements of the knowledge economies is that the volume of specialised and distinct scientific knowledge that is internalised in the minds and behaviours of individuals and groups actually constitutes the fundamental

basis of modernisation and innovation processes.[8] In contrast, we find that less developed economies struggle with forms of explicit knowledge for particular productive work and basic economic survival, at the expense of ignoring the need for tacit knowledge. Tacit knowledge here includes knowledge management inside and outside an establishment or the management of the application or implementation, as this is the same knowledge that enables the economy's sustainable growth, innovation, development and renovation.[9] Thus, it is imperative for the Arab region to focus on tacit knowledge as an essential part that enables knowledge as a whole to play its role in human development.

The Knowledge Society

The knowledge society was established as a result of multiple and successive historical revolutions in science and ICT. These revolutions upheld the value of the scientific mind, scientific thought, freedom, social justice, equality and democracy. The human being and its skills, values and creativities became the axis and basis in the formation of the knowledge society. And because the second Arab Knowledge Report expanded the discussion of the concept of the knowledge society in terms of its origination, evolution and relation to the peoples' present and future, we refer the reader to the conceptual chapter of the aforementioned report,[10] and limit ourselves in this section to recalling some of the details directly related to the areas of interest of the current report: "the transfer and localisation of knowledge".

There is concurrence among many knowledge sociologists and researchers that what we are experiencing today is an aggregate state for a community that interacts by influencing and being influenced in all aspects by the revolution of science and technology. We might find examples of the maturity of this case in some countries in the developed world. In this framework, we can distinguish between at least three interacting factors. The first factor is that progress is a result of the intense growth and increased investments in ICT and their interaction, not only limited to the fields of communication, information, electronics sciences and nanotechnology, and robot sciences, but including the field of genetic engineering, biotechnology, optics and other fields of science. The second factor is the growth of international relations as a result of this revolution and globalisation that put the world economy in a dynamic market hegemony that is beyond traditional concepts of space and time The third factor is the demands of the cognitive and technological revolution in terms of economic growth, the production market and the global economy which have led to the emergence of a qualitative new human capital with personal characteristics, values, knowledge, skills and new patterns based on training, education and culture, constituting the driving force for all the dynamics of change in the family, society and the world.[11] [12]

We agree with many researchers that the term "knowledge society" refers to a broader concept that includes the society as a whole, the economy, culture and politics. Thus, this report establishes the concept of "knowledge society" as including the concept of the "knowledge economy". In fact, the effect of intense knowledge and technological progress has made a distinct impact on the economy, and has turned its structure from a traditional economy based on overall production factors into an economy based on knowledge and the cognitive capital in its association with comprehensive globalisation. However, the concept of "knowledge society" is broader than economy and more comprehensive than economic progress.[13] A knowledge society includes these influential developments and rapid changes in economy, as well as all associated cultural and sociological consequences, including the characteristics and capabilities of the human being.[14]

According to the concept of the knowledge society, investment in education plays a pivotal role in the development of human resources and the expansion of youth opportunities and abilities to contribute to the historical quantum leap. In this context,

The term "knowledge society" refers to a broader concept that includes the society as a whole, the economy, culture and politics. Thus, this report establishes the concept of "knowledge society" as including the concept of the "knowledge economy"

knowledge workers become the basis for the development of economic wealth, while the main activities producing wealth no longer reside in the use of raw materials, capital or labour, but rather in the added value "being produced through innovation, creativity and the application of knowledge at work. The value of goods is determined in the knowledge that lies in the final product".[15]

The Knowledge Economy and Its Characteristics

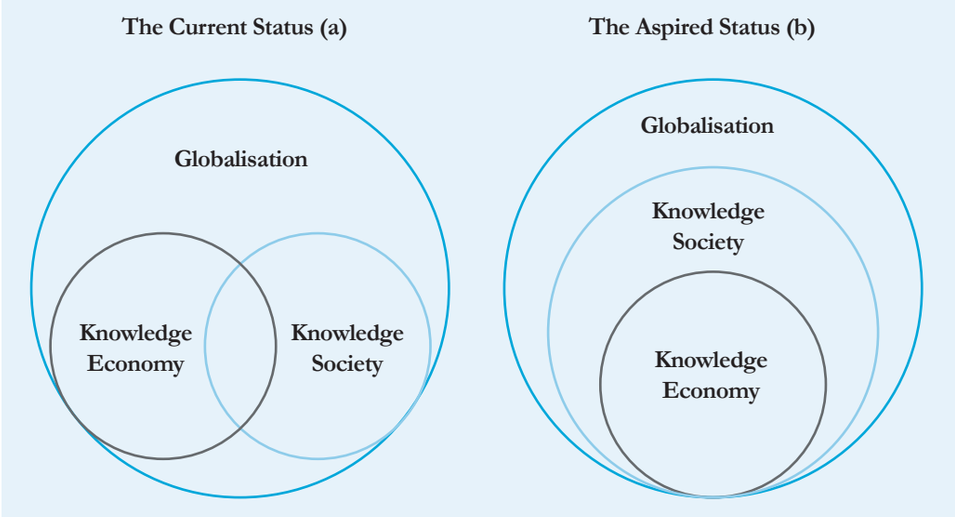
Knowledge economies are at the heart of the knowledge society, which forms and is formed in the context of a new and ever-expanding global civilisation; one with the human being at its essence: creativity, knowledge, technology and innovation.

Knowledge economies are at the heart of the knowledge society, which forms and is formed in the context of a new and ever-expanding global civilisation

Knowledge economies are those that are based on the intensive production, dissemination and use of knowledge. They are essentially described as economic structures that arise in the context of the global knowledge society, where the success of economic development depends on the possibility or the extent of the available balance of knowledge, skills and creative capabilities in development and modernisation.[16] Figure 2.2 shows the vision of the contemporary global civilisation, the knowledge economy, the knowledge society and globalisation, based on the production of knowledge, the technological revolution, creativity and innovation. The circles constitute the pattern of development in communities seeking to enter into the knowledge society and integrate with global civilisation, as well as integrate young people and direct their efforts toward achieving knowledge-based development within the three global action circles. So what are the characteristics of the knowledge society?

Figure 2.2

Knowledge Economy, Knowledge Society and Globalisation



(a) In this figure, the knowledge society and the knowledge economy overlap. Both are part of globalisation. A knowledge economy, by its very nature, seeks profit to increase productivity and is not concerned with human freedom or social justice. The knowledge society is the integrated concept that has not been entirely accomplished as desired. The AKRs are working towards achieving this society as in Figure (b).

(b) Since the early beginning, the AKR, in its first, second and current reports, has sought to emphasise the efforts of building the knowledge society as an integrated concept, with the knowledge economy at its core. Knowledge society, in its broad and integrated concept, secures the accomplishment of comprehensive development, freedoms, social justice and citizenship so as to attain the welfare and progress of the Arab individual.

Main Features of Knowledge Economies

Knowledge economies are characterised by a set of attributes that can be generally summed up in the following eight key attributes:

1. A knowledge-intensive economy in terms of production and availability;
2. The intensity of ICT use;
3. The emergence of knowledge as an economic product, with the growth of knowledge trade and its circulation based on the rights to intellectual property;
4. The increase in the proportion of knowledge workers;
5. The increase in knowledge impact across economic sectors;
6. The emergence of knowledge management as increasingly important systems and practices;
7. The emergence of systems of innovation and modernisation; and
8) The ability of knowledge to be transferred and developed.[17]

The Increasingly Intensive Use of IT

The intensive use of ICT is an important feature of the knowledge economy. However, it must be emphasised that the information technology revolution is not necessarily synonymous with the advancement of knowledge economies. Moreover, the intensity of the use of internet, mobile phones and computers is not necessarily synonymous with the knowledge economies or an accurate indicator of them.

ICT is characterised by its support of the development of the knowledge economy and knowledge society in several aspects, the most important of which are: first, these technologies are widely utilised in various domains and applied in an orderly manner in the economy and social areas. Second, they become a paradigm,[18] a new technology, and a base for innovation and creativity; and they have been bringing about major changes in the methods of research, production and services. Third, the technologies become an infrastructure for an industrial revolution that changes the methods of production, management and interactions and widely supports its contacts with local and global social and cultural changes.[19] In addition, technology has not only enabled human beings to understand the physical and social world around them, but has helped them understand themselves and manage and develop knowledge. Thanks to technology, ideas become a key factor in the management and education of the individual and the institution.

The volume of internet networks and their interdependence allows for the collection and dissemination of encoded knowledge in an unprecedented manner. With the increased potential of programming and its integration within an economic entity, the pace of creating innovative new knowledge becomes faster. An example of this is what technology programmes made possible in global scientific cooperation through coding human genes in 2003, which supported new knowledge about genes, leading to the advancement of genetic modification medical technologies.[20]

The use of ICT and the reliance on knowledge to achieve high economic growth, led South Korea, for example, to obtain a relative advantage in accelerating economic growth, outpacing many competitive countries of comparable standing during the 1960s. Statistics show that South Korea has achieved a steady economic growth rate reaching an average GDP per capita of USD 14,000 in 2005, exceeding the growth rate of Malaysia, where the GDP per capita exceeds USD 4,000, Brazil and Tunisia where the GDP per capita was estimated at USD 4,000 and USD 2,500 respectively for the same year. South Korea ranked ahead of all Arab countries in its competitiveness capabilities according to the Arab competitiveness index.[21] [22]

A Knowledge-Intensive Economy: Productivity and Availability

The intensity of knowledge production and availability through publishing houses, universities, professional networks and other means has increased. The availability has especially increased during the last three

The intensive use of ICT is an important feature of the knowledge economy. However, it must be emphasised that the information technology revolution is not necessarily synonymous with the advancement of knowledge economies

The leading countries in the fields of knowledge, science and technology have enjoyed a much higher long-term economic growth rate compared to developing countries

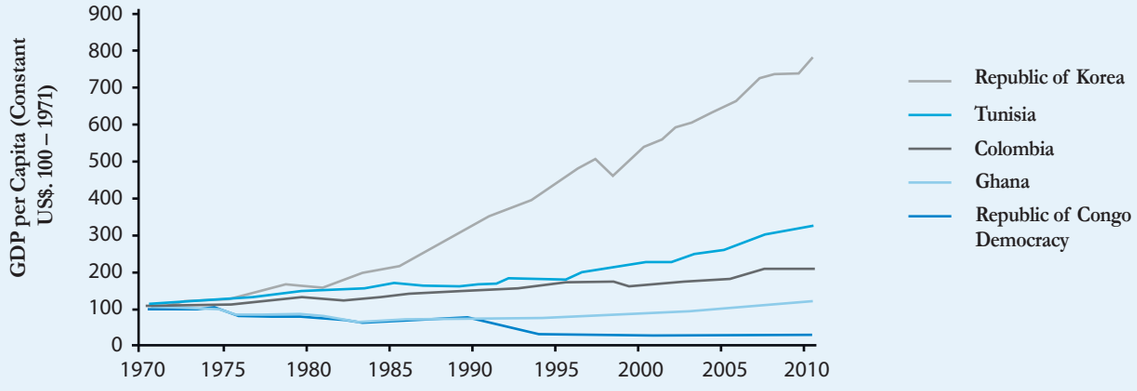
decades as a result of ICT use, leading to an increase in the number of new knowledge products. At the same time, the rate of technological development and progress also increased. The growth of "research and development" activities (R&D) and education has become an indicators of knowledge growth and outputs in an economy.[23]

In addition to the importance of knowledge production, studies indicate an equal importance of its employment. Obtaining technological and scientific knowledge and the ability to capitalise on it have become a critical strategic factor in determining the economic performance of different countries, especially with the increase in globalisation and economic competition. The leading countries in the fields of knowledge, science and technology have enjoyed a much higher long-term economic growth rate compared to developing countries.[24] The average growth rate in the former group of countries was estimated to be about three times that of the rest of the developing world from 1986-1994. The Education for All Global Monitoring Report confirms that one dollar spent on education generates between 5 to 15 dollars of the economic growth rate in developing countries.[25]

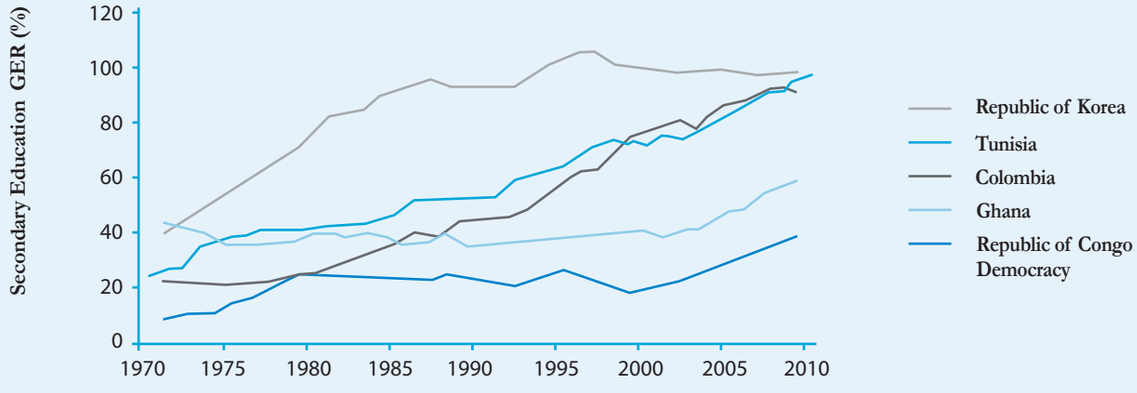
Figure 2.3

Investing in the Development of Skills and Enhancing Economic Growth: The Korean Experience

A. Economic and Education Growth in Five Countries with Similar Incomes in 1970



B. Secondary Education Gross Enrolment Ratio, 1971 to 2010



Note: The year 1971 was set as a reference year in the first graph with the value of GDP per capita equal to 100.
Source: UNESCO 2012

The role of knowledge materialises in shaping and supporting economic growth, particularly in relation to education, considered one of its most important pillars. For example, five countries had similar rates of income per capita in 1970: Columbia, the Democratic Republic of Congo, Ghana, South Korea and Tunisia. Forty years later, the average income per capita in South Korea greatly exceeds the averages in all these countries, as shown in Figure 2.3. This success achieved by South Korea is not only attributed to the improvement of its education policy but also, and even more importantly, to the link it established between the development of knowledge, skills and general strategies that aim at activating its economy.[26] The case of South Korea is considered a good example on the employment of knowledge to achieve a renaissance and economic development, where knowledge achieved an accumulation of up to 75% in the economic growth as measured by the GDP per capita. This can be compared with up to 25% of the growth attributed to capital and labour, being the two traditional factors of production.[27] (See Figure 2.3).

Commodification of Knowledge

Knowledge has become a commercial product that can be sold and purchased in markets. This is done by providing information databases, scientific research publications, R&D services, educational services, consulting services or technology software licenses; and these are knowledge-intensive services known as "other commercial services". Knowledge commoditisation is manifested at its peak in the context of globalisation, where large companies seize knowledge that was previously free. This issue has become standard international practice regardless of its serious and controversial social implications. A common example relates to large pharmaceutical companies that in the past provided the pharmaceutical components of drugs to developing countries for free. A second example is the application of the laws of intellectual property in agriculture. These and other examples refer to the "rights" reclaimed by giant companies as "property rights", after being provided previously as free-of-charge goods to small businesses in developing countries.[28] This has caused the collapse of many industries in several countries of the third world, and increased the monopoly of large companies, leading to a rise in the price of some vital products for developing nations. In 2005, North America had the largest share of international bills per intellectual property right (44.2%), followed by European countries (36.9%).[29]

Knowledge is increasingly gaining a competitive advantage in any project, which in turn has prompted the incentive toward trade protectionism. Issues of intellectual property rights and related rights have risen with the development of human creativity, up to the current era characterised by a rising knowledge revolution reaching unprecedented heights. In the age of knowledge and digital technology, the controversy over the adoption and dissemination of intellectual property laws and practices has heated. Views differed depending on the location of the concerned state or institution with regards to the production, use and employment of knowledge. Some strongly called for the protection of property rights, i.e. the most advanced countries in terms of knowledge production, while developing countries consuming the products of knowledge voiced opposition for this approach. Viewpoints on intellectual property were contradictory and oscillated between calls for absolute freedom and calls for strict protection. Conflicting parties have involved principles and perspectives that may seem harmonious at first glance, but in fact reflect extensive dialectics that are even contradictory in many cases. Supporters of protecting intellectual property rights base their opinion on the principles of free trade and the rights of the knowledge producer to reclaim the cost of production and development as well as its profits, while the counter party is armed with the principles of open access and free movement of information and knowledge, and the rejection of their monopoly and commoditisation.

Issues of intellectual property rights and related rights have risen with the development of human creativity, up to the current era characterised by a rising knowledge revolution reaching unprecedented heights

In this context, knowledge as a benefit, according to one researcher, should be made available to all, and any acceptable system of intellectual property must be balanced between the cost of monopoly and the social benefits of innovation, by limiting the duration of the patent.[30] In the same vein, a World Bank report noted that stricter intellectual property rights may render knowledge acquisition more expensive. In fact, it sets the bargaining power at the side of knowledge producers and not users. And because knowledge is the main component in the production of more knowledge, the firmness of intellectual property rights might adversely affect the sub-innovations in developing countries and industrialised countries that make use of innovations with unfinished patents. Hence, it is feared that the firmness of intellectual property rights will actually slow down the pace of innovation in general.[31]

The issue of intellectual property, which represents one of the most important channels and mechanisms of knowledge transfer and localisation, has not received adequate attention in the Arab region as a whole, both in terms of legislation or practice (as will be shown later in the fourth chapter). In all cases, the biggest winners in the commoditisation of knowledge will continue to be the developed countries that will keep progressing, and the losers are the developing countries that will increasingly move backward because of the monopoly and privatisation of knowledge. Hence, the importance of this report becomes clear, as it aims at helping countries in the Arab region with the localisation of knowledge and the active integration of the youth in its operations, so that the Arab states can produce knowledge and contribute to the building of a more just and humane civilisation.

Increase of the Proportion of Knowledge Workers

"Knowledge-intensive labour" refers to activities that are associated with the sectors of high-tech production and services. Knowledge workers are those in sectors that require intensive knowledge and information analysis, such as engineers, doctors, scientists, university professors, lawyers, administrators, journalists and others. The designation of "knowledge workers" indicates four categories of cognitive capacities that fall into high-quality cognitive capital groups, namely:

Knowledge workers are those in sectors that require intensive knowledge and information analysis, such as engineers, doctors, scientists, university professors, lawyers, administrators, journalists and others

- First: Knowledge workers are those belonging to highly-skilled supervisory, administrative and technical groups in the staffing structure;
- Second: Focused within higher education graduates or graduates from an equivalent level of education.
- Third: Includes professional activities that require intellectual expertise (researchers and other professionals) and other activities that require advanced communication skills (teachers, coaches, employees in the sectors of marketing and some managers);
- Fourth: Falls within the specialty of those who are direct producers of knowledge assets (teachers, coaches, marketing experts, workers in R&D activities, and insurance and finance experts) and indirect producers (supervisors, scientists in natural sciences, professional social workers, technicians and nurses).[32]

Box 2.2

The United Kingdom, an Example of the Increasing Number of Knowledge Workers

If we take the United Kingdom as an illustrative case, we find that knowledge workers have constituted in the first quarter of 2006 around 42% (based on the European definition). In the UK, this percentage was much lower (31%) in 1984. It was also expected that this rate will increase in 2014 to over 45%.

Source: Brinkley 2006

While it is difficult to globally compare the growth rates and size of the group of knowledge workers, because of the disagreement among researchers on the

definition of the term, available data supports the existence of an increasing demand for knowledge workers, as opposed to a lack of demand for less skilled workers. While the share of knowledge functions rise every decade at a rate of between 4 and 5%, low-skilled jobs decline by about 2-3%. Some studies show that medium functions associated with traditional industries are on their way to disappearing in some developed societies.[33]

In fact, this entails a problem that the AKR had previously highlighted in its reference to the double impact of the knowledge economy on the labour market. In this economic pattern, investment in knowledge leads to an increase in employment, boosts job opportunities, and creates new jobs, hence increasing the demand for labour, particularly high-skilled workers. Therefore, it is a very selective pattern that would lead to the exclusion and marginalisation of other groups of workers, increasing unemployment rates among low-skilled workers. In addition, workers selected by the knowledge economy receive high wages and large incomes, resulting in a gap in the equitable distribution of national wealth. This places a greater responsibility on the Arab countries that find themselves facing a very important challenge: transforming into the knowledge economy, while focusing on firmly addressing this contradiction, using a variety of developmental approaches that achieve compromised balance between economic growth and social justice. Only then will progress be reached.

Among the by-products of the knowledge economy, and due to the increasing economic and social demand for intensive knowledge labour, we note the increasing investment of developed countries in the provision of the greatest number of opportunities in higher education so as to provide a larger high-education taskforce, along with an ability to continuously pursue education for life. The impact of that has been directly and intensively demonstrated in European countries (Refer to Chapter 4). Canada was the first country where more than 50% of the population in the age group 25-34 had entered the labour market qualified with higher education. It was followed by South Korea.[34] The group of developing countries in East Asia joined this competition, and researchers noticed that the number of students in higher education in these countries doubled in just one decade. One study successfully predicted that this progress would result in a five-fold increase in spending on education between 2007 and 2012.[35]

Box 2.3

The Problematic and Contradiction in the Structure of the Knowledge Economy

Many reports emphasise that countries must make difficult choices when setting priorities in the development process. Concentrating public resources around the most favoured groups who are highly skilled will not bring equitable prosperity. Therefore, efforts must be concerted in order to improve the skills of the total population and focus on the sectors that can provide better job opportunities for most young people, as soon as they acquire the necessary skills. The process of knowledge transfer and localisation requires conscious and inclusive development plans, taking into consideration all aspects of economic, social, cultural and political development.

Source: UNESCO 2012.

Higher education has become an important development institution in the knowledge economy

Thus, higher education has become an important development institution in the knowledge economy, with four essential responsibilities:

- Ensuring that the human capital is well-prepared.
- Building the pillars of knowledge in society through scientific research and development research.
- Disseminating and using knowledge by interacting with economic institutions in the areas of production and services.
- Managing knowledge in society as a whole, in terms of transfer, dissemination, use and localisation throughout its divisions

and scientific centres specialised in storage operations, organisation, staffing, production, publishing distribution and relations with centres of production and services.

The Growth of Knowledge Management Techniques

The emergence of knowledge management techniques and their diffusion in knowledge economies have brought great development in supporting government and private institutions in various economic sectors to maximise the return of the cognitive balance and develop the capacities of their members to produce new knowledge and intensify creativity and innovation. In fact, the efficient use of knowledge supports the relative advantage, and ensures the advancement of any organisation or institution that offers as such its products or services. Institutions have realised the importance of their knowledge assets (wealth of knowledge) and resources that enable innovation, creativity and proper

Figure 2.4

The Cycle of Knowledge through the Management of Knowledge from Transfer to Localisation

Source: Psarras 2006 (adapted).

response to the accelerating changes in a globalisation that has opened up competition.[36]

This interest has created a basis for the development and implementation of knowledge management across institutions, both at the level of processes (knowledge acquisition, conversion and use) and infrastructure (information technology, organisation structure, leadership and the culture of the organisation).[37]

It should be noted that knowledge management is achieved through four stages: storage and organisation, publication and sharing, innovation and production, and use and employment.[38] Added to these stages are two processes: the evaluation and the renewal of the assets of knowledge and informatics in an institution or organisation.[39] Figure 2-4 illustrates the cycle of knowledge through knowledge management from transfer to localisation, in institutions – public, private or service-provider – academic universities and research centres. There is agreement among experts that knowledge management in its tetrad cycle, from transfer to localisation, needs organisation, education, technology and leadership. Without a complete and total consistency in the interaction of these four pillars, success in knowledge management within and outside projects is not possible.[40]

Knowledge management is initially based on the transfer and localisation of explicit encoded knowledge, through the building and intensive use of highly efficient information systems. Knowledge techniques initially dealt with tacit knowledge, through the adoption of practical models of knowledge innovation and dissemination.[41]

Knowledge management reaches its peak in terms of effectiveness and efficiency within any organisation, when it can draw the tacit knowledge inherent in the minds of the members of the organisation and convert it to knowledge forms that are transferable and usable by third parties, making it available to all.[42]

Box 2.4

The Context of Cognitive Skills: The Perspective of Britain (Excerpt from a Speech by Former British Prime Minister Gordon Brown)

> Already our Asian rivals are competing not just in low-skilled manufacturing, but in high-tech products and services. Once, we worried about a global arms race. The challenge this century is a global skills race and that is why we need to push ahead faster with our reforms to extend education opportunities for all. In a globally competitive national economy, there will be almost no limits to aspirations for upward mobility. Globalisation dictates that the nations that succeed will be those that bring out the best in people and their potential. And this is the new opportunity for Britain. Put simply: in the past, we unlocked only some of the talents of some of the people; the challenge now is to unlock all the talents of all the people.

Source: Brown et al. 2008.

It is worth mentioning that the main obstacles to the processes of knowledge advancement and transfer in the Arab region are related to the weak mechanisms and skills within knowledge management sectors, which are supposed to enable the localisation, production and employment of available and transferred knowledge. Our interest in this part of the chapter is directed towards the parties managing development in the comprehensive sense, so that knowledge management can become an integral part, or even the axis and engine for the overall operations of the establishment of the knowledge society, in organisations, inter-agency interactions, or in the country as a whole.

There is agreement among experts that knowledge management in its tetrad cycle, from transfer to localisation, needs organisation, education, technology and leadership

Systems of Creativity and Innovation

If the transfer of knowledge is important, then time, place and people are of the utmost importance in this process.[43] In this case, there must be an active role for governments seeking to progress, in order to promote the process of the transfer, production and localisation of knowledge.

The establishment of systems for innovation and creativity is considered one of the most pivotal roles in any society. Innovation or creativity is regarded as a social process (or

processes) shaped and constructed through institutional societal structures and inherent in the interactions of these structures. If we have emphasised economic growth, labour productivity and investment in cognitive capital (technology and human capital), it is because all of these factors are strongly shaped through society's institutions that sponsor the establishment of innovation and creativity systems.

The concept of national systems of innovation and creativity is defined through the focus on disseminating knowledge that is useful for economic growth

The concept of national systems of innovation and creativity is defined through the focus on disseminating knowledge that is useful for economic growth. The essential role of innovation systems is to transfer and employ the capabilities of institutions and companies working in innovation and creativity across sectors, countries and global regions.[44] This definition focuses on the function of national innovation systems as factors that represent a competitive advantage for each of the sectors and for the country as a whole. This feature depends on the progress of these innovative and creative systems and the extent of interaction between their various components, as well as their ability to integrate into the economic process.

Changes in the structure of the economy and technology require changes in the structure of society's institutions and the laws that govern the behaviour within and between these institutions

Changes in the structure of the economy and technology require changes in the structure of society's institutions and the laws that govern the behaviour within and between these institutions. Some countries might possess scientific elements or distinguished researchers, but lack the institutional and legal frameworks as well as a supportive cultural structure. This situation inhibits the advancement of knowledge, innovation and creativity. One study confirms that the institutions, supporting laws and regulations that define behaviour and scientific and social action lead to the continuation of research processes.[45] These also work to promote innovation, renovation and creativity, and provide a base of trust in knowledge and its learning and dissemination rules. These are the first requirements for overall change that supports economic and social development. In turn, these activities support R&D activities and the structural organisation of the fields of finance and investment in knowledge, intellectual property rights and the regulation of licensing and recognition of inventions and innovations. The same study presents a model of research, innovation and creativity that is based on the political and legal social structures in a society. This model also builds on the structure of the market, the technological infrastructure, structures and systems of institutional incentives and the effectiveness of institutions, including the quality and costs of communication.

Box 2.5

Conditions for the Knowledge Society and the Knowledge Economy

In an important study conducted by the Organisation for Economic Cooperation and Development (OECD) in 1996, it was confirmed that in order for these countries to succeed in the establishment of the knowledge society and the knowledge economy, they must provide for the development of institutional structures, build national systems of innovation and creativity, equip the basic technology infrastructure, and provide incentive systems that support investment in research, development, education and training. These goals are best achieved through adopting policies that emphasise the following: first, the dissemination of knowledge through education and training programmes, networking between universities and research centres in industry and government and the dissemination of technology in education and production institutions; second, developing the human capital through the formation of young people and the workforce, developing public education systems, establishing incentive systems for individuals and institutions to continue learning and improving the engagement and coordination between skills acquired and the cyclic work demands of skills and knowledge; and third, the organisation and building of institutional capacities and the support for institutional change, through continuous organisational change and development processes in the facilities that offer products and services, in terms of infrastructure and knowledge management within the enterprise and the culture of the enterprise and staff.

Source: OECD 1996.

The Transfer of Knowledge

The transfer of knowledge and technology has defined humanity since its earliest history. Technology was transferred for the most part along with the associated knowledge, through business relationships taking place between the East and West

or between the south and north, including the Arab region during the flowering of Islamic civilisation, and many world regions, including Europe. In the context of current developments this transfer took different extensions, and there emerged some specific conditions for the transfer of knowledge and technology. Following the emergence of the knowledge economy as a result of successive revolutions in knowledge and technology in the modern world, and with the emergence of globalisation, there was clearly an intensive growth of knowledge in goods and services and an increased appreciation and value for knowledge production and use.[46] Knowledge became a strategic commodity of an economic outcome crucial to the success of development and progress. Specific social and cultural conditions became necessary for the transfer and localisation of knowledge, in addition to the legal and political conditions imposed by globalisation today.

What Does the Transfer of Knowledge Mean?

The transfer of knowledge can be defined as those processes by and through which the experiences of others are transferred to a certain organisation, or to a unit in a particular organisation, or even to a country through its specified organisations or institutions. The transfer of knowledge is a complex issue based on technology, organisations and communication between the people involved. Technology is used to help achieve this communication between human beings, and between the source of knowledge and the recipient of knowledge. However, the machinery and tools can only deal with information, while knowledge can only be dealt with by humans. In other words, it is the human cognitive power that turns information into knowledge. Organisations are very important in the transfer of knowledge processes, but knowledge can only be transferred and acquired when the transfer process depends on organisational structures. Many students confirm that the transfer of knowledge depends on the culture of the individuals to whom knowledge is transferred, i.e. on the personality traits of individuals, such as values, experience, motivations, beliefs and the stock of knowledge. Therefore, the role of organisations/institutions is vital as the links between technology and culture, in improving the processes of knowledge transfer. However, the role of technology in knowledge transfer depends on the appropriateness of the technology itself for important factors such as: 1) The cognitive abilities involved in the process of transfer to the recipient; 2) The cultural environment where and to which the transfer is taking place, and 3) The specific goals of the process of knowledge transfer and the strategies employed in this process.[47]

Box 2.6

The Transfer of Knowledge

Traditionally, the dominant transfer was that of the transfer of technology, in the form of tools, machinery and equipment. But today, the transfer process includes that of knowledge and information; for example, computer software and new ideas that may not accompany any machines. Experiences in the transfer of technology showed that technology cannot be transferred without knowledge. This is the key to controlling and managing technology. Knowledge transfer is a key and dynamic factor in the transfer of technology. One researcher defined the transfer concept as "the movement of science and technology from one group to another and this movement includes the use of knowledge and technology and their utilisation".[48] Various studies have shown that this natural transfer, alongside organised and unorganised exchange of knowledge and technology, is vital to the success of any facility and the progress of any society that wishes to access the knowledge society.

Source: Li-Hua 2006.

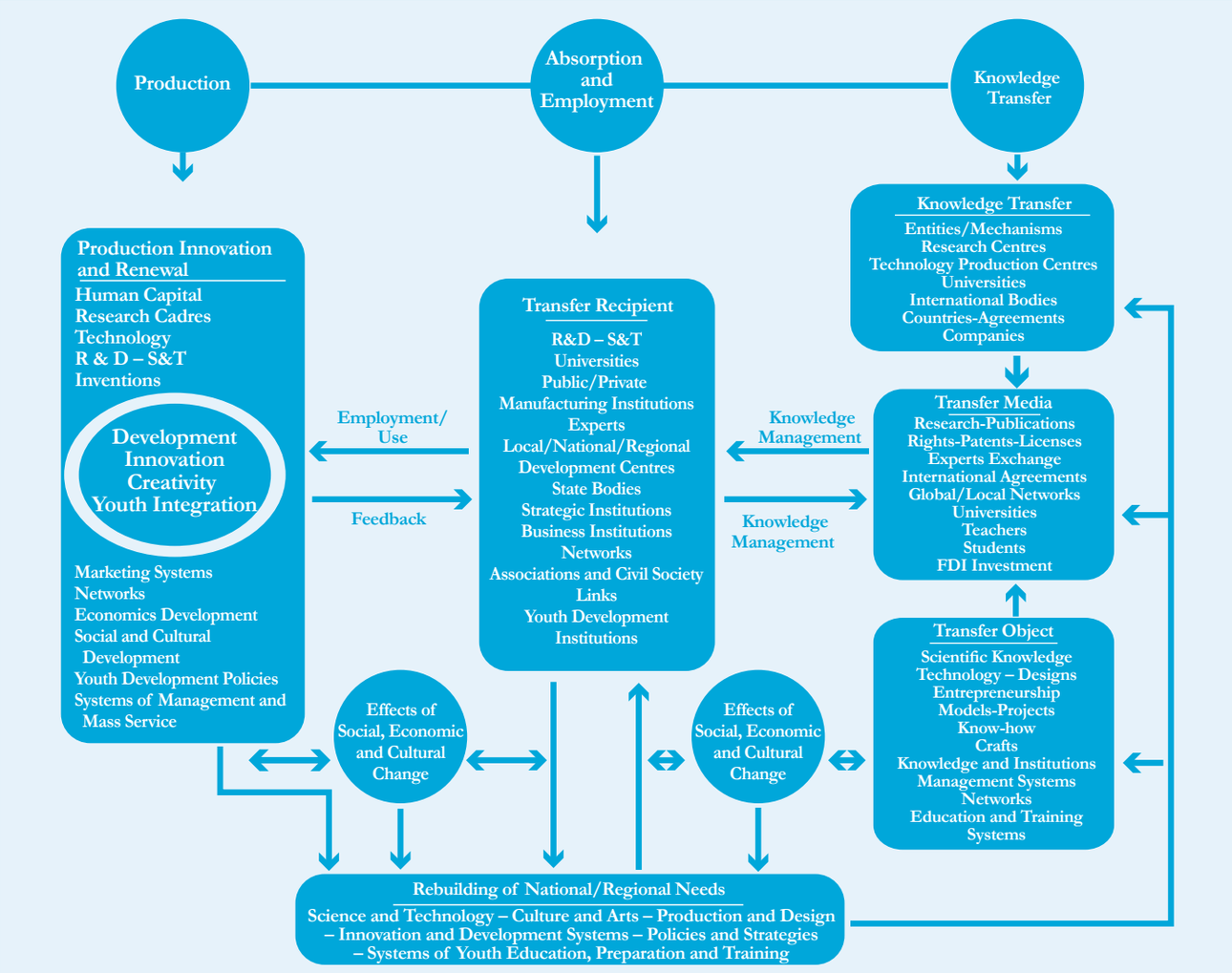
It would be instructive to distinguish between the transfer of knowledge, the localisation of knowledge and the absorptive capacity for the localisation of knowledge. Localisation requires the internal production and employment of knowledge, unlike transfer, which might be limited to importing knowledge products from abroad. Therefore, the transfer of knowledge is considered a necessary means for its localisation, albeit insufficient. The transfer of knowledge and

The transfer of knowledge can be defined as those processes by and through which the experiences of others are transferred to a certain organisation, or to a unit in a particular organisation, or even to a country through its specified organisations or institutions

It would be instructive to distinguish between the transfer of knowledge, the localisation of knowledge and the absorptive capacity for the localisation of knowledge

Figure 2.5

The Knowledge Localisation Model



Source: Bozeman 2000.

Model adapted from the Bozeman model to comply with the concepts of the present report. The Bozeman model is a unidirectional model moving from transfer to production, but the current model in this report finds that the transfer process is interactive in all its stages. There is no linear relation between transfer and production. The sum of interactions between the processes and steps of transfer, employment and production in the current model is what constitutes the knowledge localisation.

The absorptive capacity of the recipient is essential for the success of knowledge transfer and localisation

technology becomes useful when strategies of knowledge transfer integrate in and merge with the policies and strategies of knowledge localisation and production. The "absorptive capacity" refers to the availability of enabling environments, financial and human resources, education, training, infrastructure, ICT, R&D and intellectual property rights. The absorptive capacity of the recipient is essential for the success of knowledge transfer and localisation. In other words, the success of any individual, institution, or country in the transfer and localisation of knowledge depends on its ability to employ knowledge and information in business and enterprises.[49] Figure 2-5 shows the set of interactions in the process of the transfer, utilisation and production of knowledge towards its localisation.

Mechanisms of Knowledge Transfer and Localisation

Knowledge is transferred from its carriers (individual, organisation or country) to recipients or users (individual, organisation or country) through several channels. In this context, we are to distinguish between internal transfer and external transfer of knowledge across countries.

In terms of the external transfer of knowledge, international studies have identified several different channels for the global transfer of knowledge across countries, including, for example: direct foreign investment, licenses, patents, import, international trade, ICT, education, training, international migration and the movement of human capital.

Knowledge can also be transferred through academic institutions, universities, research centres and industry sectors, as well as through the reciprocal relation between producers and consumers.[50] [51]

– Foreign investment is regarded as one of the most effective and fastest mechanisms of technology dissemination and an important channel through which knowledge is transferred. The viewpoints that support the effectiveness of this mechanism are based on the argument that direct foreign investment is considered one of the important channels that involve the acquisition and transfer of international technology and knowledge transfer across international borders directly from parent multinational companies to their foreign branches.[52]

– Information and communication technology is considered a key tool to access digital knowledge, improve access to knowledge, facilitate the production, assimilation and rapid dissemination of knowledge and improve the transfer of written/encoded and tacit/implicit knowledge.[53] Computer and communication systems also play a vital role in the transfer of knowledge and the improvement of the exchange and sharing of explicit and tacit knowledge by facilitating communication over long distances and exchanging a large amount of information.

– International migration and mobility of human capital: Most studies today agree that knowledge transfer is linked to the movement of human capital, labour and highly skilled migrants.[54] Also noted is the importance of international migration for knowledge-based economies and its role in building national technology and achieving economic development.[55] This growing recognition of the importance of the movement of human capital as a conduit for knowledge transfer is based on the argument that all individuals moving from one place to another carry knowledge, and that humans transfer and carry tacit/implicit knowledge, which is inseparable from the holder of knowledge, which can help disseminate written/encoded knowledge.[56] This is added to the belief that the value of international migration and human movement is not just limited to the transfer of human capital, but also extends to the transfer of physical capital and knowledge transfer.[57]

– In addition to the above, many researches confirm the important role of cognitive abilities in the transfer and localisation of knowledge. Cognitive abilities include the acquired cultural capital and personality traits of an individual or individuals, such as experience, values, motivations and beliefs. In an organisation, an individual's ability to represent, apply and use information and knowledge by relating to previous knowledge is considered one of the major factors in the processes of transfer and localisation. Since the transfer of knowledge is influenced by the relationship between the knowledge carrier and its recipient, similarities between individuals and/or organisations or within these organisations concerned with the transfer of knowledge involves important challenges that should be addressed in the policies of economic and social development. Studies reveal that the similarity between the recipient and the source is useful in terms of the transfer of knowledge through training, while this similarity constitutes an impediment to creativity and innovation that are nurtured where the two parties of knowledge transfer are less similar.[58]

With regards to the relationship between knowledge patterns and ICT, which are indispensable in the management, transfer,

Foreign investment is regarded as one of the most effective and fastest mechanisms of technology dissemination and an important channel through which knowledge is transferred

Box 2.7

The Role of Knowledge Patterns in Catalysing the Relationship between the Transfer of Technology and Economic Development

To determine the relationship between the transfer of technology and economic growth, and the role of knowledge in its different modes in the activation of this relationship, one notable study built on a survey conducted in three provinces in China, aiming to transfer technology in the field of architecture and construction through Sino-Foreign Joint Ventures.[62] The first province was Jiangsu, which is characterised by high economic growth and Sino-Foreign investment (about 20,500 companies). The second was the province of Henan, which has medium growth and less Sino-Foreign investment than Jiangsu (about 2,000 companies). The third was the Xinjiang province, which has the lowest growth rate and the least number of Sino-Foreign business ventures. Statistics had not yet shown the exact number of projects there. The comparative study of these three provinces showed important results for those who draft the policies of knowledge transfer and localisation, summarised as follows:

1. There are four components in the process of knowledge transfer and localisation: the technology used, the knowledge, the organisation and the product. Knowledge is the main factor that contributes to the tuning process of technology as a whole. It is important to understand the implicit and explicit knowledge needed to support the process of technology transfer. The study confirmed that the effective transfer of technology cannot take place without the necessary transfer of knowledge. The model that the study reached shows that knowledge transfer is central to the success of technology transfer. Knowledge cannot be transferred without technology and technology cannot be transferred without knowledge.
2. The effectiveness of the transfer of knowledge and technology in a local territory increases whenever there is a clear organised relationship between a foreign factor and a local factor. The local territory does not benefit from the localisation of knowledge and technology, if the relationship is between a foreign organisation carrier of knowledge and technology and another foreign organisation or contracting company, which also recognises the entrepreneurship that has been built and equipped to the local recipient (turn-key model). Relationships between local organisations do not often involve any innovation or development in the process of the transfer and localisation of knowledge and advanced technology.
3. Tacit knowledge plays a key role in the process of the transfer and localisation of knowledge and technology. It is the main component in establishing a continuous and permanent comparative advantage in a facility. There is always a problematic relationship between that which is transferring the knowledge and the knowledge recipient. This relation clearly appears in the process of knowledge management within the enterprise between the foreign and domestic departments in the joint ventures that have been studied.
4. There is a positive correlation between the transfer of knowledge and the level of economic growth in the territory or organisation into which knowledge is being transferred. Results indicate that the need to transfer knowledge increases whenever the level of economic growth does. And whenever the level of economic growth increases, the demand for tacit knowledge increases, such as in the case of the need to be familiar with the methods of "knowledge management" applications within the enterprise and beyond. The demand for explicit knowledge is higher in the less developed regions, for there is an obvious need to obtain explicit knowledge embodied in certain technologies or programmes for the production of a particular product.
5. There is a strong positive relationship between the growth patterns of the required technology, the transferred technology, and the level of technical growth of the recipient. The gap between the level of technological growth of the recipient and that of the donor has an adverse effect, in spite of concerns related to support agencies and their assistance in the process of the transfer of knowledge and technology in the three regions studied.

The previous five results have important implications for economists when addressing the economic challenges, at both macro and micro levels. They are also important for government policymakers in addressing the shortcomings in the transfer and localisation of knowledge and technology and supporting the development of appropriate action plans and procedures for the transfer, management and localisation of knowledge.

The value of international migration and human movement is not just limited to the transfer of human capital, but also extends to the transfer of physical capital and knowledge transfer

and localisation of knowledge, most writers consider that technology (based on the explicit knowledge that can be encoded and indirectly transferred) is not enough without human intervention (and the human implicit knowledge that cannot be encoded or transferred). Therefore, companies always search for a good model of knowledge transfer; a model that balances between the approaches to ICT and those to human beings. One researcher[59] confirms that knowledge can be transferred either as

a subject that can be directly observed, stored, transferred and employed, or as processes, i.e. that support interaction between people, through which the creative capacities of individuals are shaped and grow by exchanging knowledge and sharing life experiences between the source of knowledge and the recipient.

This implies that formation and apprenticeship, as well as technologies, are the right path to transfer knowledge, especially implicit knowledge. It also implies that employment and collective practice are the path towards knowledge localisation. The importance of cognitive abilities among individuals within the organisation concerned with the transfer and localisation of knowledge is of specific emphasis, as well as that of the cultural environment, the organisational structure of the enterprise fostering the transfer process and the rational governance it entails, and the cognitive ability to manage the processes of knowledge transfer and localisation.

Globalisation: Problems, Opportunities and Risks

The phenomenon of globalisation emerged as a result of the revolution of technology and information, the increasing prevalence of information and knowledge among humans, the increase in similarities between communities and groups, the cross-border expansion of production and media enterprises and the dissolution of obstacles and barriers between communities. Our contemporary world, despite the differences and existing borders, has become a small village. Thomas Friedman describes this phenomenon as the "flat world", distinguished by the fact that knowledge is available for all and that it quickly spreads and circulates between the corners of the world. In this world, knowledge goes beyond the limits of time, space and borders and allows developing societies such as China and India to obtain the historical wealth of knowledge that has occurred in advanced societies and to begin their progress towards a knowledge society, by virtue of "belonging to one open world".[60]

Accordingly, globalisation is a historical process. Or rather, it is a set of historical processes, which include profound and tangible transformations in social and political relations that have crossed the borders of continents, regions and nations, until they reached local communities, adults and young people, in towns and villages in any country in the world. This initially occurred at the beginning of the last two decades of the twentieth century, which marked the beginning of the emergence of the second wave of globalisation with the increasing expansion of giant industrial enterprises in their industrial and trade practices across geographical borders.[61] The escalation of globalisation continued until it became the enormous power dominant today. Globalisation has grown with the companies it benefitted; giants in economy, media and culture and centres of global political strategies, to the extent that the term "multinational" is no longer expressive. These companies surpassed it; they acquired the term trans-nation, or cross-nationalities/countries.[63] The term "states without nations" has recently emerged; it does not only mean that borders between countries are disappearing, but includes the reference to local issues within a certain country from the perspectives of globalisation.

In this sense, globalisation has become strength, and this strength has increased based on several pillars that were formed historically. Many studies confirm that the following are some of the most important among these factors:[64]

- The power of globalisation was first based on influential networks of global institutions, such as the World Bank, the International Monetary Fund and the World Trade Organisation and the agreements they concluded and the regulations they defined. This is in addition to the patterns and models of processes, arrangements and standards governing the activities between the centres and the various international entities around the world. It was also based on the links and software sets in politics, economy,

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culture and media and the emergence of new competition-based markets. These markets are committed to global standards and programmes that specify the prices, quality and policies of global production.

- The power of globalisation, secondly, was based on the World Wide Web, thanks to the advancement of ICT, software and networks. Through these technologies, globalisation widened the base of communication with companies and branches increasingly scattered across the globe to achieve its economic, political and cultural functions.

- Thirdly, the power of globalisation increased by the quick and safe movement of capital across countries, by a simple press of a button on the computer through global communication networks. The way funds are snatched away from their original sources and social contexts to reach global spaces that surpass time, place and culture, has created a flow of money that is centred around specific geographical constituencies in the West and the newly emerging industrialised countries, further strengthening the dominance of globalisation cluster countries. This has also led to heated competition and created unequal divisions. Everything has come to orbit the globalisation networks and rules. In the same way, human capital and highly skilled labour and experts have moved, leaving their countries for the new global workplace. This did not exclude economies, nor workers and experts, nor the arenas of education, teachers and students, which led to the globalisation or internationalisation of many centres of expertise, universities and decision-making centres and the liberation of highly qualified labour and experts from the constraints of movement.

Many of the world's elite have been associated with global forces and not their countries, and in many cases, they left their countries of origin that suffer from poverty and underdevelopment. Many marginalised communities emerged in most countries – areas suffering from poverty and discrimination – to constitute what some researchers now call the "Fourth World". These areas were separated from their homelands and the world due to poverty and were left alone with no power or voice in the world. We also find elites separated from their homelands enjoying wealth, knowledge and science, and are integrated instead within the forces of globalisation.

Globalisation is seen by many to carry promising opportunities for humankind, especially in the developing world, where we have seen attempts to establish small communities capable of competing globally and building the knowledge society. Yet, there are many other voices warning of the great dangers of globalisation

Globalisation is seen by many to carry promising opportunities for humankind, especially in the developing world, where we have seen attempts to establish small communities capable of competing globally and building the knowledge society. Yet, there are many other voices warning of the great dangers of globalisation. These writings are based on the fact that knowledge economies, that are the economic heartbeat of the knowledge society and the phenomenon of globalisation, are not different from other capital economies. They involve various risks, such as the ones raised by the researcher Joanne Roberts when she said: "If the growth of economic globalisation has a major impact on driving forward the processes of developmental progress in many countries of the world, it nevertheless left behind gaps of underdevelopment and poverty in more than one place in the world, at the country level and between the different countries of the world. There are more than three billion people, i.e. nearly half the world's population, still living below poverty line (with less than USD 2.50/day). In 2005, 1.4 billion people, or nearly a quarter of the population of the developing world, were living below the poverty line of USD 1.25/day. The poor people of the world are exhausted from trying to earn a living every day and have very limited to rare opportunities to improve the quality of their lives through the acquisition of knowledge and skills that will enable them to catch up with the knowledge economies in the context of a hegemonic globalisation.[65]

However, some believe that globalisation has helped intensify the competitiveness between

countries and companies. Multinational and transnational companies have been playing a major role in stimulating creativity, innovation and evolution. Therefore, globalisation has become a driving force for evolution. This is opposed to the view that globalisation has strengthened the new hegemony of the northern hemisphere countries in knowledge production sectors across the globe, as reflected in the dominance of the English language on global communication networks, and the influence of transnational companies on knowledge production elsewhere. Supporters of this view add that the WTO agreement, on Trade-Related Aspects of Intellectual Property Rights and the proliferation of organisations to protect Intellectual Property Rights (IRs) globally, has also contributed to this.

Hence, "globalisation is opportunities and risks", as expressed by Al-Sayyid Yassin,[66] making it imperative for developing countries to seek progress and catch up with the knowledge society by developing policies and visions to integrate the youth into the processes of the transfer of knowledge, overcoming the contradictions and benefiting from the opportunities. In this regard, we confirm that the revolutions in knowledge, ICT, knowledge economies and globalisation sweeping the world today are revolutions in interactive, intertwined reciprocally reinforcing circles, so that no circle can be dealt with in isolation. That is the unity of civilisation, which can no longer be ignored, and we must accept its standards, beginning with knowledge and its requirements to build knowledge economies and ICT, and deal with this comprehensive entity, which is "globalisation", so as to seize opportunities and manage the risks.

The Globalisation of Skills

Within the framework of the organisation of economic globalisation, giant multinational companies have globalised skills and labour, leading to the establishment of something very similar to a global division of labour. These companies have taken the lead in the emergence of the first wave of globalisation during the 1980s and 1990s of the last century. The second wave of globalisation, at the end of the 20th century, witnessed the transition from the phenomenon of multinational companies to that of cross-border companies. After this increasing globalised growth, these giant companies had the power to control the movement of the global economy, and then set the groundwork of the international division of labour and economy and the globalisation of knowledge, skills, higher education and labour force. These companies worked on the integration of the sources of trained human wealth globally, especially creative and talented individuals, and on the determination of the quality and standards of required labour skills and values. At the same time, these companies helped their homelands remain the centres of development of coordination strategies, integration and brain-work centres, while pursuing high production quality in different geographic areas that offered the global skills required at lower costs of production, as is the case in China and India, for example. That is how the global distribution of highly qualified and skilled labour force has become today a major determinant in the competitive advantage of every country that aspires to progress within the context of globalisation as set by these multinational companies.

The policy of these cross-border (multinational) companies has crystallised in a strategy of separation of two elements: "where thinking with efficiency, creativity and innovation takes place, and where production at a low cost and with high efficiency is being offered." The place for thinking is where exists a critical mass of people (cognitive capital) who are aware of the meaning of organisation and have the thinking skills and collective communication skills essential for development, problem-solving and crisis management, in addition to potential capabilities driving development and creativity forward. Creativity and development cannot depend solely on the skills of individuals, companies or universities working individually, but requires essentially a culture of joint action, mutual interests and work partnerships to support

"Globalisation is opportunities and risks", as expressed by Al-Sayyid Yassin, making it imperative for developing countries to seek progress and catch up with the knowledge society by developing policies and visions to integrate the youth into the processes of the transfer of knowledge, overcoming the contradictions and benefiting from the opportunities

the developmental research, the design research, and the overall development of products in emerging economies.

However, the acceleration in research and higher education systems in developing countries seeking to progress, such as China and India, and their focus on building networks of scientific research, localising and employing knowledge and preparing huge cadres of higher education outputs capable of operating in these networks, will transform the strategies of cross-border companies in separating "thought centres" from "production centres". Therefore, China, India and other countries going through the process of the localisation of knowledge become thought and production centres as well, reducing the cost and providing quality and efficiency.

The problem of the youth and the localisation of knowledge is at the centre of Arab development and the potential success in expanding opportunities and developing abilities

Also, in the context of the globalisation of skills and knowledge, there emerged new international programmes and standards, and a movement of internationalising education. Education has become a launch pad of the power of globalisation within a country, through building new world-class cadres. Globalisation has unleashed new potentials and determinants for universities and research centres. This is an important step for policy-makers to consider in the policies of knowledge transfer and localisation.[67] While the peoples and nations of the world want to transfer and localise knowledge through the development of their universities to build knowledge societies, they find international standards and programmes and the internationalisation of universities as mechanisms for the establishment and emergence of new classes and discrimination in education, which often lead to a separation from the unity of the homeland and its local needs. The Arab region, just like all the regions of the world, has been affected by the so-called "movement of internationalisation of universities and globalisation of skills" with its pros and cons.[68]

There is no doubt that the globalisation of high skills and high-level intensive knowledge will reflect in the near future on labour structures in developed countries, leading to a decrease in the need for middle-class CEOs and middle-class professionals and engineers. This is also expected to affect the cost-effectiveness and benefits of these same categories of employment. Giant multinational companies strive for high-level skills and knowledge with low-cost production. So does this represent a big opportunity for Arab countries to transfer and localise knowledge and form places suitable for the emergence of knowledge economies?

Development

The Necessity of Social Justice in Knowledge-Based Development

The problem of the youth and the localisation of knowledge is at the centre of Arab development and the potential success in expanding opportunities and developing abilities. The readiness of young people for the transfer and localisation is a developmental issue in the sense raised by Amartya Sen.[69] This means that the demand for the transfer and localisation of knowledge is inseparable from the demand of development in its economic, political and social dimensions, and cannot be separated from the individual's capacity to choose. Development is the expansion of the opportunities and the development of human capabilities at the same time. Young people are the holders of knowledge and the driving force of development. At the same time, development is what provides the youth with opportunities that enhance their readiness to achieve sustainable progress, thus enabling them to contribute to the access of the knowledge society.

Development, according to Amartya Sen, is synonymous with freedom; freedom is the capacity of development to expand the choices before the human being. The previous AKR 2010/2011 built on the triad of knowledge, development and freedom, making it necessary to clarify the pattern or structure of the relationship between knowledge and economic growth. It is true that knowledge is the pillar of economic

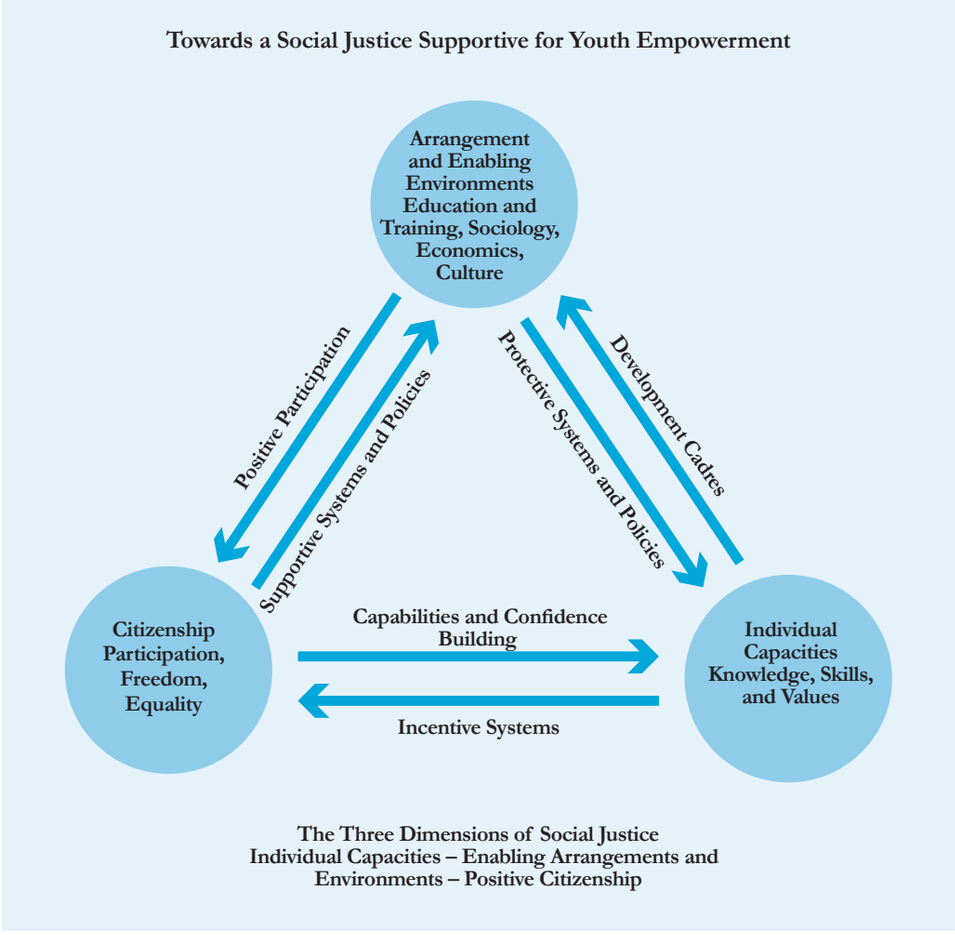
growth. However, it cannot be simplified, because the relationship between knowledge and economic growth is not simply a linear and unidirectional one, but rather involves a challenge already addressed in the previous AKRs; one represented by the contradiction inherent in the knowledge society and the knowledge economy.[70]

This debate takes us beyond the knowledge base to the necessary condition of social justice. Saying that knowledge economies are the pillar of development and saying that social justice is also a pillar of development means that the two issues are important, complementary, and one cannot be achieved without the other. Knowledge-based development in geographical areas characterised by the "youth bulge" such as the Arab region, does not take place without qualifying young people and supporting their capabilities, skills and values, as was explained in the previous section. All this cannot succeed unless the pillar of social justice is provided as a prerequisite for national social policies. These policies should support and build the capacities of individuals and expand the opportunities for participation in the various sectors of economy, services, education, health, housing and employment, as well as in welfare and youth development institutions. All of these are environments that require knowledge and social justice for efficient operation, in order to provide individuals and societies with a decent life based on the social integration of young people in the transfer of knowledge and technology; while ensuring at the same time the elimination of exclusion and marginalisation; supporting

Saying that knowledge economies are the pillar of development and saying that social justice is also a pillar of development means that the two issues are important, complementary, and one cannot be achieved without the other

Figure 2.6

The Integration and Enabling of Youth in the Localisation of Knowledge



active citizenship, participation and equality; and elimination of discrimination on the basis of race, religion, sect, social class or regional origin.

This leads the discussion from development to the issue of social justice, from a perspective that adopts the approach of capability and of building the Arab individual's economic and social cognitive effectiveness so that he or she carries out the functional social act that supports the transfer and localisation of knowledge and the building of the knowledge society. Social justice, from this perspective, is an overall concept based on the triad of active human capacities, arrangements and enabling environments and positive citizenship.[71] Figure 2.6 shows the interaction of the three dimensions of social justice (the development of high level capacities, arrangements and enabling environments, and positive citizenship), which form complementary spheres within the process of integrating young people in the localisation of knowledge and the building of knowledge society. The development of capacities, enabling environments and supportive social arrangements represent a framework for building development cadres capable of the transfer and localisation of knowledge, and for building systems that ensure a supportive environment for positive participation as well as freedom and equality. The interaction between the development of capacities (knowledge, skills, and values) and legal contexts that support citizenship establishes confidence-building factors within the culture of the Arab region, as well as factors to establish systems of motivation and increased participation in the acquisition and dissemination of knowledge; positively contributing in the development processes. Moreover, the three pillars in the concept of social justice in this sense are linked to the knowledge pillar, and this correlation between the three dimensions becomes the necessary condition to ensure the integration and empowerment of the youth in the processes of knowledge transfer and localisation.

Social justice, from this perspective, is an overall concept based on the triad of active human capacities, arrangements and enabling environments and positive citizenship

The human being is the objective, and development is the act of building the human being, increasing his or her capabilities and expanding participation opportunities. Social justice, according to Amartya Sen's approach as elaborated in his book "The Idea of Justice",[72] is firstly, the development of the capacities of the human individual to perform the work he or she prefers and perform the social functional work to carry out his or her preferences. Secondly, it is the provision of social conditions and social, political and economic contexts through which the individual can achieve his or her abilities and capacities, and then exercise freedom of choice, self-realisation and participation, and social and cognitive effectiveness. Social arrangements are the social policies that guarantee the rights of the individual and the permissibility of the legal implementation of these rights. They also mean the enabling environments and their quality in the provision of such rights (education, health, housing, culture and care). This concept emphasises that achieving justice depends mainly on a deep integration between the individual's efficiency, the social, economic and political arrangements and the quality of related institutions. At the same time, Amartya Sen believes that the structure of social relations in society may expand or narrow down the opportunities to develop individual abilities (skills and personality traits). Hence, he adds that the means and approaches to address the individual, social and economic disparities are the constituent set of specific conditions that form decisions and policies to achieve progress in any community, through empowering youth and developing their capabilities.

Based on the above discussed concepts of development and its relation to knowledge as a main element in realising a nation's path to prosperity, it is necessary to state that development and progress should not be limited to narrow economic perspectives of traditional or capital goods and services, such as growth rates, per capita income and other indicators. Establishing a perspective of the importance of knowledge, in terms of building the knowledge society and the revival of nations, obliges us to observe

development through its ability to expand opportunities for young people and develop the core capabilities that give individuals the freedom to set the conditions favourable for their active participation in building a decent life. Real development enables societies to transform their physical potentials and natural resources through knowledge, innovation and creativity into a developmental base that lays the foundation for enabling environments that respect human rights, reduce poverty, create decent jobs and ensure that social spending is a real investment for the future and an expansion of the opportunities for youth empowerment. In this regard, the Arab Development Challenges Report 2011 noted that "the Arab World" is richer than the outcome of its development. Real development means directing all the efforts in the country towards investing in its citizens and extending them the freedom to choose between available opportunities in enabling environments, building the capacity of the youth to transfer and localise knowledge and employing it in innovation and creativity.

The Definition of Youth

There are multiple approaches to defining the youth. Youth, as psychologists indicate, is a psychological transitory period in an individual's life, during which a social passage occurs from childhood to adulthood. During this period, young people face new roles required of them in the next stage, and begin to form a new identity on the basis of the achievement of embodied symbols of integrity, idealism and life continuity. The historical psychology of young people plays a major role, in the sense that the individual interacts throughout the period of his or her formation with the surrounding environment, impacting it and getting influenced by it. Ideologies also play a major role during the formation of a new identity for young people. These processes are affected during the period of formation by life and social institutions that nurture the youth. The family, the school and socialisation institutions play the biggest role in the upbringing of young people, the guiding of their intellectual and cultural formation and the building of a healthy psychological identity.[73]

The emphasis on the individual's psychological or social history, or both combined, implies the realisation of the diversity of the characteristics of the youth from one geographical region to another, and from one social class to another, based on the diversity of the effects of social and psychological upbringing. Regardless of the approach adopted in defining the youth and their upbringing experience, there is a general nature or common features that characterise them, by virtue of the social, psychological and biological maturity within this transitional phase. These common characteristics are particularly reflected in the energy, the tendency for leadership, the ability to acquire knowledge and skills, a vision towards the future, the desire to accomplish valuable actions in life, vitality and risk-taking. However, personal autonomy and responsibility draw the line between childhood and adolescence on the one hand and youth on the other. Young people only become fully fledged or mature once they become independent and are able to take personal and social responsibility.[74]

Many definitions of "youth" are based on a quantitative approach of that often involves specific age group. The Nordic Youth Council indicates the youth category to be between 15 and 34 years, whereas the Commonwealth Programme indicates it to be between 15 and 29 years. Meanwhile, the United Nations notes the youth at 15 to 24 years. This last classification has been adopted for statistical reasons, where the statistical data is often made available in age groups defined on the basis of five-year bands. This definition does not imply any bias against other definitions that might be adopted by member countries of the United Nations on the basis of several social, cultural, economic, institutional and political factors. Yet, there is a need to adopt a standard definition to facilitate comparison between countries and within the same country over time.

Youth, as psychologists indicate, is a psychological transitory period in an individual's life, during which a social passage occurs from childhood to adulthood

The current Third Arab Knowledge Report identifies the category of young people – which it aims to study in five Arab countries – as those aged betwen 19 and 29 years of age. This is adopted for practical reasons, given that this group includes young people receiving undergraduate and graduate studies, in addition to those supposed to be well-prepared to contribute to the transfer, dissemination, employment, production and localisation of knowledge. The selection is also justified by the fact that the field study in this report is considered a continuation of the field studies of earlier reports, where the second Arab Knowledge Report 2010/2011 dealt in its field study with the age group under 18 years.

If knowledge is the engine of progress and the source of peoples' wealth in the era of the knowledge society in contemporary global civilisation, then young people are the power entrusted with the transfer, dissemination, localisation and employment of knowledge in new development initiatives

The Role of the Youth in Times of Change

Whatever the case regarding the quantitative indicators or theoretical definitions of the youth and its characteristics, young people across the world are experiencing a crisis, because of the global changes in the context of globalisation. The economic crisis that the world has witnessed over the past few years has had a major impact on young people, and its repercussions continue today. This crisis manifested itself in the increasing rates of unemployment across the world, and in the Arab region in particular.[75] This will be discussed in detail in Chapter 3.

Here, we should emphasise that the Arab region is affected by a specific challenge related to the relative disinterest among its politicians in reaching the aspirations and addressing the concerns of young people in their societies and countries. Globalisation, and its strong trends that have swept the countries of the world, has rivalled these politicians and invaded the minds of the youth with its web of networks and loud voices from every country; voices that include values, trends, information and knowledge that reflect a new and changing world.

Youth and Cognitive Development

If knowledge is the engine of progress and the source of peoples' wealth in the era of the knowledge society in contemporary global civilisation, then young people are the power entrusted with the transfer, dissemination, localisation and employment of knowledge in new development initiatives. This is a logical relationship and its necessity and importance are emphasised by various studies and international experiences, which highlight the importance of young people. Also highlighted is the importance of transforming this group into an efficient human capital capable of competing in the global community and triggering an economic development integrated with the globalised market, and a quantum leap in the quality of life, culture and knowledge, in order to achieve, eventually, human welfare, dignity and freedom. Young people are the pioneers of creating the future. The future of a society resembles its youth, which calls for devoting more attention towards nurturing and empowering them.

Within this context, there are various options and guidelines related to youth support strategies and programmes. The UNESCO Report (2012) confirmed that investment in young people and their integration in the development process means equipping them with the skills that enable them to cope with the requirements of knowledge transfer and localisation. The most important of these skills are life skills that help young people integrate and devise promising solutions for the challenges of unemployment (such as communication skills, teamwork skills and language skills in reading and writing), and transferable skills (such as problem-solving including critical thinking, creativity, logical thinking and scientific thinking). It also means empowering the youth with knowledge and capabilities in foreign languages, their mother tongues, sciences, mathematics, physical education and arts. In this regard, reports have indicated that young people with skills in mathematics and statistics are more in demand in certain labour markets where industries based on the use of knowledge prefer workers with broad cognitive backgrounds and transferable skills. Young people who perform well and enjoy these qualifications are able to adapt and learn while they work.[76]

Youth and Enabling Environments

Studies have unanimously agreed on the need to provide the contexts and environments for enabling young people and integrating them into the processes of knowledge transfer and localisation, so that they deservedly become a wealth and a source of wealth. However, these young people will not be able to integrate effectively in life and society unless there are effective cultural and political structures that allow participation and integration, and support the acquisition of various knowledge and skills. Political and social contexts play an important role; the political climate should enable young people to interact with their surrounding social environment and with the labour market and education, while the social and cultural context is what nurtures the public collective consciousness and provides the values and incentives for the acquisition of knowledge and the ability to solve problems.[77] Also, public opinion cannot turn into effective public policy without an enlightened cultural structure based on values and practices that support active participation, engagement and empowerment and drive accountability.

There are significant international experiences and examples to learn from in some developing countries, with regards to how various institutions can support and encourage the preparation of young people to engage in the globalised stock of knowledge, in terms of assimilation, transfer and employment. Many countries have established institutions of youth development. The main role of such institutions is to mobilise the sources of knowledge in innovation, dissemination, implementation and modernisation that relate to developing the youth sector, supporting its effectiveness and developing the necessary policies and operational plans to do so, as well as promoting entrepreneurship. The supervisors of these institutions, in India for example, note that young people play a major role in the development and transfer of knowledge, for they constitute an effective and efficient force in the assimilation, transfer, diffusion and employment of knowledge.[78]

Concepts of Culture, Values and Citizenship

Without doubt, the status of knowledge cannot be understood in isolation from economic, social and cultural concepts. Therefore, the identification of the cognitive situation of young people calls for greater effort for the sake of a good understanding of their intellectual vision of culture, identity, values and citizenship. They are overlapping conceptual circles and each contributes to the other. Culture and identity define the pattern of "values" and the pattern of "citizenship" with the principles and directions they provide. For example, the political culture, as a part or component of society, determines the status of the citizen through a social contract, reflected in legislations and laws that define the relationship between the state and the citizen in the knowledge society, including the rights, procedures and obligations between all parties. The social contract is a reflection and indicator of a society's identity, while values are also determined within a specific cultural context.

Culture and identity define the pattern of "values" and the pattern of "citizenship" with the principles and directions they provide

However, knowledge and its types and patterns are determined by culture, identity, values, the capability of citizens and their preparation pattern. The knowledge that the people of a specific culture and identity seek is an expression of their abilities and skills as citizens and their value orientations. The epistemological dimension in any culture is an essential determinant of the so-called "cosmic vision" that determines the members of a particular culture, through human beings, the universe and life.

Consequently, this section will address the concepts of culture, identity, values and citizenship. These will be also discussed in more detailed in Chapter 3 through the analysis of the status of the Arab youth and their cultural effectiveness.

Culture

Despite the existence of several definitions of culture in the literature of social sciences, we adopt in this report the concept of

culture as a system of values, trends and experiences that have accumulated and taken root in a certain society. This system is what is employed by society members in a certain way to establish their world, satisfy their needs and produce the means of this satisfaction. This generates structures, relationships and achievements,[79] as well as the ability of any society to drive progress with its perceptual and cognitive models and incentivising cultural structures towards embracing modernity with the knowledge to build, innovate and create. Alternatively, culture can involve restrictive elements that inhibit progress and support backwardness with obsolete traditions and values that encourage inertia, the anchoring of the past, the unseen and formalism.[80] The culture that supports progress is characterised by the fact that it poses "cognitive models", whereby people perceive the world around them on the basis of experience, rational, logical and philosophical consistency and enlightened beliefs that open the door to positive change. These cognitive models, which build a favourable view of progress, are the catalyst for creativity, innovation and the production and employment of knowledge to achieve social and economic prosperity.[81] Moreover, the dissemination of scientific culture from one society to another through translation or transfer by scientists, is not possible without a cultural climate that involves "cognitive models" that provide a favourable view of the universe, the world, the human being and life. These models accommodate the scientific method, experimentation and rational philosophy, and support the scientific traditions in the fields of research, development, theoretical thinking and technical practices.[82] Perhaps some of the reasons for the delay in Arab societies lie in the localisation, employment and production of science in the context of an Arab culture that lacks knowledge and cognitive models that reflect "modernity".[83]

The culture that supports progress is characterised by the fact that it poses "cognitive models", whereby people perceive the world around them on the basis of experience, rational, logical and philosophical consistency and enlightened beliefs that open the door to positive change

Culture and Science among the Public

The localisation of knowledge and science is not limited to the establishment of international scientific centres. It is true that science, knowledge, creativity and innovation are the areas where specialised groups are active in scientific research centres and universities. However, such groups do not live in a vacuum, but rather in a society with a specific cultural context. And unless the community culture allows enhanced dynamic interaction to produce science and knowledge with the public, science and knowledge shall remain deserted. As long as the people's general culture does not involve perceptual and cognitive models that promote the scientific method, scientific thinking and rationality, the "scientific culture", in the professional and technical sense, will remain of a secondary marginalised importance in the surrounding societal and communal culture. Society advances with knowledge, science and innovation; and if the culture of the surrounding community gets separated from the culture of specialised scientific groups therein, scientists will be isolated and innovation and progress would break down, because this gap does not only deprive scientists of the supportive culture, but rather constitutes a force resisting their work, thinking patterns and perception of the world, universe and life. Such a gap also deprives society of the scientific outputs and by-products, while also stifling the practices of scientific and rational thinking.

Scientific discoveries, technological inventions, innovations and creativities in developed societies pass from the specialised scientific groups to the lay citizen depending on the recipient's cultural responses, so that they are completely reflected in the structure of the general culture of the society as a whole.[84] If the society's culture is not favourable to such a response, the efforts of scientists face resistance. Therefore, the extent of the penetration of science in society demonstrates the readiness of the general culture to contain the activities of science, and even to support these activities and employ their outputs. The transfer and localisation of knowledge requires public policies to develop a specialised scientific culture and transfer it to the society, the public and the lay citizen.[85] The facilitation of the transfer of knowledge to the lay citizen is usually conducted through the so-called

"scientific culture membrane" or, in other words, through building a scientific vision or a scientific enlightenment that settles in the general culture of the society, so that it represents a cultural trend through which scientific concepts, knowledge products, creativities and innovations are transferred to the public. Therefore, cognitive, cultural and social models that support science and scientists are consolidated.[86]

The daily life of the public in any advanced society is based on the employment of scientific laws, rules, theories, data and information produced by scientists. Therefore, we note the increased focus of studies and research on the vital question: to what extent has science become general merchandise in society? One study deals with the extent of the penetration of scientific discussions in the culture space of society and the extent of the society's interest in discussing issues and discoveries. These include biotechnology, the link between science and technology, the assisted reproductive technology, immunodeficiency diseases, gender selection, the huge advancement in IT and its use in R&D, changes in the environment, pollution problems, food and public health. The scientific gap between the culture of specialised scientists and that of the public will cause a crisis in the path of scientific progress, which prevents the localisation and use of knowledge. In this context, the mentioned study confirms that the ignorance of the public leads to its members being armed with superstitious and obsolete beliefs about the universe, the human being, life and the world; myths, legends and non-scientific thinking, all of which are obstacles to progress.[87] One question arises at this point: has scientific progress led to public social scientific dialogue in the general culture of the Arab society?

Values

According to Grondona, values are defined as the sub-element in the symbolic layout of the individual or group of individuals, operating as a criterion for the selection of the rule or act among alternatives of variables in different life situations.[88] In this sense, values serve as guides to the individual or the group and its function(s), including cognitive, emotional and orientation aspects.[89] Values are the sub-elements in the general culture of society and they influence its development. Religion and human morals are among the main sources of values in any society, institution or social organisation. In organisations, values play an important role in shaping performance, the direction of its leadership, the quality of its performance and the outputs of its activities.

According to this concept, the quest to build the knowledge society and values of modernity requires a value system that encourages diligence and the acquisition of science and knowledge, disseminates the culture of tolerance, love and justice, and directs efforts towards improving the society and developing it, localising knowledge and employing it in order to progress, while building the knowledge society on the basis of democracy and knowledge. To what extent is the Arab culture favourable and supportive of science? And are government and forces of change in the Arab world interested in building "scientific enlightenment" programmes among the masses to equip citizens, especially young people, with science, the scientific method and rationality required for the transfer and localisation of knowledge in the knowledge society? Does the Arab world enjoy scientific standards to measure the trends of the general public in a society or the extent of the public understanding of science and technology? Do Arab societies measure the "scientific awareness" or the social trends towards experimentation and rational thinking, as we are seeing in the developed countries that are keen on knowledge production, innovation and creativity? This is what we will try to answer in the following chapter.

Religion and human morals are among the main sources of values in any society, institution or social organisation

Citizenship

Culture and identity are two intertwined concepts. If culture, in our previous definition, is the system of values, trends and experiences available to a certain

society, through which the world sees this society and deals with it, then identity is the general features that characterise a particular society within specific historical temporal and spatial circumstances. The identity of a society is determined by a variety of self and external characteristics in specific historical circumstances. Self-characteristics are natural geographic, demographic and cognitive characteristics. External characteristics are represented in culture, political systems, religion and social and family structures.

The characteristics of identity are not fixed attributes, they are conditioned to historical circumstances. Whether they are self or external characteristics, identity elements are in continuous change. The development of identity is a system of advanced processes. Political tyranny contributes to the consolidation of rigid cultural values based on illusion, myth and superstition, and to the production of a closed identity.

Citizenship is a concept that overlaps with the two previous concepts (i.e. culture and identity). It is one of the basic concepts in the process of modernising any society and a central element in the issue of cultural renewal and the development of identity to advance society and access the knowledge era. This concept emphasises the legal relationship between the individual and the country, which includes obligations, rights and duties as set by legal and judicial procedures. If the concept of citizenship conforms on one of its dimensions the legal relationship of the individual and the country, it emphasises on another dimension the link between citizenship and culture and the values of individuals and their perceptions of themselves, the different other and the meanings of the universe, life and human beings. Therefore, the discussion of the situation of young people, children and the family within the context of the citizenship concept acquires additional wide dimensions.

From here, the concept of citizenship gains central importance in social sciences and involves questions related to culture, social and political values, governing laws, enacted procedures, and the discussion of the issues of deprivation, poverty, marginalisation and social exclusion.

From Concepts to an Analytical Model for the Situation of the Youth in the Transfer and Localisation of Knowledge

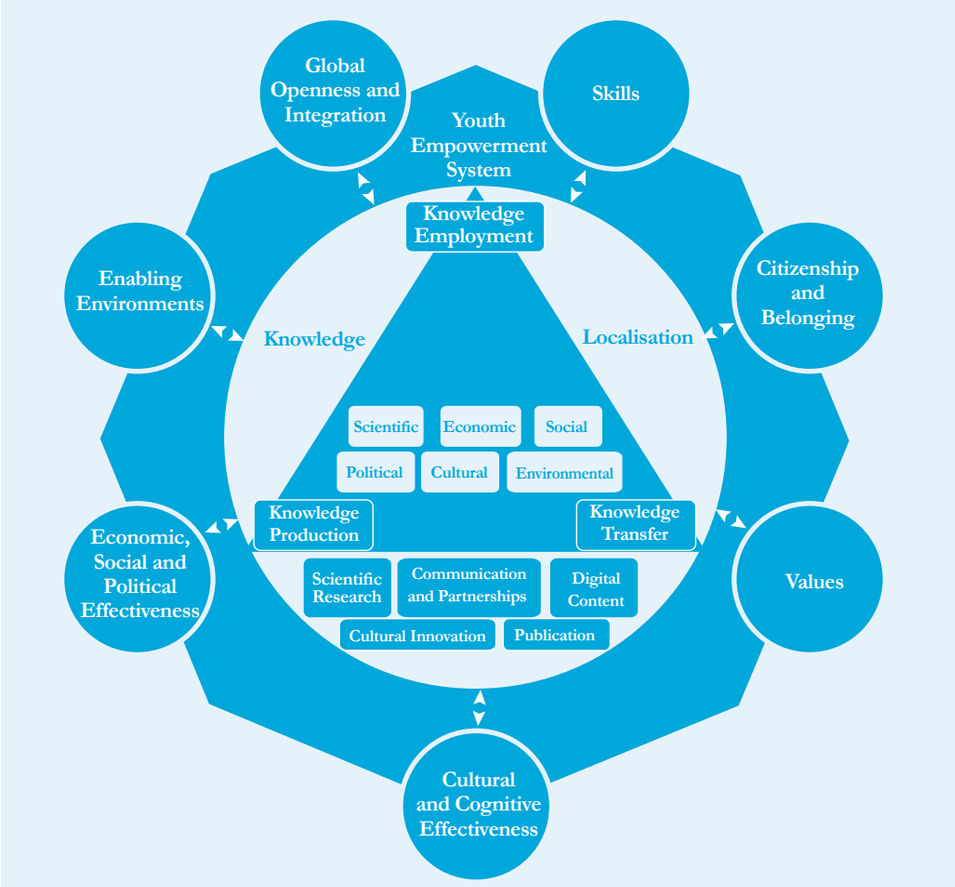
The Arab region, with the youth wealth it enjoys, is at a historic international crossroads where knowledge is emerging as a fast-growing force that forms the world around it with rapidly advancing technology and sciences erupting in all aspects of social life, economy, services, education and health. This international progress is reflected in the emergence of a new human civilisation based on knowledge, private and public skills, life skills, creativity, innovation and creative critical thinking. In order to join the global civilisation and develop the capacity to contribute to the building of this civilisation and global competitiveness, Arab countries have to invest in this youth bulge and convert it into human capital that is cognitively, culturally, politically, economically and socially effective, and able to acquire knowledge and localise it.

The Arab region, with the youth wealth it enjoys, is at a historic international crossroads where knowledge is emerging as a fast-growing force that forms the world around it with rapidly advancing technology and sciences erupting in all aspects of social life, economy, services, education and health

This chapter has provided a set of basic concepts directly related to the central issue in this report, which is "the integration of the youth in the process of the transfer and localisation of knowledge." It has attempted to clarify the concept of knowledge and the concepts associated with it (knowledge society, knowledge economy, knowledge transfer and its mechanisms), and discusses the concept of development and its relationship with knowledge, while presenting a vision that goes beyond the narrow concept of the knowledge economy, towards a comprehensive vision of development that expands the capacities, choices and freedoms of human beings. This chapter also explained the characteristics of the youth cluster in the age of knowledge, and its importance in the Arab region. It highlighted the role of this cluster in achieving progress and the need to enable it multi-dimensionally, while taking into account cognitive features, the system

Figure 2.7

The Conceptual Framework for the System of Knowledge Localisation and That of Enabling the Youth



of values and the style of culture, identity and enabling environments, on the basis of social justice and the achievement of active citizenship.

The financial and youth capital that characterise the Arab region, as well as the knowledge and technology revolution sweeping through the developed world around us, calls for further emphasis on the availability of a potential opportunity to achieve an Arab breakthrough towards the effective integration in the world civilisation and the achievement of progress and welfare for the Arab people. However, this remains dependent on the ability of Arab countries to rehabilitate their young people and transform the youth bulge from a problem and a challenge into a human capital and a cognitive asset in building knowledge economies, fostering participation in global civilisation, and contributing in steering the course of development towards a human society blessed with prosperity, justice and peace.

In light of the above, the process of preparing the human capital to effectively integrate in the process of the transfer and localisation of knowledge in the Arab region is not a simple one, but rather a complex process with interlocking elements that can be portrayed through the following illustrative diagram (Figure 2.7).

Based on the earlier discussion of problems and challenges in Chapter 1 and the above clarification of the concepts in Chapter II, the process of the empowerment of young people towards realising their

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increased assimilation in the processes of knowledge transfer and localisation requires equipping them with the knowledge, skills and values necessary to ensure their cognitive, cultural, economic and social effectiveness. The enabling environments involve the education and health systems, the technological infrastructure, research institutions, innovation knowledge management systems, and the labour environments that enable young people to develop and employ capacities for increasing the levels of knowledge production and economic productivity. The empowerment of the youth and the activation of their role also require laying the foundations of social justice to ensure the right to education, work and wealth for all, as well as bringing about cultural development supportive of knowledge, which embraces the principles of active citizenship and achieves a balance between the youth's sense of belonging and loyalty to their homelands and their capacity for openness and global integration.

At the end of this presentation, the questions remain: what is the status of the Arab region with regards to the various components of this model? Where are its successes evident and where has it failed? This is what the following chapters will explore.

ENDNOTES

1 Korres 2008 and Brinkley 2006.
2 Roberts 2009.
3 We will use in this report the term "tacit knowledge" instead of "implicit knowledge," because the word tacit refers to the meaning wanted when knowledge is present in the individual's mind, behaviour and thoughts.
4 Dancy & Sosa 1992 and Viale 2006.
5 Chomsky 1986.
6 Kuhn 1970.
7 Viale 2006.
8 Mowery & Rosenberg 1989.
9 Li-Hua 2006.
10 For more information on the history and emergence of the knowledge society, refer to the Arab Knowledge Report 2010/2011 (UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012). (Reference in Arabic)
11 Powell & Snellman 2004 & Sellens 2009.
12 For more information, refer to the Arab Knowledge Report 2010/2011 (UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012). (Reference in Arabic)
13 Hotaran & Zamfir 2011.
14 Hotaran & Zamfir 2011.
15 Drucker 1998.
16 Roberts 2009.
17 Bercovitz & Feldman 2006, Gaillard 2010, Banya 2005, Roberts 2009, Howlett & Morgan 2011, & Donn & Manthri 2010.
18 There is a translation of the word 'paradigm' in the sense of specimen or model in some cases. Some translate it as "arrangement". Our opinion is to find an Arabic term for this term, because the idiomatic meaning used in Thomas Kuhn's book (Structure of Global Revolutions) goes beyond this meaning. Here "Pradigm" is a comprehensive vision over the universe, the human being and life as adopted by a group of scientists and that determines their attitudes to life, education and knowledge.
19 Sellens 2009.
20 Roberts 2009.
21 Arab Planning Institute 2012. (Reference in Arabic)
22 Azarmi & Al Rubaie 2010.
23 Gaillard 2010.
24 Roberts 2009.
25 UNESCO 2012. (Reference in Arabic)
26 UNESCO 2012. (Reference in Arabic)
27 Azarmi & Al Rubaie 2010.
28 Shiva 2007.
29 Roberts 2009.
30 Sherif Delaware 2012. (Reference in Arabic)
31 World Bank 1998/1999. (Reference in Arabic)
32 Brinkley 2008.
33 Brinkley 2006.
34 Brown et al. 2008.
35 Brown et al. 2008.
36 Sandhawalia & Dalcher 2011.
37 Sandhawalia & Dalcher 2011.
38 Psarras 2006.
39 Hicks et al. 2006.
40 Mohamed et al. 2008.
41 Albino et al. 2004.
42 Psarras 2006.
43 Lundvall 2004.
44 Oylavan-Oyeyinka 2005.
45 Oylavan-Oyeyinka 2005.
46 Sharma et al. 2009.
47 Levine & Gilbert 1998 and Albino et al. 2004.
48 Abott 1985.
49 Samia Satti Nour, background paper for the report.
50 Cowan et al. 2001.
51 See also Bsaiso 2012 & Samia Satti Nour, background paper for the report.
52 Kneller et al. 2010 and Markusen 2002 and Caves 1974.
53 Roberts 2009.
54 Mahroum 2002, and Fornahl et al. 2005.
55 Mahroum 2001.
56 European Commission 2000.
57 Williams 2009.
58 Albino et al. 2004.
59 Albino et al. 2004.
60 Friedman 2006.
61 Fiegenbaum 2007.
62 Li-Hua 2006.
63 For more articles on globalisation, see: Al-Sayyid Yassin 2000. See also: Fiegenbaum 2007, Banya, 2005, Lopez Segrera 2012, Carnoy 2005, Allen et al. 2012, & Kamens 2012.
64 Review on the formation of the forces behind globalisation, its dynamics, effects, sources of power, and dominance and their positive and negative effects on politics, culture, and economy, in the following sources: Banya 2005, Donn & Al-Manthari 2010, Hoogvelt 2001, Marais 1997, Margison & Van der Wende 2005.
65 Roberts 2009.
66 Al Sayed Yassin Al Sayed 2000.
67 Donn & Al Manthri 2010.
68 Refer to Chapter IV.
69 Sen 2004.
70 Arab Knowledge Report 2010/2011, UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012. (Reference in Arabic)
71 See Hasan al-Bilawi 2013. (Reference in Arabic)
72 Sen 2009.
73 Erikson 1968.
74 Kamal Naguib, background paper for the report.
75 ILO 2013.
76 UNESCO 2012 (Reference in Arabic), and World Bank 2010.
77 Afifi 2011.
78 Kumar 2009.
79 Mahmoud Qambar 1989. (Reference in Arabic)
80 Arab Knowledge Report 2010/2011, UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012. (Reference in Arabic)
81 Mahmoud Qambar 1989. (Reference in Arabic)
82 UNDP 2006.
83 Arab Knowledge Report 2010/2011, UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012. (Reference in Arabic)
84 Raza 2009.
85 Murad Wehbe 1980. (Reference in Arabic)
86 Raza 2009.
87 Callon 1999.
88 Grondona 2000.
89 Haskell et al. 2012.

CHAPTER THREE:

EFFECTIVENESS OF THE ARAB YOUTH IN THE LOCALISATION OF KNOWLEDGE: BUILDING THE HUMAN CAPITAL

Introduction

In the previous chapters, we emphasised the definition of youth as a transitional phase, between childhood and adulthood, through which the person experiences a set of changes that allow a gradual move from limited dependence on others to full independence. However, the economic, social and cultural conditions in the Arab region, as previously mentioned, play an influential role in the delay of this transitional phase affecting young people. Several studies have discussed the phenomenon of this delay as young people move from one stage to another, to the labour market and to social independence. This report focused on young people in the age group 19-29 years, to form a deep understanding and a clear identification of the extent of their effectiveness in terms of transfer, localisation and employment of knowledge processes; or rather in the formation of a human capital capable of building the knowledge society and achieving the renaissance of the Arab region, where a favourable opportunity for knowledge-based development exists.

Accordingly, this chapter focuses on finding answers to important questions revolving around the effectiveness of the youth in the localisation of knowledge, i.e., the success of Arab countries in transforming the youth bulge into a human wealth and cognitive asset that integrates with real developmental operations to move the region towards the knowledge society. These questions are the following:

- To what extent have Arab countries succeeded in providing opportunities for young people in terms of education and qualification for their integration into the transfer, employment and production of knowledge processes?
- To what extent have they succeeded in bringing about a cultural development that enables young people to adopt new mental approaches that unleash their creative innovative potentials?
- To what extent have Arab countries succeeded in providing job opportunities and social participation for youth integration into the development process?
- To what extent have these countries succeeded in providing an atmosphere of citizenship and participation for young people?

The discussion of this chapter is divided into six key axes:

- Cognitive effectiveness, including skills and qualifications
- Cultural effectiveness, including culture and values
- Economic effectiveness, including employment and unemployment conditions
- Social effectiveness, including citizenship, belonging and voluntary work
- Women, between marginalisation and empowerment
- Openness and communication, locally and globally

Cognitive Effectiveness of the Arab Youth: Skills and Qualifications

This section aims at analysing the cognitive effectiveness of young people in the Arab countries with regards to development, transfer and the production of knowledge. As previously demonstrated, the youth constitute one of the most important groups concerned with the issues of knowledge acquisition and production, as well as those of empowerment and integration in the economic and social development processes. They also represent the social group with the highest ability for learning, training, work and production, and constitute the driving force for development within the society. Youth empowerment requires equipping young people with skills and qualifications, which enables them to assimilate the technology and transfer it from the developed world centres to their home countries so as to employ and localise it.

Based on the previously mentioned concepts of human capacity and social justice, and in an attempt to determine the status of young people and their effectiveness in the dissemination and localisation of knowledge, along with the ability of the Arab countries

This chapter focuses on finding answers to important questions revolving around the effectiveness of the youth in the localisation of knowledge, i.e., the success of Arab countries in transforming the youth bulge into a human wealth and cognitive asset that integrates with real developmental operations to move the region towards the knowledge society

to form an effective human capital in the field of knowledge transfer and localisation, we will discuss in this section four axes that represent four basic levels. The first axis is the acquisition of knowledge and training; the formation of the essential cognitive capital needed for the transfer and dissemination of knowledge; the extent to which the fair distribution of knowledge opportunities among young people has been achieved; and the ability of education and training systems to achieve this task. The second axis is the extent of "the achievement of advanced quality levels of acquired knowledge", for the purpose of quantifying the success of education and training systems in providing a chance for the efficient distribution of knowledge and fairly, as well as in identifying the quality of skills acquired from education and training and their responsiveness to the conditions of achieving cognitive efficiency for youth. The third axis focuses on "the development of the personal skills in the information and communication field," in order to determine the level that the Arab youth have reached in their possession of skills to use information technology, since it is the pillar of progress in the transfer and localisation of knowledge. The fourth and last axis is "the active participation of young people in the activities of scientific research and innovation," with the purpose of shedding light on the limitations and obstacles hindering the effectiveness of the youth in the dissemination and localisation of knowledge, as well as the shortcomings that limit the expansion of the capacities of young people and the available opportunities that help them achieve and maximise their own potential.

Despite progressing in illiteracy eradication, the number of people who are illiterate in the Arab region remains high. In 2012, it was estimated that there were around 51.8 million illiterate people (age 15 years and above), out of which 66% were females

Knowledge Acquisition, Training and Formation of the Knowledge Capital

Knowledge acquisition through the systems of education and teaching is the cornerstone in preparing citizens for the transfer and production of knowledge. The educated and competent young labour force is the key driver for knowledge participation, in addition to its effective dissemination, development and use. This entails the opportunities and educational levels attained by the young labour force. It also includes the quality of skills they possess and the opportunities to apply them. Consequently, efficient participation in the processes of knowledge acquisition and regular attendance at schools and universities that constitute the fostering environments for the cognitive capital, from which emanate active forces in the cognitive production and innovation processes, represent the basic foundations to enable young people to transfer and produce knowledge.[1]

Access to Basic Knowledge and Continuous Training

The enrolment of young people aged between 19-29 years in various stages of education is determined by indicators and practices that are traced back to the years preceding this age bracket. Before reviewing the knowledge situation of university students, the status of the pre-youth category will be presented briefly through an overview of efforts to eradicate illiteracy and improve youth education.

Literacy Efforts

Despite progressing in illiteracy eradication, the number of people who are illiterate in the Arab region remains high. In 2012, it was estimated that there were around 51.8 million illiterate people (age 15 years and above), out of which 66% were females.[2] According to the latest UNESCO estimates, the literacy rate among adults in the Arab region (aged 15 years and above) is around 77.5%, compared to 95% in East Asia and the Pacific and 98.7% in Central and Eastern Europe, and to a global average of 84.3%. These percentages put the Arab region ahead of Southeast Asia (62.6%) and sub-Saharan Africa (58.7%). In 2012, the number of illiterates among young Arabs (age group 15-24) reached 6.9 million, 64% of whom are females.[3 4] These statistics also indicate that the literacy rate among the youth (age group 15-24) reached 89.7% in 2012, and this percentage increases among males (92.8%) and decreases among females (86.4%). Regardless of this seemingly increasing percentage among young people,

it remains a cause for concern when compared to the rates in similar countries undertaking a "transition period," where the literacy rate among young people exceeds 99.7%. The same is true when comparing the rates of the region of Central and Eastern Europe (99.5%), while the rate is at 98.9% for Eastern Asia and the Pacific.[5]

Opportunities to Acquire Knowledge in the Pre-University Stage

Despite the progress achieved in primary education enrolment and registration rates, and the narrowing of the gap in most of the Arab countries, the region is still very far from meeting the educational needs of younger generations. This means that there are large numbers of children at primary-school age who are not enrolled in school. As shown in UNESCO's most recent data, the number of children not enrolled in school in the Arab countries was around 4.5 million children (4.467) at the end of the school year 2012, noting that females constitute around 57.8% of this number.[6] Regarding the rate of enrolment in secondary education in the Arab region, the UNESCO statistics indicated it was 74.2% in 2012, which is less than the rates of East Asia and the Pacific (84.5%), Central and Eastern Europe (93%), Central Asia (98.6%) despite being close to the global average (72.9%).[7]

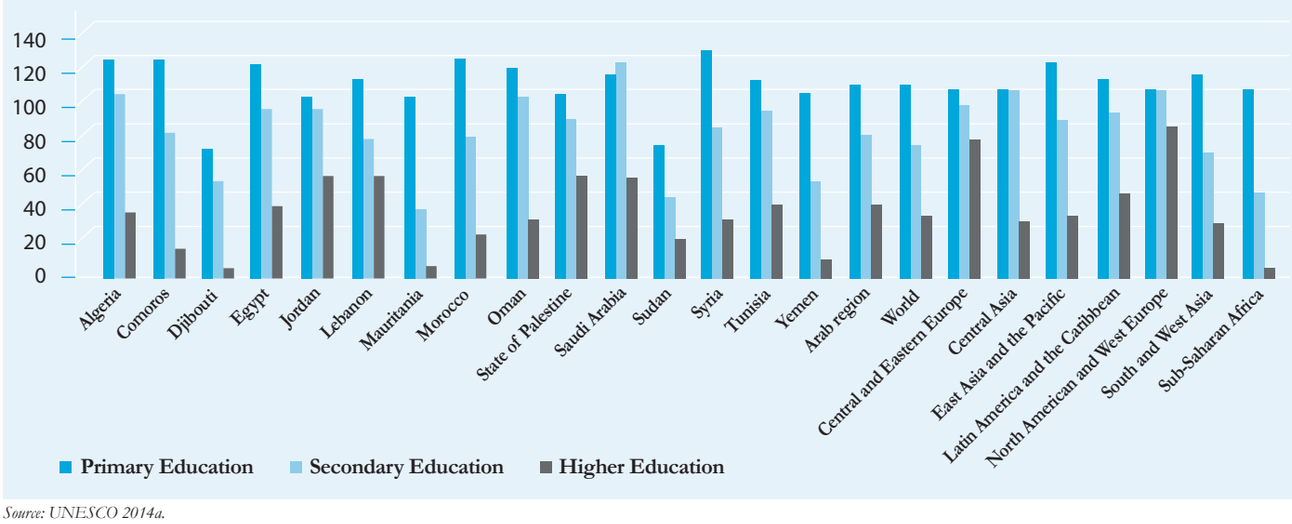
The latest UNESCO data estimated the average number of schooling years for the population in the Arab countries to be at 11.8 years for 2011 and 2012. This rate varies among Arab countries; where it constitutes 13.5 years in Egypt and Jordan (2012); 15.6 years in KSA (2012); 14.6 years in Tunisia (2011); and 9.2 years in Yemen (2011).[8] Upon comparison, we find that the world average for the years of schooling is 12 years; 13 years in East Asia and the Pacific; 14.7 years in Central and Eastern Europe; 12.5 years in Central Asia and 16.4 years in the United States.[9]

If the prevalence levels of primary education have risen in recent decades because of their interconnectedness to the demographic status, the prevalence levels of intermediate, secondary and university education did not record similar growth levels. Educational opportunities in these stages remained limited compared to the demographic status, particularly for the age group 15-24 years. This has led to diminished opportunities for further education for a large number of young people and to the emergence of the first weak spot in the educational systems in the Arab countries, i.e. their inability to provide educational and training opportunities for the young population.

Despite the progress achieved in primary education enrolment and registration rates, and the narrowing of the gap in most of the Arab countries, the region is still very far from meeting the educational needs of younger generations

Figure 3.1

Gross Enrolment Rates in Primary, Secondary and Higher Education for the Year 2010



Source: UNESCO 2014a.

Opportunities for the Youth to Acquire Knowledge

Arab countries witnessed an expansion in education as a result of the pursuit of modernisation after political independence and an increase in the number of young people within the population pyramid, as well as the expansion of secondary education and the increased participation of women in higher education. Despite this, university education attracted around 7 million students in 2008, equivalent to 9% of total students. Although the number rose to around 9 million students in 2012,[10] these rates still confirm the restricted educational opportunities available to young people in the region.[11] The average enrolment rate in higher education in 2012 in the Arab countries was 26.1%; compared to the global average of 32%; 30.6% in East Asia and the Pacific region; 70.9% in Central and Eastern Europe; and 24.5% in Central Asia. The percentage of enrolment in higher education (as a general average) for developed countries was 76%, with 94.3% in the United States. In South Korea, the percentage of the total enrolment was 98.4%.[12]

As for the enrolment growth, statistics indicate that during the ten years between the two academic years 1998/1999 and 2007/2008, the number of students enrolled in higher education in the region increased by 256%. This is a major leap that can be explained by the population growth rate, which increased by 139%. By comparing it to the growth at the university stage, we find it increased by 156% due to the demographic nature of the population composition in the region. When calculating the growth rate for gross enrolment in higher education for the age group 18-24 years, we find that it increased in that time period from 18% to 22%.[13] Arab countries achieved during the same decade great jumps in the gross enrolment rate of students in higher education: Algeria (from 14% to 24%), Kuwait (from 22% to 49%), Lebanon (from 33% to 51%), the state of Palestine (from 25% to 46%), Saudi Arabia (from 20% to 34%) and Tunisia (from 17% to 31%).[14]

By comparing the proportion of those who received higher education to that of the population, we find that, while this percentage reaches around 18% in Jordan, it does not exceed the 9% in Egypt or Tunisia. However, it reaches 25% in Spain and Sweden, and approaches 20% in Germany

Statistics indicate a disparity of the gross enrolment rates, at the higher education level, between the Arab countries. There are countries with rates exceeding the global average of 32%. These are Saudi Arabia (50.9%), Lebanon (46.3%), the state of Palestine (49.1%), and Jordan (46.6%). There are also other countries that are making great efforts towards increasing enrolment rates, such as Algeria (31.5%) and Egypt (30.1%). (See Figure 3.2).[15]

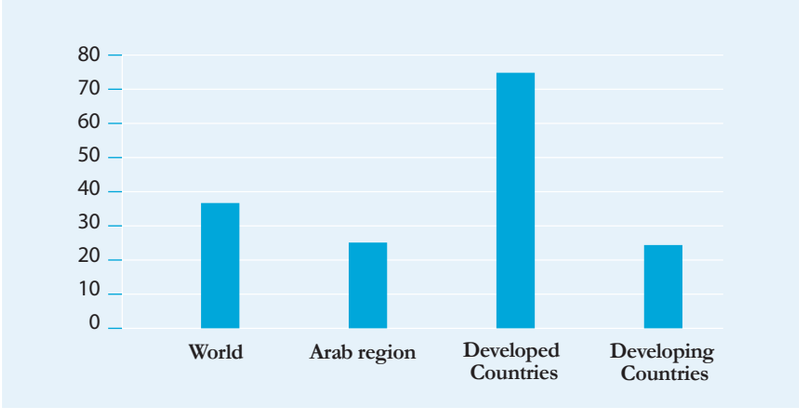
Many Arab countries have attempted to increase enrolment and registration rates in higher education to meet the requirements of the economic shift to knowledge economies. Nevertheless, these efforts were not complemented by similar growth in the number of graduates. For instance, the percentage of students who hold higher education degrees is still less than that in the developed countries.

By comparing the proportion of those who received higher education to that of the population, we find that, while this percentage reaches around 18% in Jordan, it does not exceed the 9% in Egypt or Tunisia. However, it reaches 25% in Spain and Sweden, and approaches 20% in Germany (Figure 3.3).[16]

Based on the above, we note that the achievements of the Arab countries are

Figure 3.2

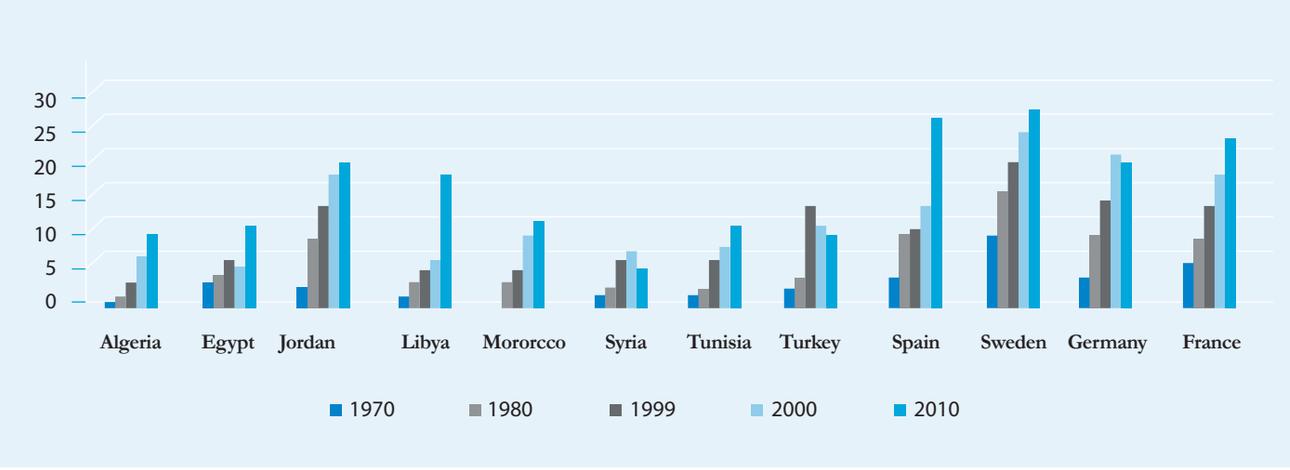
Gross Enrolment Rates in Higher Education: Comparison of the Arab Region to Other Regions and International Groups (%)



Source: UNESCO 2014a.

Figure 3.3

Proportion of Those Who Received Higher Education to That of the Population in Selected Arab and Comparison Countries



Source: Mouhoud 2012.

restricted to quantitative ones, particularly reflected in the increasing enrolment and registration levels in the various stages of education, although to varying degrees, compared to the accomplishments of countries with medium development. According to the indicators of the Millennium Development Goals, the Arab countries are still below the desired level, with the exception of a few of them. In fact, they remain far from achieving the requirements of the cognitive capital for young people to begin building the knowledge economy. The Arab countries' inability to provide secondary education for at least more than a third of the school-aged youth is dangerous in two aspects. The first is represented by a phenomenon called reversion to illiteracy with the passage of chronological age. Field studies, on which the UNESCO's 2012 "Education for All Global Monitoring Report" was based, have shown that with time, adults lose the skill of calculation. In developed countries, where the illiteracy rate dropped dramatically with the expansion of education, one out of five adults obtained bad results in basic literacy competencies.[17] The skill of calculation decreases faster among those who reached an education level less than secondary.

The second aspect is reflected in the lack of basic skills necessary for the labour market. According to the UNESCO studies and the data of the Organisation of Economic Cooperation and Development (OECD), the basic skills (such as literacy and problem-solving skills) required for the labour market in knowledge economies can only be acquired in secondary and higher education. It appeared that more than 30% of those who had not completed the advanced stage of secondary education suffer from a weakness in calculation skills; compared with 13% of those who had completed that stage.[18]

This means that there are large numbers of Arab youth deprived of opportunities to acquire knowledge. They are cut off from the education and learning system, which constitutes the cornerstone in the preparation of citizens and their mastering of the tools to transfer and produce knowledge. Also, the low rates of continuous training in Arab countries clearly demonstrate that these countries lack the systems called "the second chance" that enable young people who lost the opportunity to learn when growing up, join the education ladder again.

There are large numbers of Arab youth deprived of opportunities to acquire knowledge. They are cut off from the education and learning system, which constitutes the cornerstone in the preparation of citizens and their mastering of the tools to transfer and produce knowledge

The Achievement of Quality Levels of Advanced Knowledge and Skills

Reports and studies show that education and training systems in the Arab countries have been characterised by weak productivity,

which is a well-known phenomenon to the Arab region. The growth of education does not explain any of the aspects of the increase of the development outputs.[19] Also, the education curricula in the Arab region do not give great importance to the development of the human personality as much as they focus on memorisation and teaching. They focus on the knowledge that can be measured in traditional examinations and not on social skills, despite employers' growing demand for such skills. Education systems at different levels have ignored creative and life skills and arts. They have weakened the creative potential of successive generations in the Arab region. These generations did not gain the experience of skills and knowledge in the broad sense; thinking, language and communication skills and general cognitive skills which support cognitive effectiveness, creativity and productivity.[20]

Education systems at different levels have ignored creative and life skills and arts. They have weakened the creative potential of successive generations in the Arab region

In Syria for example, as part of a study of the International Labour Organisation, and when discussing the scope of their transition from school to work, more than 90% of the young people succeeded, but they did not receive any training related to their jobs. When asked about the difficulties they faced while looking for a job, it was clear that the two main obstacles were the lack of educational qualifications and the mismatch between education and the labour market. Together, these two obstacles accounted for 66.3% of the total answers.[21] In a more recent study, only 15% of young people in their first job declared that their formal education had been beneficial in their work.[22] In Egypt, the number of those who graduated from school was estimated at around 600,000 young people, fighting for around 200,000 available jobs each year.[23] A study conducted in 2007 in Egypt stated that 60 to 70% of employers of those who participated in the study, found that young people who were employed for the first time did not invest the knowledge required at work and did not possess the required communication and writing skills.[24] The results of a regional study concluded in 2011 came to similar results; less than 30% of human resources managers in Egypt expressed their satisfaction regarding the level of skills required for work of university graduates. This proportion dropped to half among graduates of vocational programmes.[25]

This goes in line with the weakness of the systems of training and technical education, which is considered one of the components of the development of the cognitive capital, whether in the stages of university education or beyond. The value of the Knowledge Index "Spread of Continuous training" sub-index did not exceed 3.97, compared to a global average of around 4.02 and to a 4.63 in high-income countries.[26] In addition, this sector suffers from bureaucracy and rigidity. The 2012 UNESCO Report confirms that technical education in many of these countries, including Arab ones, will continue to be second-level education if it does not match the effective labour market that pushes the country forward and if it continues to lack the skills required in the era of the knowledge society.[27]

It should be noted here that the acquisition of the skills we have referred to that achieve cognitive effectiveness for young people are not found solely through formal education, but also through work in public life and the involvement of the youth and their participation in social and training activities in factories and companies. They are also acquired through volunteer activities in the service of the environment and through institutions specialising in youth development, support and integration into the labour market. Since not all of these activities are taken into consideration in the recruitment process, young people lack the entrepreneurial spirit, the values of volunteering and the incentive to participate in them. They also lack the most important education source that forms their personalities and refines their knowledge and general skills, enabling them to acquire language skills and the cognitive, intellectual and social capital. This is one of the most important challenges facing the building of cognitive efficiency among the Arab youth.

As for the quality of scientific skills, mathematics skills specifically (considered

the key to accessing knowledge) – and their link to international levels – international examinations available for the Arab region cannot comprehensively show us the status of the Arab youth, since they are concerned with those under 19 years of age. However, these examinations give important indicators, by and through which we can deduce the quality of the qualifications of young people in higher education. International examinations such as TIMSS (measuring international trends in mathematics and sciences in grades 4, 8 and 12); and PISA (measuring whether students at the age of 15 have basic reading, culture, mathematics and science skills), give important indicators of weakness in the cognitive effectiveness of the Arab Youth. The results of these examinations have showed, in consecutive years, the low levels of cognitive achievement, skills and general knowledge of most of the Arab students compared to the international averages in sciences, mathematics and reading.

During the TIMSS 2011 session, the results of the Arab countries, without any exception, remained below the international average, i.e. 500, in sciences and mathematics and in both the fourth and eighth grades. In mathematics for the fourth grade, for example, and based on the averages obtained, the participating Arab countries can be classified into three categories: those with an average that exceeds 400, which are UAE, Bahrain, Saudi Arabia and Qatar; those with an average between 300 and 400, i.e. Tunisia, Morocco, Oman and Kuwait; and finally countries with an average below 300, such as Yemen. For the eighth grade (mathematics), some countries have made little progress, such as Bahrain (409), Tunisia (425), Saudi Arabia (394), the state of Palestine (404), and Qatar (410). However, Jordan (406), Syria (380), Oman (366) and Morocco (371) witnessed a decline between 2007 and 2011. Lebanon maintained the same level (449).[28]

Likewise, the PISA results of 2012 were not very different, as the percentage of Arab students (in Jordan, Tunisia and Qatar) who reached the top three levels of performance did not exceed 3%.[29] This is not compatible with the reality of the growing demand for competitive high-level skills in the world today, and is a warning for Arab countries which will face difficulties in the provision of scientific skills in the future. This topic is further analysed in Chapter 5, which includes the results of skills and effectiveness evaluation for a sample of Arab youth. These analyses were based on field surveys that were conducted – perhaps for the first time in the Arab region – in the context of preparation for this report.

Youth and Scientific Specialisations

Data show an imbalance in the distribution of young people enrolling at universities in scientific majors which are needed in the labour market. If we consider higher education graduates by specialisation in the Arab countries, for which data is available, we notice an imbalance between the disciplines chosen by the graduates and the needs of the society for high competences that can transform the economy in its various spheres to reliance on modern trusted knowledge.[30] In the Comoros Islands, the percentage of graduates in non-scientific majors is around 84%. In the state of Palestine it is 75%, while it approaches 62% in Jordan, Saudi Arabia, Lebanon, Sudan, and the UAE (Table 3.1).[31] We are therefore witnessing a paradox represented in a surplus of graduates from different theoretical faculties and sections with no real prospects for work, while internal labour markets lack graduates from majors that young people avoid. As a consequence, a structural imbalance emerges in the relationship between graduates and the labour market, leading to an aggravated unemployment rate among graduates. The reluctance of young people to join these scientific majors is related to the absence of social and economic supporting factors due to the nature of development and the current economic structure.

Data show an imbalance in the distribution of young people enrolling at universities in scientific majors which are needed in the labour market

We notice in Table 3.1 that graduation rates in the fields of social sciences, law, business administration and education are the highest among higher education graduates. However, these sciences, although

Table 3.1

Distribution of Specialisations of Higher Education Graduates for 2011 or the Closest Year (%)

Country	Education	Humanities and Arts	Sciences	Social Sciences, Law and Business Administration	Agriculture	Engineering	Medicine	Services	Other/ Unspecified
Algeria (2011)	1.83	23.86	11.7	41.01	1.63	13.25	3.47	1.54	1.7
Comoros (2012)	9.26	11.87	9.78	54.22	..	2.17	3.21	9.48	..
Djibouti (2009)	..	30.77	27.79	17.27	..	18.68	..	5.49	..
Jordan (2011)	19.43	17.6	9.72	28.06	5.44	6.4	2.98	0.49	9.88
Lebanon (2011)	5.01	12.62	10.99	46.49	0.49	12.35	11.19	0.81	0.02
Morocco (2010)	6.49	13.14	22.5	33.18	1.43	12.40	5.64	4.6	0.62
Oman (2010)	8.8	15.89	21.52	24.59	0.84	17.42	10.22	0.73	..
State of Palestine (2012)	34.13	9.39	8.65	31.17	0.37	7.27	8.46	0.53	0.03
Qatar (2012)	5.23	18.64	6.35	34.59	...	27.22	5.49	2.49	..
Saudi Arabia (2012)	9.05	27.34	20.65	23.73	0.39	8.31	8.5	1.97	0.06
Sudan (2012)	22.74	11.97	7.4	28.19	4.31	8.63	10.45	0.89	5.43
Tunisia (2012)	0.5	18.74	25.92	23.72	1.55	16.46	9.19	3.92	..
UAE (2012)	8.24	8.93	12.1	49.94	0.10	13.92	5.45	0.83	0.48

Source: UNESCO 2014a.

A survey conducted in several Arab countries on various companies' satisfaction with adequately-skilled labour provided by the labour market reported that they complained mostly about the lack of appropriate skills

important, cannot hide the obvious deficit in technological science graduates. This makes us question the suitability of the numbers of graduates to push the building of the knowledge society forward with their participation in the employment of knowledge and competence in the labour markets and cognitive production. In fact, the ambition of actively integrating the Arab youth in the process of the transfer and production of knowledge and moving the community towards a knowledge-based economy requires specialists in the sciences, technology, engineering and medicine. It equally requires specialists in the fields of social sciences, education and others. However, this is not currently provided by higher education systems in the Arab countries.[32] We notice that Asian countries have increased their investment in engineering, natural sciences and computer sciences, and the number of graduates in these majors has exceeded that of Europe and North America combined. In Asia, graduating engineers are more than double the number of those graduating in North America and Europe combined. In the United States, foreign students represent approximately half of all doctoral students in engineering, mathematics and computer sciences.[33]

The Skills of a Large Number of Graduates Are below the Required Level

The 2007 World Bank study entitled "youth – an undervalued asset", noted that the adequacy of education and training systems in the region for the requirements of the labour market, was weak. Education produced low-quality labour and was not consistent with the global wave of change and transition to knowledge economies that required cognitive skills, ability to deal with advanced technologies, English language skills, and post-cognitive thinking skills".[34]

A survey conducted in several Arab countries on various companies' satisfaction with adequately-skilled labour provided by the labour market reported that they complained mostly about the lack of appropriate skills (Figure 3.4).[35] This has prompted some researchers to link between the high rates of youth unemployment and what they called the skills gap; or in other words, the low outputs of education and training systems and their inability to respond to the needs of the labour market.[36] However, we affirm in this report the social responsibility of capitalist systems in providing continuous training programmes adapted for the labour market as well as carrying out continuous

reform of the education systems. Education and continuous training must become a permanent philosophy organised by the policies in the country seeking the knowledge society.

Personal Capacities of the Youth in Information and Communications Technology

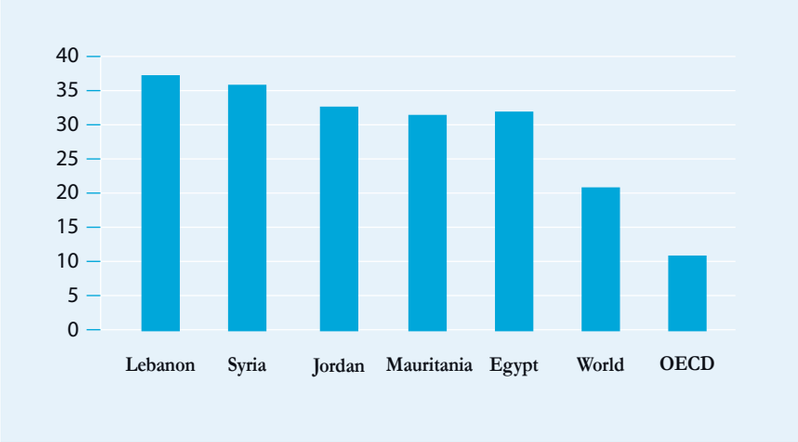
Information and communications technology (ICT) plays a pivotal role in the dissemination of knowledge by intensifying its sources, increasing the number of recipients and reinforcing the expansion of its bases in every sector of contemporary life. The process of mastering knowledge skills has a fast and tangible impact on the different sectors of economic development for individuals and groups. Therefore, the youth's possession of ICT skills is considered one of the prerequisites for their participation in achieving the goals of economic and social development and building an economy based on knowledge and on its transfer, production and employment.

Despite the disparities between countries of the Arab region, the youth in all Arab countries have generally succeeded in catching up with the wave of information technology and using it; although its usage remains at levels lower than the global level. The most recent 2014 data show the rate of internet access in some Arab countries is less than 10 per one hundred people (Comoros Islands, Djibouti, Iraq, Mauritania, and Somalia), while other countries (Qatar, Bahrain, and the UAE) marked 85% usage; the latter being an appropriate usage rate close to those recorded in developed countries.[37]

The delay in some Arab countries in terms of the levels of internet usage, compared to developed countries and the global average, is due to the high cost of internet service in Arab countries and the lack of mechanisms that allow the use of ICT applications in the fields of education, commerce and government business. It is also due to the weakness of the core structures of this technology in the Arab countries and the absence of a plan facilitating its usage by the youth.[38]

Figure 3.4

The Percentage of Companies That Consider the Skills Level as a Major Obstacle



Source: O'sullivan et al 2012.

With regards to the growing importance of new advanced technology in building the cognitive efficiency of young people, an OECD study conducted in 2011 that included 45 countries noted that about a fifth of the participating students obtained results that were below the basic level in the efficient use of computers.[39] Chapter IV of this report will provide more detailed analyses on ICT with regards to enabling environments, the transfer and localisation of knowledge and the youth integration in its operations.

Effective Youth Participation in the Activities of Scientific Research and Innovation

There is no doubt that the youth's possession of capabilities and skills in research and innovation would seriously contribute to activities that lead to the expansion of knowledge and its dissemination, renewal, development and use. The effectiveness of these activities is measured by various indicators, the most important of which are: the number of published research and scientific publications; the number of development and innovation activities and the number of patents registered with the competent offices. It should be noted here

Despite the disparities between countries of the Arab region, the youth in all Arab countries have generally succeeded in catching up with the wave of information technology and using it; although its usage remains at levels lower than the global level

that the available data do not allow limiting the "net" contribution of the youth in the field of research and innovation, and thus, the importance of the indicators related to this area lies in giving an idea of the Arab research and innovation movement, since it is a platform for the integration of young people in the transfer and localisation of knowledge. All available data note a clear deficiency in this field and in various Arab countries. This implicitly refers to the low effectiveness of the youth in this regard.[40]

Cultural Effectiveness of the Arab Youth

Understanding the cultural effectiveness of the Arab youth and the concepts of culture, values and citizenship on which it is based and whose concepts were previously addressed in Chapter II, opens the doors to determining the challenges facing the countries today with the various obstacles and opportunities to transfer and localise knowledge and technology. The youth constitute an important dimension in the process of interaction in Arab countries between local social, political and cognitive factors and international factors with their different variables, and in the transition to knowledge economies and political, social, economic and cultural globalisation. These are transitions that should alert policymakers in the region to the need to focus on the more than 100 million young people in a demographic structure that needs to be culturally rehabilitated to play a strong role in bringing about a quantum leap in the economic, social and political structure of their countries and be effective in building the data of the knowledge era.

The values and culture of the Arab youth come from various sources. They have different identities – often contradictory – due to ethnicity, type, gender, family ties, political ideologies and social traditions

General Frameworks of the Youth Culture in the Arab Region

The values and culture of the Arab youth come from various sources. They have different identities – often contradictory – due to ethnicity, type, gender, family ties, political ideologies and social traditions.[41] [42] Researchers say that the complex structures of culture and identity and the problems of the concept of citizenship are due to a range of factors, such as the political history of the region,[43] cultural history,[44] development, political economy,[45] globalisation, global variables and the emergence of the knowledge and communication revolution,[46] as well as the nature of the political systems and enabling environments.[47]

All these factors overlap and at the same time influence the formation of the identity of the Arab youth and their cultures, values and inner knowledge patterns. They also have an impact on the formation of their political and social rights as citizens who have the right to social protection and human development. From there, we see that our doorway to the analysis and understanding of the youth culture, identity and citizenship status lies in our understanding of the historical, political and economic dimensions of the Arab region and its interaction with the contemporary cultural effects coming from globalisation.

The Arab region is a sprawling open ground. Geographically, it is in the middle of the world from the Arabian Gulf in the east to the Atlantic Ocean west of Africa and from the Mediterranean Sea in the north, and the south shore of Europe to the Arabian Sea and the Pacific Ocean in the south. The red sea, which connects the north to the south through the Suez Canal, splits it in the middle, between Asia and Africa. In this unique geographical location, the Arab region was the cradle of the three major monotheistic religions (Judaism, Christianity, and Islam). It also witnessed different civilisations over a long history, from the Pharaonic; the Assyrian; the Roman; the Christian; and the Islamic. Apart from the Arabs as a focal demographic power, Berbers, Kurds and other ethnicities lived on this land. This open geographical location, characterised by its historical civilisations, brought to the region long waves of colonialism. The era of the Ottoman invasion, from the late 16th until the early 20th Century, was a long and eventful era that contributed to the spread of cultural and social backwardness; the Ottoman Empire was, in its last decades, the Sick Man – as Europeans called it – i.e. a backward, disjointed state.

Modernisation cannot be adopted partially, and the Ottomans failed to take the path of modernity as an integrated whole.[48] Thus, they diverged from the Japanese in their relationship with European modernisation. The Japanese did not fear European modernism, but interacted with it openly and mixed it with their heritage. In one generation, Japan transitioned from historical traditions to modernity and replicated many systems from the West, from industrialisation, education and medicine to social and state welfare systems for the people.[49] Therefore, the Ottomans failed and the Japanese succeeded,[50] and the project of Muhammad Ali at the beginning of the 19th Century to build the modern Egypt was disrupted.

That is how the Arab countries inherited cultural and social backwardness, and this is how European countries inherited the Ottoman "Sick Man of Europe". Starting from the second half of the 20th Century, the Arab countries rose toward independence and the search for development and modernity. Various social and political movements and trends emerged, searching for the renaissance: the Nasserist, nationalist, Islamist, political and liberal movements. During the 1970s, the emergence of radical political Islam in the region increased after the defeat of Nasserism and the *"Naksa"* in June 1967. This movement increasingly progressed with the Soviet defeat in Afghanistan and the events in west Asia – in India, Kashmir, Pakistan, and Indonesia – and the interactions of this region with the new global powers.

One other factor of no less importance is to be added to these historical events. It is the second wave of globalisation and the associated scientific and technological revolutions (the internet and its social networks, the mobile phone with its enormous potential and the electronic and satellite media). It turned the world into one village, open to various cultures and values and cultural materials from which Arabs only produced a little. However, this global village kept witnessing many manifestations of division, injustice and inequality. The gap between the rich, who owned the economy, science, knowledge and technology; and the poor kept widening. Rich people got stronger and richer and the weak and poor became weaker and poorer.[51] Globalisation, with its political, cultural and economic variations, had severe effects on the Arab youth, and these effects triggered questions about the Arab identity and culture; questions that are still unanswered.

Today, the crisis is even more critical and the mixture of cultures has increased and become varied and multi-sourced; making the questions even more difficult. All of this increases the importance of the question on the possibility of achieving access to the knowledge society and transferring and localising knowledge without questioning the meaning of culture, identity, values and citizenship.

To what extent do the youth possess values, identity and citizenship rights that provide them with the ability to interact within the era of knowledge, surmounting the obstacles faced, in order to interact with the world of power based on knowledge and technological progress and enter the knowledge society?

Globalisation, with its political, cultural and economic variations, had severe effects on the Arab youth, and these effects triggered questions about the Arab identity and culture; questions that are still unanswered

Essential Features of Contemporary Values and Culture of the Arab Youth

Traditional Upbringing Methods Are still Prevalent

The interactions between the historical and political factors we have previously mentioned, as well as the interactions between the cultural legacies in the national and regional cultures and the cultural trends that accompany globalisation, brought about key attributes that were tackled by numerous research and studies.[52] The aforementioned studies were able to touch on a set of general features that characterised the culture, identity and system of values among young people in the Arab region. The first of these features is the presence of a cultural gap between generations (parents and children). The second is young people's socialisation of different identities

and the existence of the so-called "cultural hybridity" that is varied among generations, due to the historical, cultural and political reality. The third feature is that regardless of the multiple variations of the Arab youth due to geographical differences, economic levels and cultural affiliations, a strong cultural line runs through them all. It stems from the region's cultural heritage; a line that we call the Arab Patriarchal Phenomenon and that is based on religion, family, race or sect. It is a trend that maintains traditional Arab values and is the strongest trend, particularly in the absence of development cultural policies that renovate culture and values and form a mind-set linked to science and modernity among young people. The fourth feature is the emergence of new cultural ideas stemming from global movements, especially with regards to women's rights, human rights, the environment, sexual freedom, citizenship and the globalisation of trade. These are ideas that are being emphasised with the growing influence of satellite television, mobile phones and online social networking sites, and with that of international organised forces and efficient institutions. The increase in these elements affects the formation of new cultural values that settle in the minds of the youth and can sometimes clash with the inherited elements. However, this increase eventually adds to the phenomenon of "the cultural and value hybridity of youth in the Arab region."

The tribal system exists while reform movements are absent. It functions as a system that regulates the social cognitive system, where the tribal chief or any parental figure, such as the cleric, is the natural source of knowledge stemming from family, religion or tribe, or he is the gateway to knowledge

Studies and research have found that there are traditional elements that characterise the identity of the Arab youth and affect their visions and priorities. The most important of these elements are religion, family and society, or rather, the ethnic and sectarian elements

Traditional Knowledge Values Are still Prevalent

An important study confirms that the tribal system characterising most Arab countries, as is the case in most developing countries, does not only form the major societal practices in these countries, but also connects the social groups by affiliation. Thus, tribal knowledge remains a permanent one passed on from generation to generation through available traditional mediums, such as stories and legends. And to some extent, this knowledge also spreads by personal inertia, as this culture and the knowledge and values it includes are rarely exposed to the forces of change, especially in the absence of reform movements aimed at achieving cultural development and restitution.[53] The tribal system exists while reform movements are absent. It functions as a system that regulates the social cognitive system, where the tribal chief or any parental figure, such as the cleric, is the natural source of knowledge stemming from family, religion or tribe, or he is the gateway to knowledge. The embodiment of relations among generations in this system takes place through the living memory of the tribe, and not through a codified modern system or an information storage network that is found in developed Western societies.

The format of tribal knowledge transferred through nurturing and under the influence of parents or guardians represents implicit knowledge. If we introduce a modern information network to this tribal pattern without changing its current values structure and without a true cultural movement of change and development, then the information and knowledge network in these information systems will continue to represent an explicit knowledge in society. Moreover, this information network would remain incapable of having any impact on the formation movement of the youth's cognitive effectiveness. In fact, the influential knowledge and values that societies need for the purposes of development and the creation of a quality transition stage in Arab societies are included in the implicit knowledge.[54] Explicit knowledge, regardless of the variety of databases and knowledge networks, has no effect on shaping the behaviour and the cultural cognitive recognition systems that make up the people's perception of their world, their values and the pattern of their knowledge. Despite this, Mirghani Mohamed[55] gives an optimistic opinion in terms of the ability of Arab societies to make a change, for the problem facing these countries does not reside in the roots of the Arab culture. They once brought about philosophers and an Arab civilisation. This was when this region had philosophers and intellectuals who were able to conserve the Greek civilisation and transfer it to the West, especially during the 4th and 5th Centuries of the Hijra, within

the scope of what was widespread at that time. It is not the case today, where the voices of intellectuals and scientists have abated and the culture of religious extremism and tribalism has spread.

Cultural Gap between Generations and Cultural Hybridity among the Youth

The cultural gap between generations and its pattern varies from one Arab country to another. However, the emergence of the youth culture evolves mostly around the revolution of media and communication satellite and electronic systems (internet and TV). As one analyst explains, the media has created virtual communities that gather around the means of advanced technology to see new worlds. Common features have arisen among these groups as an expressive language which is increasingly reproduced; consumer rituals and slogans and the use of advanced technologies i.e. hybrid cultures that manifest themselves in the types of music, clothes brands, language and encodings that confirm that the globalised youth culture is a mixture of various cultural influences interacting with the local and regional cultural dimensions.[56]

In this regard, the "Asda'a Centre" notes in its survey studies for 2008 and 2014[57] that the Arab youth enjoy consumer rituals and lifestyle habits similar to those of their Western counterparts. They also use technologies that are similar to those of their peers in the West. Perhaps these common features (Western language, clothing, technology and lifestyle habits) are what unite the groups of Arab youth and connect them, widening the gap between them and their parents. It is only natural that the culture of the parents who have not lived this life differs from that of the children who pursue higher education and live openly with the available world possibilities.

Such acceleration in the spread of the "hybrid" globalised culture among the youth may lead to a weakening of the influence of parents as well as a weakening of the family's influence on them in the short or long term, along with an increasing influence of Arab and Western peers. Thus, the cultural gap between parents and children widens, and the patriarchal hierarchal symbols, traditionally associated with the authority of the father in Arab culture, will fade with time. This may lead to a weakness of the traditional model of socialisation. Perhaps the signs of weakening control or the erosion of a cultural authority are already looming in the Arab urban areas. This door has been relatively open to the Arab youth so they can contribute in developing their culture, even if a hybrid one.

Studies and research have found that there are traditional elements that characterise the identity of the Arab youth and affect their visions and priorities. The most important of these elements are religion, family and society, or rather, the ethnic and sectarian elements. Surveys conducted on the Arab youth in the region, between the ages of 18 to 24 years, have shown that parents have the most influence, with a rate of 67%, followed by the influence of the family with 58%, and that of religion with 56%.[58]

With regards to identity and traditional values, and unlike the Western youth, the Arab youth have displayed an ambiguity in their opinions, expressing their insistence and pride in their traditional Arab identity on the one hand and the adoption of new values and beliefs on the other. Four out of ten young Arabs expressed their consent to the fact that traditional beliefs are old-fashioned and outdated and that they prefer having "modern" beliefs and values. The proportion of young people who are adopting "modern" beliefs and values is increasing, reaching 17% in 2011, 35% in 2012, 40% in 2013, and 46% in 2014.[59]

In a study on Egyptian young people, about 96% of the sample studied confirmed the importance of religion, and 82% stressed the importance of preserving the values and traditions derived from religion and family. The same study also revealed the influence of religion on life and faith rooted in fatalism. For example, 69% of the Egyptian youth said that everything was pre-destined and inevitable, and the percentage

The cultural gap between generations and its pattern varies from one Arab country to another. However, the emergence of the youth culture evolves mostly around the revolution of media and communication satellite and electronic systems

of those who said that they determined their own fate did not exceed 7%, whereas 25% took a neutral stance on fatalism and freedom of choice. This percentage rose among women and less educated people to 79% of the sample.[60] In Egypt too and according to surveys conducted by Silatech Guide and Gallup Centre, 63% of Egyptian youth considers forming a family one of the most important goals for women and men.[61] In Bahrain, nine out of ten young people confirmed their devotion to traditions for the sake of future generations.[62] In Lebanon, the youth expressed interest in the family and national identity and acknowledged their close association with their sect. In the same study, it was found that the two main sources of values governing the Arab youth were religion as the face of morality and family and its relation with the sect.[63]

In Jordan, a survey conducted by the Issam Fares Institute (IFI) at the AUB revealed that two thirds of the respondents (67%) felt that being successful in life depended on the status of their families in society, and not on their efforts. The study also showed that religion played a strong role in determining the identity and values of the Jordanian youth; the percentage of those who identified themselves as belonging to the Islamic Ummah first exceeded 34%, while the percentage of those who identified themselves as Jordanians first was 31%. Most Jordanians (58%) took pride in their homeland and expressed their great confidence in the state institutions such as the army, the judicial system and the police, but noted lower confidence in the parliament, the media and the private sector.[64]

Traditional youth trends have reflected on the issue of gender. A study in Egypt has shown that young people believe that men are better than women at work. This percentage increases among young males and decreases (with only a 3-degree difference) among young females. 87% of the sample reported that in the case of scarce job opportunities, priority should be given to men because they are primarily responsible for the livelihood of the family. In line with this finding, results showed that high proportions of the sample, mostly females, confirmed that the role of a housewife can give women the same feeling achieved by working outside the house.[65] Other surveys have shown that 58% of men and 73% of women between 18 and 24 years of age believe in gender equality and the necessity of equal opportunities at work.[66] While 69% of young Western males confirmed women's right to freedom and the application of gender equality in the workplace, this was 58% among young Arab males and at 73% among young females.[67]

These results confirm a male patriarchal spirit prevailing in the Arab region. It is remarkable that it is predominant among many of the region's women, young and old alike. This patriarchal view that is biased against women is prevalent among young people and penetrates the system of social values in general, even among educated people, raising the question of the role of education in changing the social perception based on gender inequality. It also raises the question of why the power and impact of such values continue despite the existence of important factors such as modern education, media and modernisation efforts in the Arab region.

There is no doubt that religion and family are two important factors in the lives of humans. But it is necessary to differentiate between two prominent trends in this area: there are religious extremist trends that limit life, isolate it from the outside world and only deal with the knowledge society by using its advanced technologies and social networking sites to broadcast fatwas and ideologies that inhibit progress and encourage obsolete practices in a society that seeks development through knowledge. However, there are trends that represent the tolerant Islamic religion, which offers work values, optimism and interaction with life and other people with love and human values that exalt science and seek scientific knowledge as a basis for development and progress. The same goes for the family. There is a difference between the male patriarchal family that is authoritarian and associated with tribal

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values that dominate the individual and eliminate personal identity, and the family that fosters its children and exalts them, providing them with an education that embraces the world and knowledge data. This is a family that upholds the value of the individual, considering him or her to be the first unit in the community, and develops rationality, thinking and creativity. These issues necessitate further research and are more important today than ever in the Arab history and in this era of hyper-political activity in more than one Arab country.

Box 3.1

Religion as a Source of Ethics, Science and Knowledge

"We must distinguish between two different paths in religion. The first path is the course of religion as the source of morality in life. It enables young people to acquire development values that support the pursuit of science and scientific knowledge regarding the universe, the human being and life. The second path is the course of religious extremism (with oneself or with the society, members or systems). It defies science, rejects tolerance and relativity and excludes others. This second path is completely different. While the first leads to the formation of ethics towards science that help in developing and highlighting it, the second path leads to the cancellation of the scientific approach and the undermining of science, which limits the freedom of thought, creativity and the priority of dialogue and experience as knowledge generators. This path can appear in a radical form that opposes society and regards it as blasphemous, or in the form of withdrawal from the world surrounding it. However, the culture of the Arab society carries a set of values, customs, traditions, standards and behavioural models that glorify the values of masculinity, especially among nomadic tribal, family and sectarian values. It then reproduces them via the faulty employment of religious upbringing, in many cases, in a process of guidance and rationalisation of young people. Despite the socio-economic transformations in society, the system of essential social relations that define the dominant value pattern with regards to women is still prevalent. And despite the manifestations of change in the roles of women in terms of their education and work, they are still ruled by a system of traditional values that prevail in the social, religious and perhaps political upbringing that the individual undergoes."

Source: UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012. (Reference in Arabic)

Youth and the Values of the Knowledge Society

Research surveys have demonstrated that the youth in Arab countries highly appreciate the values of democracy (93% in Jordan; 84% in Egypt; 85% in Morocco; 91% in Iraq and 75% in the UAE) and that most young Arabs between 18 and 24 years of age show an interest in voting. Studies also point out that young people in the state of Palestine are more politicised than others and that young males dominate the youth movement. The study also shows that the use of new electronic means has created a new space as well as distinct forms of communication, expression and participation in civic life and that digital activities have now become a way to mobilise the youth.[68]

A survey on the trends of the Arab youth in the age group of 15 to 25 years in six of the Gulf Cooperation Council (GCC) countries (Saudi Arabia, Kuwait, Bahrain, the UAE, Qatar and Oman) exhibited a high level of optimism about the future. While some young people expressed grievances and complaints in some respects, more than 90% confirmed that they were very optimistic about their future and expressed their gratitude and satisfaction. The survey indicated the tendency of Lebanon's youth towards achievement, self-orientation and the independence of thought and action, and they were extremely influenced by the global youth culture that has increased with communication networks and mass media. But at the same time, they felt frustrated because of sectarian practices that imprisoned them in specific environments.[69]

A survey on the trends of the Arab youth in the age group of 15 to 25 years in six of the Gulf Cooperation Council (GCC) countries exhibited a high level of optimism about the future

International comparisons of nineteen countries showed that young people in Jordan, Egypt and Morocco ranked 13th, 14th and 17th, respectively, in their perception of "mastery at work" as a first priority when searching for a job. 12% of the young people pointed this out in Jordan, 11% in Egypt, and 10% in Morocco, while the global ratio was 20% for 19 countries selected in the global survey and also for 56 countries included in the largest survey on youth and social values. The difficulty in

finding a job strongly affected the priorities of young people in the three countries; a secure job and income were more important than the value of achievement.[70] Furthermore, the fact that most young people in the Arab region preferred government jobs may explain the weak motivation to search for the value of mastery and achievement at work.

The interest of young people in the private sector varied in light of its relative growth in the Arab region, thereby increasing the proportion of young people who preferred private-sector jobs in the GCC from 24% in 2013 to 31% in 2014.[71] This rate also increased outside the GCC, where it moved from 28% in 2013 to 31% in 2014. While the government sector is still preferred by young people in the Arab region, the level of demand for jobs in this sector declined from 55% in 2012 to 46% in 2013, and down to 43% in 2014,[72] noting that the preference of the private sector was considered one of the values of the free economy, upon which depend knowledge economies and globalisation. There is a positive trend among young people which can be built upon to change the reality of the Arab youth's continued reliance on government jobs that only focus on degrees without taking knowledge and skills into account. Such factors lead to low human development and adversely affect the transfer and localisation of knowledge.

The previous display of the values of the youth shows the various manifestations of hybridity that characterise the values of young people and their culture. These manifestations keep increasing in the absence of a modern enlightened policy for the development of the Arab culture and identity, carried out by the government and the enlightened forces of change, and in light of the weakness of Arab knowledge production and the need to expand the role of enlightened religious trends.

Economic Effectiveness of the Youth

In the previous sections of this chapter, the report discussed two main themes, namely the cognitive effectiveness and the cultural effectiveness of the youth. In this part, we continue to search for the status of young people in the Arab region and the extent of their effectiveness in labour and economic activity to contribute to the transition from a traditional economic system to a new knowledge-based economic system, i.e. knowledge economies, which are considered the major factor in building the knowledge society.

In order to analyse the economic efficiency of the youth, the report is based on the indicators of employment, unemployment, poverty and inequality among the youth, since they are some of the most important indicators to help understand and clarify the situation of young people and their economic effectiveness. Employment, the quality of life and positive participation based on justice lead to the effectiveness of the youth and their contribution to building what their country seeks in order to establish the knowledge society. The increasing rate of these indicators shows the weak participation of the youth in public life and the inability of these communities to integrate young people into the process of the transfer and localisation of knowledge. Based on the above, we move now to discuss the situation of the Arab youth in four vital areas: unemployment, poverty, inequality among the youth, as well as the marginalisation of women.

Youth Unemployment

The Joint Arab Economic Report 2012 estimated the size of the workforce in 2010 at about 122 million people, which was approximately 34.5% of the total population in the Arab countries in the same year. According to the report, the reason behind the low percentage was the growing number of people under 15 years of age, in addition to the limited contribution of women in the labour market.[73] The annual growth rate of the workforce in Arab countries reached 3.1% in the period between 1995 and 2010. This is considered a high rate and it varies among the Arab countries. The

The Joint Arab Economic Report 2012 estimated the size of the workforce in 2010 at about 122 million people, which was approximately 34.5% of the total population in the Arab countries in the same year

rate of employment growth is expected to increase, as is the rate of the economically active population, for several decades to come and as a result of rapid population growth over the past three decades. This poses a challenge in the face of development in the Arab region. The Arab Economic Report also shows the concentration of around 57% of the total workforce in the Arab region in five countries. The workforce in Egypt is at about 26 million workers, with 14 million in Sudan, about 12 million in Morocco, 10 million in Algeria, and 8 million in Iraq. The share of women in the workforce is still low, as it was around 29% in 2010. This percentage is considered the lowest compared to global geographic regions.[74]

The average unemployment rate in the region, according to the latest data available, is estimated at about 16%, and it remains the highest among the other regions of the world. The number of people unemployed in Arab countries in 2011 was estimated at about 17 million, compared to 197 million unemployed around the world. According to the estimates of ILO (2011) and the European Centre for Census (2012), the proportion of youth unemployment is 27% in the Arab region, and 12.6% worldwide.[75] As a result of the events witnessed in Tunisia, Egypt, Syria and Yemen, the unemployment rate in these countries increased significantly, as we will discuss in the next section.[76]

Unemployment Rate is Highest among the Youth

Despite the decline in the youth unemployment rate from 30% in the 1990s to 24% as an average for the years 2005 to 2011, it still represents more than twice the global average of 11.9%. The proportion of young people among the unemployed population is more than 50% in most Arab countries.[77] Political events in the region have contributed to the rise in unemployment. In 2011, the unemployment rate increased compared to 2010, and the increase was estimated at about 6% in Tunisia and Syria, 4% in Yemen and 2% in Egypt (Table 3.2).[78]

It should be noted that education in the Arab region does not provide a guarantee against unemployment. Unemployment is almost 15% among those with university qualifications when compared to others (Egypt, Jordan and Tunisia).[79] The proportions of unemployed graduates of higher education is 43% in Saudi Arabia, about 32% in Bahrain, 24% in the state of Palestine, 22% in Morocco and the UAE, 14% in Tunisia,[79] and more than 11% in Algeria.[80] According to one report,[81] the proportion of young university graduates with high qualifications who are unemployed in the year 2010 reached 21.9% in Tunisia, 24.8% in Egypt, 17.8% in Morocco, and 15.5% in Jordan, compared to an average of 3.5% in the European Union and 3.3% in the OECD countries.

Education in the Arab region does not provide a guarantee against unemployment. Unemployment is almost 15% among those with university qualifications when compared to others

Table 3.2

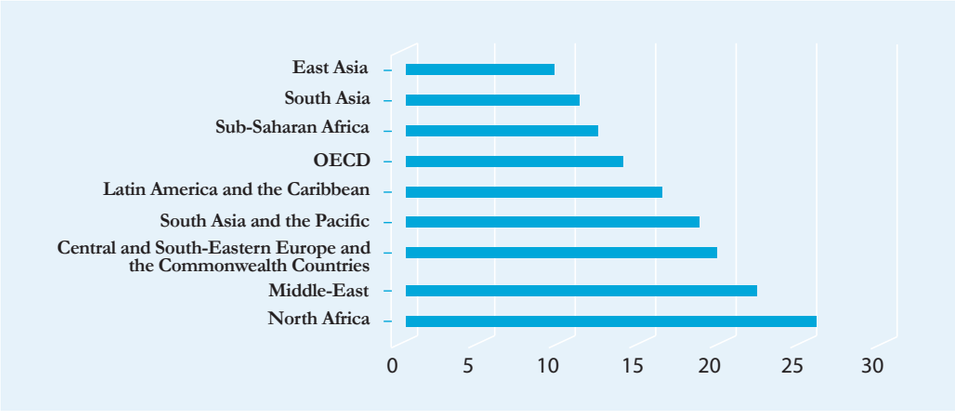
Evolution of Unemployment Rates in Selected Arab Countries (%)

Country	2007	2008	2009	2010	2011
Jordan	13.1	12.7	12.9	12.5	12.9
Bahrain	4	4	4	3.8	3.7
Tunisia	12.4	12.4	13.3	13	18.9
Algeria	13.8	11.3	10.2	10	9.8
Syria	9.2	10.9	8.5	8.6	14.9
State of Palestine	21.5	21.6	21.5	26.6	26.6
Egypt	8.9	8.7	9.4	8.9	11.9
Morocco	9.8	9.6	9.1	9.1	8.9

Source: Arab Monetary Fund 2012. (Reference in Arabic)

Figure 3.5

Unemployment of Graduates in Various Regions of the World (%)



Source: Jaramillo & Melonio 2012.

Figure 3.5 shows that Arab countries in North Africa have the highest global rates of unemployment among higher education graduates, with a rate of 25%. They are followed by the rest of the countries of the Middle East with a rate of 21%. These rates decrease in other regions.[82]

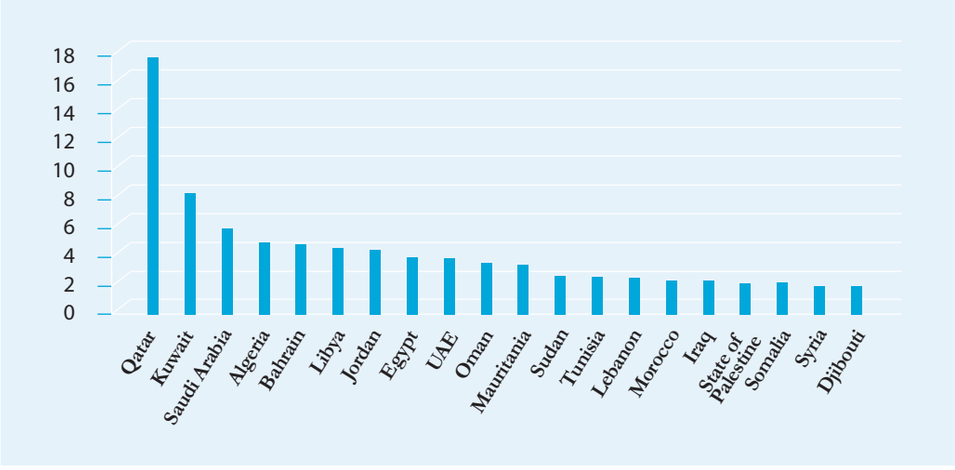
The Arab Monetary Fund data of 2012 note that the average proportion of unemployed who are seeking jobs for the first time, account to about two thirds of the total number of unemployed people in the Arab countries. The average youth unemployment rate represents about 3.6 times the gross average unemployment rate in 2012. This indicator records a high value in the GCC countries, for example, 17% in Qatar, 7.8% in Kuwait and 5.2% in Saudi Arabia, while it varies between 3% and 5% in Algeria, Bahrain, Libya, Jordan and the UAE and the value of the index less than 3% in the other Arab states as shown in Figure 3.6.[83] It is obvious that Arab women in particular are more subject to unemployment and unstable work.[84]

Arab youth unemployment has several features, the most important of which is that it specifically emerges among secondary school graduates (intermediate qualifications

Arab youth unemployment has several features, the most important of which is that it specifically emerges among secondary school graduates (intermediate qualifications). It also affects young women more than young men, especially uneducated women, because they are 4 times more likely

Figure 3.6

Youth Unemployment to General Unemployment (%)



Source: Arab Monetary Fund 2012. (Reference in Arabic)

to be unemployed than men due to cultural norms, the structure of the labour market and economic policies.

Furthermore, the Arab youth, in general, tend to prefer government jobs.[85] Although these jobs offer lower wages and are based on bureaucracy and inflexible official standards, and not on the standards of supply and demand, they remain more attractive, because the youth perceive them as safer, in addition to the privileges they offer. For the majority of young people, government jobs are more respectful and stable than those in the private sector.[86]

Box 3.2

The Delayed Start of Independent Life for Young People

The consequences of youth exclusion is that young people simply wait for their independent lives to begin. They experience long periods of unemployment during which they live with their parents and are financially unable to get married or purchase a house. According to the survey on young people in the labour market, the percentage of the youth aged 15–29 years has grown significantly from 1988 to 2006, putting huge pressure on the labour market in terms of creating sufficient jobs for new entrants. The psychological impact of the waiting phase is also evident, with unemployment leading to apathy, as evidenced in the extremely low youth participation rates. There is also considerable concern that some isolated youth are being targeted by extremist groups who prey upon their sense of hopelessness. While delayed marriage is a trend observed in many societies, an increasing number of the youth in Egypt for example, are resorting to customary or informal marriage, known as Urfi marriages, which offer little security to spouses and any subsequent offspring.

Source: UNDP and Institute of National Planning Egypt 2010.

In Syria, for example, 80% of graduates prefer working in the public sector. In the Gulf countries, the volume of employment in the public sector ranges between 30 and 40%, while it exceeds 50% in Kuwait, Oman, Qatar and the UAE. This phenomenon is dangerous because it increases the possibility of driving the human capital away from the jobs that stimulate economic growth.[87] We have demonstrated in the previous section that there are positive approaches among young people towards working in the private sector in the UAE and Saudi Arabia. Nevertheless, the structure of the labour market in the Arab region remains far from the process of integration of young people in the localisation and employment of knowledge. This is due to the lack of employment opportunities in the sectors related to scientific research and to knowledge and its production. This will be further clarified in the following sections when addressing the production of knowledge and scientific research.

Based on the aforementioned, we note that the structure of employment in the Arab countries is not conducive to the knowledge society. It greatly contributes to the marginalisation and exclusion of young people and women, who are victims of the lack of development policies that are effective in this regard. Regardless of the various estimates about youth unemployment, they all refer to the growing challenge facing Arab policymakers and planners to provide opportunities for decent and productive work for the growing number of young Arabs hoping to enter the labour and production market. There are many issues that must be dealt with in this area and that extend to the systems of youth rehabilitation and preparation in line with the requirements of the labour market, the stimulation of entrepreneurship and the establishment of a favourable investment climate.

Box 3.3

Street Youths in the Arab Region

Street youths are often school drop-outs, and the majority of them cannot read or write. In Yemen, the illiteracy rate is close to 70% among street youths. This high illiteracy rate has dangerous repercussions on work opportunities (this means that street youths often remain trapped in the low levels of the labour market, such as street vending). Among the main reasons for dropping out of school is that families cannot keep up with the educational expenses (37%) and they depend on the children's work (27%), or are unwilling to send their daughters to schools (12.5%).

Source: World Bank 2007.

In the Gulf countries, the volume of employment in the public sector ranges between 30 and 40%, while it exceeds 50% in Kuwait, Oman, Qatar and the UAE

The structure of employment in the Arab countries is not conducive to the knowledge society

Social Effectiveness: Participation, Voluntary Work and Belonging

Citizenship among the Arab Youth

According to a UN report on women in the Arab region,[88] and despite the fact that the constitutions of many Arab countries lay emphasis on citizenship and civil rights, some countries overlap or mix the traditional concepts of "parish" and "clan".

In Western culture, constitutions identify the individual as the elementary unit in the structure of society, with all that "individualism" includes such as the privacy of the individual and the right to express oneself and bear the responsibility of rights.[89] The culture in East Asia (China or Japan, for example) is based on "collectivism" [90] with the values of social inclusion, teamwork and the sense of happiness in the community that it contains.[91] In the Arab culture, family represents the unity of society;[92] the limits of the individual's rights and privacy in the community dissolve. Men in Arab societies are "citizens" that are heads of patriarchal families, and women's rights as "citizens" are understood through the structure of the parental context and through expressions such as: the woman is a mother, a wife, a sister or a daughter. The woman is a citizen associated with children, and in many countries of the Arab region, women have to obtain permits to travel, work and get married.

The gaps in the cultural structure that affect the identity and the concept of citizenship in the Arab region as previously presented, have a negative impact on stimulating progress towards the knowledge society and the economic, social and political requirements associated with it. The confounding notion of citizenship, state, family, clan and privacy and their similarity with the political currents – sometimes authoritarian – and religious fatwas that deviate from true religion, weaken the potential of young people to protect themselves with knowledge and the localisation of scientific and rational thought and to build new cognitive cultural models that open doors to the knowledge and technology-based progress of civilisation in the world today.

Participation in Public Life and Voluntary Work

Participation in public life and voluntary work are not only associated to citizenship but are indicators of the experience of active citizenship among young people. The concept of participation extends to political, social and economic participation and is connected with volunteer work that achieves the individual's sense of belonging and establishes a culture of tolerance and mutual respect, creating the basic condition for youth effectiveness in the transfer and localisation of knowledge. Volunteer activities are based on selflessness and altruism to achieve a quality of life for the local and national community. They are not aimed at realising financial returns as much as they intend to achieve a sense of value and self-respect for those who carry them out. They strengthen the sense of citizenship and belonging and enrich identity.[93] Volunteer activities also represent a way to acquire knowledge, skills, broad life experiences and thinking skills.

Participation in public life and voluntary work are not only associated to citizenship but are indicators of the experience of active citizenship among young people

The value of volunteer activities is apparent in a multitude of areas; from work to health and education, in addition to all activities that improve the quality of life. Volunteering is a means for the group or individual to gain a rich cognitive and social capital. It is noted in many countries of the developed world that a large part of education and public life skills is carried out outside the formal education system. This takes place either through volunteer work for young people through summer work, part-time work in companies and institutions, or work with the local community. This often takes place during school terms and it becomes a source to build the individual's profile. The work benefits the person and the group and benefits society through the organised efforts of volunteers. Thus, volunteer work comprises a clear system with identifiable rules.[94]

In the Arab region and the Middle East in general, young people are more likely

to be unemployed, and despite the time available to them, little volunteer work is undertaken. One survey showed that only 11% of the region's youth had been enrolled in volunteer work or activity, while 20.9% of the American youth volunteered once or more in the same year in the United States.[95] This can be attributed to the absence of citizenship education in the Arab systems.[96]

An important study prepared as a background paper for the Marseille Conference[97] found that 15% of young people in Morocco in 2000 had participated in one activity with organisations, associations or sports clubs. A 2009 study by the National Population Council in Egypt found that 3.3% of young men had never participated in any volunteer work. And despite the fact that the data was not recent, the implications are still applicable. Important studies confirm that the lack of participation has left a void for radical religious and political movements to attract young people to activities of a political and religious nature.[98]

The low levels of volunteering among young people can be explained by the frustration, personal problems and inequality they experience, in addition to the high unemployment rates and the dominance of the patriarchal culture that values the authority of adult males, excluding young people, and dominating the social space. Some researchers offered a structural explanation associated with the systems of social work, life and culture in the community and the absence of incentive systems in which this behaviour is missing.[99] University admission only demands a high-school diploma based on grades gained through memorisation and private lessons. However, finding jobs, especially in the government sector, requires nothing more than a university degree, without any reliance, in most cases, on tests, experiences or life skills and without taking into consideration the extent of the individual's involvement in professional or social activities. This has pushed participation in public life and volunteer work out of the values system in Arab culture, as well as the education system and the economic system, in contrast to their counterparts in the rest of the developed world, where participation and volunteering are encouraged, invested in and institutionalised.

Box 3.4

The Importance of Youth Participation

Participation is a process through which an individual can play a role in the decision-making process and its implementation in the various economic and social aspects of life and all that affects them. There is a difference between verbal participation, in which youth are talked and listened to - and which actually does not have any effect- and real participation that achieves full citizenship for young people and through which social integration is built. This becomes a source for teaching, transferring and localising knowledge and skills while exchanging benefits. Thus, the sense of belonging grows and the youth incentive for volunteer work increases.

Source: Afifi 2011.

Participation and volunteer work are the foundations for the formation of a sense of belonging and citizenship. This integrated system is referred to as active citizenship. It is based on three factors. First, providing opportunities that support building the capacity of young people to participate, and is represented in cultural contexts and supporting legislation. It provides the opportunities for justice and equality and for the absence of the domination of the patriarchal system, along with the recognition and respect of the capabilities of young people. Second, providing systems of motivation, which is not only evident in the appreciation and respect of youth activity, but also in the institutionalisation of participation and volunteering activities, so that they become an integral part of the individual or group's life profile and also become appreciated in education, employment, leadership and public life opportunities. Moreover, institutions and policies that establish plans and directions must exist. Third, developing the skills of young people, who have acquired or constantly acquire them in the contexts of education and daily interaction. The most important of these skills are: public work, problem-solving, professional and

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Figure 3.7

The Basic Pillars of Active Citizenship and Effective Participation

In education, Arab women remain marginalised. The literacy rate among adults (above 15 years) in the Arab region, according to data from 2012, was 77.5%. This was approximately 69.2% among women.100 The proportion of women in the total illiteracy rate in the Arab region was about 66%

social skills, the positive sense of social responsibility, knowledge and general culture, the acceptance of pluralism, tolerance, refusal to exclude others, teamwork, written and oral expression and understanding skills, leadership skills, life skills, public work and social awareness. This idea is illustrated in Figure 3.7, which shows that efficient citizenship is the product of interaction between three factors: the existence of equal opportunities and individuals that have the capacity to exploit these opportunities and an incentive and supportive environment for these individuals. Without these three factors, active citizenship cannot be realised in society.

Women between Marginalisation and Empowerment

The issue surrounding women is related to development, from the integration of freedoms to the provision of human rights, such as the right to freedom and a decent life and impartiality towards marginalised groups in Arab societies. Have educational systems in these societies helped women by providing them with education, training, employment, freedom and social justice and lifting them out of the cycle of poverty and marginalisation?

Various data about education, training and employment opportunities note that the most embodied form of inequality in the Arab region is that of gender. It manifests itself in discrimination that grants men opportunities at the expense of women in all domains of life. This is illustrated mostly in education and employment.

In education, Arab women remain marginalised. The literacy rate among adults (above 15 years) in the Arab region, according to data from 2012, was 77.5%. This was approximately 69.2% among women.[100] The proportion of women in the total illiteracy rate in the Arab region was about 66%.[101]

However, we must not dismiss the historical achievements that have brought about progress for Arab women in terms of education, freedoms, citizenship promotion and an increase in political participation. The rise in Arab women's enrolment rates in universities compared to previous rates is noticeable. The AKR 2010/2011 notes that the percentage of women's enrolment in universities in some Arab countries ranges between 40% and 50%. Also, in recent years, the number of women enrolled in universities in Kuwait, Qatar and the UAE has actually exceeded that of men.[102]

Furthermore, UNESCO statistics show a rising proportion of young women pursuing higher education compared to male students in some Arab countries, particularly in the Gulf countries. For example, the value of the Gender Parity index (GPI) in the state of Palestine was 1.41 at the level of Gross Enrolment ratio (GER) in tertiary education, in 2012, compared to a value of around 0.95 recorded in the past decade (2002).[103] In Saudi Arabia, the percentage of female students among those who are enrolled in scientific disciplines reached 65% in 2010, compared to 40% in the past decade. In many Arab countries, young women show a high level of competence that exceeds in many domains that of their male colleagues. This is an indicator of a reversed quality gap in tertiary education, especially in the scientific disciplines in many Arab countries, particularly in the Gulf countries.[104]

Irrespective of the efforts and achievements of the Arab countries in bridging the gap in the education field, particularly in women's participation in scientific disciplines, they have not been significantly reflected in the participation of women in scientific research. In 2011, women only constituted 1% of the total researchers in Saudi Arabia, 19% in the state of Palestine, and 22% in Libya, and these rates remain below the global average (30%).[105] Although the number of females enrolled in scientific, technological, engineering, mathematics and medicine disciplines is steadily increasing, a small number pursue graduate studies or work in these disciplines in which they excel. Some studies also point to a trend that considers the gap in women's participation in scientific disciplines as harmful to the economies of science, knowledge and R&D in a given society, especially in the economies where women do not have the chance to work. If educated women do not get these opportunities, their preparation as trained human capital assets will benefit neither them nor society.

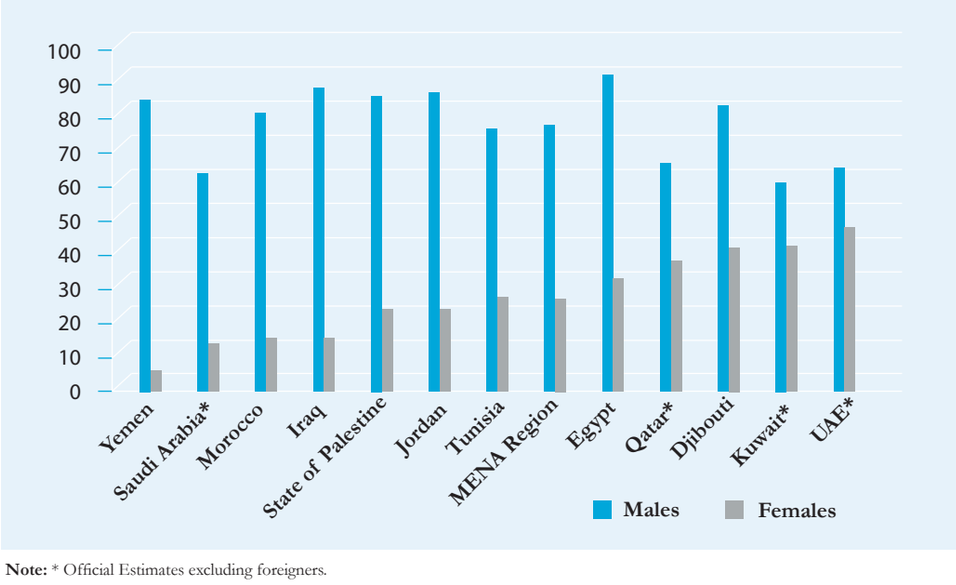
Perhaps what explains the progress of women in education is that this field is practically the only path open to them in many Arab countries to overcome the restrictions imposed on them. Women's attendance in schools and universities is one way to reach public life and participate in it. Education has even become a goal in itself for women to prove themselves and explore a space where they enjoy freedom, in spite of the crippling contexts surrounding them culturally, economically and politically. Women's participation in the public sphere has relatively expanded, with average participation in Arab parliaments increasing from 3.4% in 2000 to about 15.9% in 2014,[106] noting that this participation is still largely lacking systematic support. The few available statistics indicate that the participation of women in senior and key positions did not exceed 14% in Kuwait or 2% in Yemen, compared with the global average of 25%.[107] The improved status of women in education has not had the desired effect on social, political and economic participation. This is due to the fact that Arab women still face discrimination, inequality and marginalisation.

In the employment field, discrimination against women in the labour market constitutes, for many researchers, a shocking fact that belies the improvement in

Irrespective of the efforts and achievements of the Arab countries in bridging the gap in the education field, particularly in women's participation in scientific disciplines, they have not been significantly reflected in the participation of women in scientific research

Figure 3.8

Male and Female Participation in the Labour Force in a Number of Arab Countries and the Rates for the MENA Region 15-64 years (%)



Note: * Official Estimates excluding foreigners.

Source: World Bank. (2013a). (Reference in Arabic)

women's education in many Arab countries. Although the gender gap in education in Arab countries is similar to that recorded globally, women's participation in the labour market remains low compared to men. (See Figure 3.8).[108] The difference is illustrated in the comparison with other countries of the world. Despite the continued gaps between men and women in terms of economic opportunities in all the countries of East Asia, the Pacific, Europe, Central Asia, Latin America, the Caribbean and sub-Saharan Africa, more than 50% of women aged 15 years and older participate in the labour market.[109]

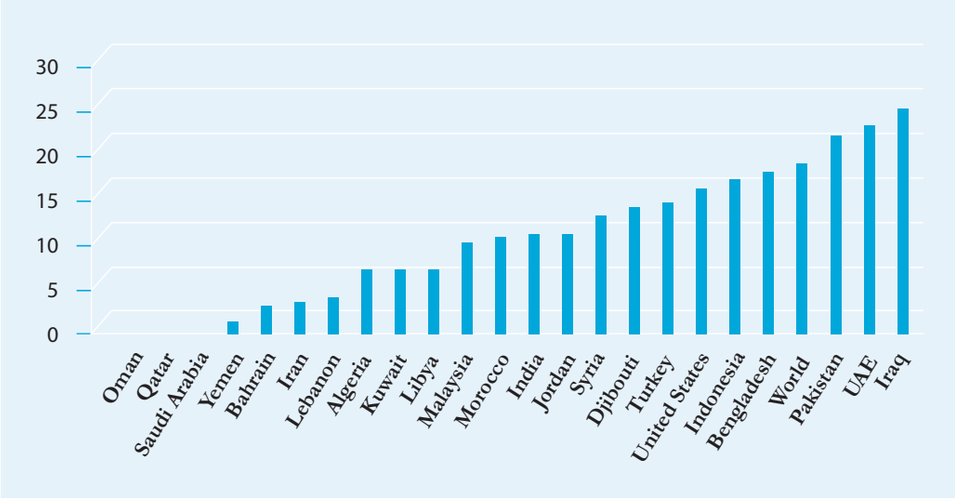
The low rate of women's participation in the labour market is considered one of the important phenomena associated with the marginalisation of Arab women, their weak empowerment, social limitations, and the lack of rights to full citizenship in Arab societies

One study confirms that the structure of the labour market and the economic environment deter women's work in the Arab region. They reduce employment opportunities for women, especially if they have not pursued higher education, and therefore women remain more vulnerable to unemployment and receive lower wages than men.[110] Early marriage also affects employment opportunities for women and their participation in the economy. It should be noted that the largest proportion of the female labour force in many Arab countries is in the agriculture sector, especially in Egypt, Yemen and Syria, in contrast to Morocco and Tunisia (where we are witnessing a decline in demand for this sector). Higher education is perhaps the most important factor contributing to women's departure from the agriculture sector towards the business sectors in governmental institutions.

The low rate of women's participation in the labour market is considered one of the important phenomena associated with the marginalisation of Arab women, their weak empowerment, social limitations, and the lack of rights to full citizenship in Arab societies. Thus, Arab countries lose half of society's youth and deprive themselves of key players in the development and localisation of knowledge and the performance of comprehensive development and progress. The gender phenomenon in the labour market in the Arab countries can only be explained through the pattern of the rentier economy prevailing in the region. It can also be attributed to the characteristics of the Arab culture with its patriarchal nature that emphasises the dominance of the man and his responsibility to the family, as well as to some religious interpretations that deviate from true religion and give strong support to these two economic and cultural criteria. All of these factors amount to increased gender inequality, weakened prevalence of women in scientific research and innovation, limited participation in political and economic fields and marginalisation in civic life.

Figure 3.9

Proportion of Women in Legislative Councils (%)



Source: World Bank (2013a). (Reference in Arabic)

The above does not negate that the Arab region is rich with educated women activists who are aware of their civil rights. This has led them to call for freedom and equality in the family and society and asserting themselves academically, socially, politically and economically. Concerning political participation, data suggest an improvement in the percentage of women's representation in legislatures in recent times, with differences from one Arab country to another (Figure 3.9), but this representation rate remains below the desired level.

Openness and Intercommunication

Openness and cognitive intercommunication are approaches adopted by the Arab Knowledge Reports as an organising line and a rooted principle in the establishment of the knowledge society. It is a comprehensive concept that enjoys its own cultural, social and political aspects, in addition to technological and cognitive mechanisms. We have previously examined the cultural situation of the youth and the attributes it involves. This calls for action and policies to enable the youth to genuinely open up to the global culture, benefit from it and contribute to it, so they become a player in it and not just a recipient. In this section of the report, we focus on the openness of the Arab youth and their communication with other Arabs and/or foreigners in various forms, most notably, the virtual communication with others, trips and journeys, and the regional and international movement of young university students.

Virtual Communication with Others

The statistics of the Arab Planning Institute/Arab Competitiveness (2012) and the statistics of the World Bank (2013) noted that the Arab youth had achieved great progress in recent years in their use of communication technologies, although there remains a gap between them and the youth in developed countries. ICT helps young people in planning job trends and supporting new opportunities, especially in small businesses and entrepreneurship, which in turn supports economic growth. It also offers wide-open spaces for young people to communicate with the outside world and enables them to seize the abundance of knowledge and its transfer and employment. It further helps in preparing them for the implementation of national policies to access the desired knowledge society.

A survey conducted by the ASDA'A Burson-Marsteller over the past few years has shown that the responses of the Arab youth express a great degree of openness.[111] The 2010 report showed that the percentage of young people who used the internet daily increased from 56% in 2009 to 80% in 2010.[112] The 2009 report showed that mobile phones were a basic tool – such as clothing and fashion –for 78% of males and 79% of females. The percentage of young people using a mobile phone with internet access (Blackberry, iPhone) was at 22% for males and 24% for females. The percentage of laptop users was 66% among young males and 59% among females. The same report noted that 80% of the study sample used internet more than once a week, with "Google" considered the most favoured site; it ranks first among young people in Egypt, Qatar and Bahrain.[113]

According to an Asda'a 2014 report, the television was still considered a great source of information (75%) in 2014. Also, the percentage of those who read newspapers decreased steadily with only three out of 10 young people choosing them as their primary source to follow the news. Three out of 5 noted that the internet was their favourite platform to follow up on the news. Two out of 5 young people surveyed in 2014 expressed greater trust in social media in terms of news reliability, and this percentage has increased compared to 2013 when it was one out of 5.[114]

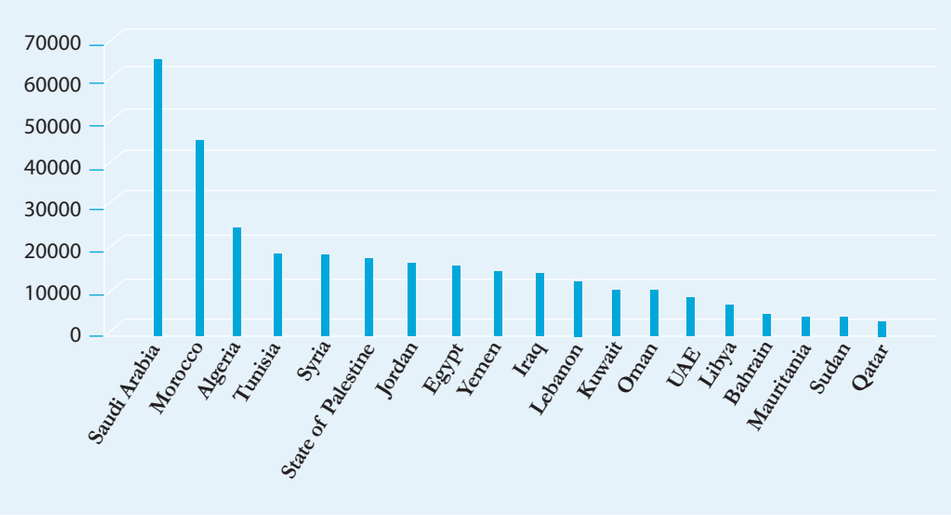
Travelling Abroad

As for tourism and recreation as a channel to express the openness of young people, the study showed that the proportions of young people who travelled abroad in 2009 varied from one Arab country to another.

Openness and cognitive intercommunication are approaches adopted by the Arab Knowledge Reports as an organising line and a rooted principle in the establishment of the knowledge society

Figure 3.10

Number of Arab Students Studying Abroad (2012)



Source: UNESCO 2012a

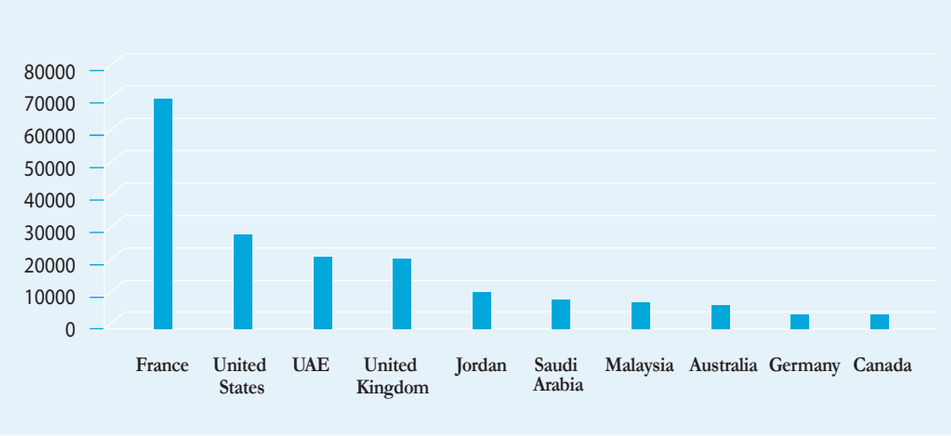
It was 10% in Egypt, 19% in Lebanon and 21% in Jordan. It also showed that 24% of Egyptian youth were optimistic in terms of getting the chance to travel in the near future, while 23% of the Lebanese youth noted that they were planning a trip in the next two years.[115]

Students' Regional and International Mobility

The regional and international mobility of Arab students represents a key channel of openness. It contributes to communicating with others in the areas of study, research and training and interacting with other people's implicit knowledge. Data indicates an increase in the movement of students in the last twenty years around the world. There are almost three million students in higher education around the world studying abroad; about a quarter of a million of whom are Arab students, representing 7.3% of foreign students. According to the UNESCO 2014 data, there were more than 314,000 Arab students studying abroad in 2012. Arab countries host about 253,000 international students. For example, the UAE alone hosted more than 54,000 students from abroad, Egypt 49,000 students, and Saudi Arabia 46,500 students.[116]

Figure 3.11

Top Ten Countries of Destination for Arab Students (2010)



Source: UNESCO 2012a.

Morocco, Algeria and Saudi Arabia are the countries with the highest number of students studying abroad (Figure 3.10). According to the UNESCO data for the year 2012, France is the main destination, and it hosts around 28.5% of these students, followed by the United States with 18.8%, the UAE with 10.9% and the United Kingdom with 9.4%.[117] Also, 27% of Arab students are studying in institutions of higher education in a country other than their own inside the Arab region, which creates an ever-expanding regional market for higher education. This reflects the economic importance of the region and increases its progress towards trading strategies. Egypt, Jordan and Lebanon are considered the countries that receive the highest numbers of Arab students. Those students pursue different specialisations that include business administration, engineering and English as a second language.[118]

This research, educational and student movement, in addition to the Arab countries' encouragement, reflects the globalisation of labour markets, the economy and their orientation towards competitiveness, based on enabling students to acquire high-level skills and knowledge that turn them into international-level skilled workers with high qualifications. However, the inability of the Arab labour markets to absorb these internationally qualified elements and integrate them into the labour market based on knowledge makes the Arab work environment one that contributes to the increasing brain drain from the Arab region. And that is what we will discuss when analysing enabling environments in Chapter 4.

Conclusion

This chapter discussed the situation of youth effectiveness in the Arab region, revealing its limitations which confirm the volume of the knowledge, social, economic and cultural gap separating them from their counterparts in the developed world. Yet, with differences of varying degrees of importance from one Arab country to another and from one area of effectiveness to the other on the path of progress, we see that a majority of the youth has not yet possessed the requirements of the knowledge society era. Although the available data indicated some progress in some areas – education, youth employment and empowerment of women – the situation remains a cause for concern with regards to the effectiveness of the youth and their readiness for integration into the process of the transfer and localisation of knowledge in the Arab region. If we do not accelerate the drafting of effective policies and strategies to equip young people as a force for advancement in the community, the Arab countries will lose a historic opportunity to turn its "youth bulge" into a real human wealth and a human capital capable of carrying the torch of development in the region and realising its hopes in accessing the knowledge society on an equal basis with other nations. These results have been confirmed by field studies that will be presented in Chapter 5 of this report.

The cost of the exclusion and marginalisation of the youth, through the misuse of human capital, was estimated in 2006 in Egypt, for example, at about USD 53 billion and USD 1.5 billion in Jordan. The cost of unemployment was only estimated in 11 Arab countries covered by the analysis and reached an average of 2.32% of the GDP, with the highest rate scored in Morocco at 6.86%.[119] The study confirms that Arab countries are among those that are far from safe in terms of reducing the degree of youth exclusion. There is no doubt that this cost is likely to exacerbate under the influence of youth protest movements in more than one Arab country that call for a decent living, freedom and dignity and the subsequent political, economic and social instability.

The empowerment of young people, with regards to skills and qualifications and through efficient educational institutions, plays a significant role in increasing their social effectiveness. This is realised through capitalising on a combined element of values, trust, tolerance and common understanding among the youth in society, along with the determination of conduct,

Egypt, Jordan and Lebanon are considered the countries that receive the highest numbers of Arab students. Those students pursue different specialisations that include business administration, engineering and English as a second language

The empowerment of young people, with regards to skills and qualifications and through efficient educational institutions, plays a significant role in increasing their social effectiveness

and trends towards active participation and the exercise of real democracy, i.e. "social cohesion". This is reflected, of course, in the economic efficiency of the youth in production institutions that require common values of cooperation and teamwork skills. The youth's possession of knowledge efficiency will further provide countries of the region with a competitive advantage in the globalised knowledge economies.[120]

Even with different opinions in this regard, it could be argued that the current status of the Arab community, with its political, social and economic positions contexts, is built in a way that does not allow for the qualification of the youth and factors of change. The Arab youth looks at power from a weakened point. It needs development policies to support it and enable it to traverse weakness towards strength, to take hold of knowledge and to access the knowledge society. Does the Arab region enjoy the necessary enabling environments for the preparation of the Arab youth to undertake a historic responsibility in the transfer and localisation of knowledge and to achieve the required progress to which all the nations of the Arab region aspire. This is discussed in Chapter 4.

ENDNOTES

1 Kamal Naguib, background paper for the report.
2 UNESCO 2014a, the proportion of women was calculated by the report team, based on data of UNESCO 2014a. See Annex 4, Table A 4-5.
3 UNESCO 2014a.
4 The proportion of women was calculated by the report team, based on the UNESCO database (UNESCO 2014a). See Annex 4, Table A 4-5.
5 UNESCO 2014a, regional literacy rates.
6 Ratios related to primary education. It should be noted that the percentage of females is calculated by the report team are based on UNESCO database (UNESCO 2014a).
7 UNESCO 2014a.
8 UNESCO 2014a.
9 UNESCO 2014a. For more details, please refer to Annex 4, Table A 4-6.
10 Abu-Orabi 2013
11 Kamal Naguib, background paper for the report.
12 UNESCO 2014a.
13 UNESCO 2010a.
14 UNESCO 2010a.
15 UNESCO 2014a.
16 Mouhoud 2012.
17 UNESCO 2012. (Reference in Arabic)
18 UNESCO 2012. (Reference in Arabic)
19 Salehi-Isfahani 2010.
20 Salehi-Isfahani 2010.
21 Alissa 2007.
22 European Training Foundation 2012.
23 Kendzia 2002.
24 Angel-Urdinola et al. 2010.
25 IFC & Islamic Development Bank 2011
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49 Ahmad Al-Kawwaz 2011 (Reference in Arabic); Mahbubani 2009.
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54 Mohamed et al. 2008.
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57 Asda'a Burson-Marsteller 2008 and 2014.
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61 UNICEF & AUB IFI 2010.
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64 UNICEF & AUB IFI 2010.
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70 UNDP & the Institute of National Planning 2010.
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73 Arab Monetary Fund 2012. (Reference in Arabic)
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[100] Report team calculations based on the UNESCO database (UNESCO 2014a) on literacy. See Annex 4, table A 4-5.
[101] UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012, Arab Knowledge Report 2010/2011. (Reference in Arabic)
[102] UNESCO 2014a.
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[108] World Bank 2013a. (Reference in Arabic)
[109] Chaabaan 2009.
[110] Asda'a Burson-Marsteller 2009, 2010, 2014
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[112] Asda'a Burson Marsteller 2009
[113] Asda'a Burson-Marsteller 2014.
[114] Asda'a Burson-Marsteller 2009.
[115] UNESCO 2014b.
[116] UNESCO 2014a.
[117] UNESCO 2014a.
[118] The cost was estimated relatively to a value of unemployment that is equal to zero.
[119] Chaaban 2008.
[120] Bukatti & Falk 2002·

CHAPTER FOUR:

THE ENABLING ENVIRONMENTS AND THEIR EFFECTIVENESS IN THE TRANSFER AND LOCALISATION OF KNOWLEDGE

Introduction

In the previous chapter, we presented the situation of the Arab youth with respect to their cognitive, cultural, economic and social effectiveness. The current chapter offers an analysis of the status of the Arab enabling environments, in order to study their successes and failures. The chapter also examines the ability of these enabling environments to transform the Arab youth from a population growth that burdens the development process into a human capital. Such a capital will form an effective production force and will help in achieving a wealth of knowledge that nurtures development and enables the region to move towards the knowledge economies and the establishment of the knowledge society.

This chapter then addresses three main axes: the first addresses the enabling environments which prepare the youth directly, namely universities and higher education institutions. The second includes an analysis of the status of research and development (R&D) as well as other innovation environments. The third axis deals with the broader enabling environments, namely economic and political ones that include developmental and legislative policies, in addition to effectiveness and governance.

Higher Education in the Arab Region

Higher education plays a major role in development. Higher education institutions are the main actors in the transfer, diffusion and production of knowledge processes, through training and research activities. It also assumes a unique social responsibility in developing values, citizenship, engagement in the labour and production market and participation in civil society activities. These institutions produce the human capital required for comprehensive development and the labour market, which is regarded as a crucial and essential factor for economic and social progress in any society.[1]

When institutions of higher education succeed in achieving high quality and meet the needs of a society, the opportunities for youth integration into the labour market, life and society as a whole increase with respect to the transfer and localisation of knowledge. They also help achieve integration between economic institutions and the forces that organise labour as well as the institutions that are active in civil society. These institutions become an essential mechanism in inducing community change to achieve the objectives necessary for establishing the knowledge society. Higher education institutions are also considered among the most important that can draw together various parties, including students, researchers and instructors, with various backgrounds to work together towards achieving future aspirations for the entire nation.

Higher education institutions are the main actors in the transfer, diffusion and production of knowledge processes, through training and research activities

In its interaction with globalisation, the knowledge and technology revolution has increased the importance and effectiveness of universities in achieving their objectives in terms of knowledge diffusion, production and localisation. With the favourable opportunities it offers, globalisation has also raised many problems for universities, in both its influence and its impact. This in return has reflected on the university environment and administration, governance, teaching methods and appraisal, education, training, research and innovation programmes, as well as on its relationship with production and industrial establishments, and the civil society. Universities all over the world, including those in the Arab region, have opened their doors to the growing social demand for university education in order to keep up with the increasing requirements in the labour markets for workers with high levels of knowledge and skills. Higher education has moved from educating the elite to educating the masses.

In its interaction with globalisation, the knowledge and technology revolution has increased the importance and effectiveness of universities in achieving their objectives in terms of knowledge diffusion, production and localisation

The question raised is: How has higher education institutions in the Arab region reacted to international, regional and national changes, with respect to programmes, educational structure and the organisational and institutional environment, so as to be an active factor in the integration of the youth in the transfer and localisation process, and to contribute to building knowledge society?

The Emergence of Universities and the Spread of Higher Education in the Arab Region

The region witnessed the emergence of the first Arab Islamic universities with the beginning of the 8th Hijri Century, during which many universities were established in the Mashriq and Maghreb as religious high schools under the Islamic civilisation. These included the University of Al-Qarawiyyin in Morocco, University of Ez-Zitouna in Tunis, Al-Azhar University in Cairo. However, Arab universities in their modern European form did not emerge until the beginning of the 19th Century, during the "Muhammad Ali" era and within the framework of his modernising project in Egypt with all its victories and defeats. Those universities served as high schools of various disciplines such as engineering, medicine, agriculture, languages and the arts, with the aim of communicating and transferring knowledge, technology and European management systems for the establishment of modern Egypt.

In 2012, the number of universities in the region reached 500, and the number of students grew to around 9 million, with 220,000 faculty members

At the end of the 19th Century and the beginning of the 20th, the region, with most of its countries still under occupation, witnessed popular and governmental movements as well as foreign missions that established universities in the Arab region. Three universities were founded in Egypt: The Egyptian University in 1908 (currently Cairo University), King Farouk I of Egypt University (currently Alexandria University) in 1938, and Ain Shams University in 1950. The American University in Cairo was founded in 1919 as a private non-profit university. In Syria, the Syrian University (currently University of Damascus) was established in 1923, and in Algeria the University of Algiers was founded in 1959. The University of Khartoum in Sudan was founded in 1936. Lebanon witnessed an early establishment of private universities, where the American University of Beirut was founded in 1866 and Saint Joseph University in 1875. The Lebanese University was established as the first public university in Lebanon in 1951.[2]

A study conducted by the Association of Arab Universities showed that until 1953 there were around 14 universities, both public and private. Historically, most of the foreign private universities were located in Lebanon.[3] With the beginning of the second half of the 20th Century, several renaissance factors emerged, following the independence movements. These included the progressive movement in Tunisia through which the country was united as a nation state, the development movement lead by Gamal Abdel Nasser and the modernisation movements in the Arab Gulf countries. Meanwhile, governments in the region witnessed a shift that placed education as a mechanism for development and the support of independence. Given these national historic drives, popular aspirations and social demands for higher education and the needs of development increased.

Under the influence of all these events, the efforts of Arab governments in building universities and higher education institutions expanded and multiplied. Consequently, the number of universities in the Arab region increased from 233 universities in 2003 to around 286 in 2006, of which 153 are public universities and 133 are private. The number of students reached 4.4 million, and members of faculty 183,000. The percentage of human and social specialisations was 78% while scientific specialisations stood at 22%. These numbers increased in 2012, where the number of universities reached 500, and the number of students grew to around 9 million, with 220,000 faculty members. As for the student-faculty ratio, it improved to almost 31 to 1; while it remains as low as 100 to 1 in some universities and certain specialisations. In the Gulf countries, these ratios vary between 17 to 1 and 41 to 1, with the global average set at 15 to 1.[4] Table 4.1 shows the number of universities and students in the Arab countries, according to the same study.[5]

Higher Education Characteristics in the Arab Region

Higher education institutions in Arab states can be classified into three basic models, according to their historical

Table 4.1

Higher Education Statistics in the Arab Region (2011)

Countries	2011				
	Number of Universities			Number of Students	Number of Faculty Members
	Public	Private	Total		
Tunisia	13	19	32	360 000	21 210
Iraq	25	8	33	397784	31 990
Bahrain	2	8	10	35 848	3 100
Yemen	8	13	21	300 000	10 000
UAE	2	19	21	59 333	1 861
Morocco	14	4	18	419 885	12 085
Sudan	28	7	35	500 000	9 700
Lebanon	1	19	20	205 000	12 700
Oman	1	7	8	80 000	4 100
Kuwait	1	4	5	34 560	1 705
Saudi Arabia	23	8	31	667 000	21 320
Syria	5	10	15	282 484	9 500
Egypt	20	15	35	2 800 000	67 000
State of Palestine	2	13	15	196 625	5 900
Jordan	11	18	29	336 000	8 898
Libya	9	2	11	264 000	9 000
Somalia	3	11	14	4 147	195
Mauritania	1	-	1	25 000	1 175
Djibouti	1	-	1	15 000	580
Qatar	1	6	7	15 500	1 100
Algeria	34	2	36	1 149 899	19 500
Total	206	193	399	8 148 065	252 619

Source: Abu-Orabi 2013.

emergence and nature. The first model is the historical, traditional, central, public and free model; it is widespread in most Arab states except for Lebanon and the State of Palestine. The second model exists in Lebanon and the State of Palestine and is characterised by decentralisation and private education. The two models have acquired these characteristics by virtue of the establishment of both countries and the surrounding historical circumstances. At later stages, this model spread to other Arab countries.[6]

Under the influence of global trends, most Arab states adopted the policy of economic liberalisation following the neo-liberal model in light of the globalisation phenomenon. They also expanded the privatisation of higher education to allow for a wider spread of free pre-university education. In the context of this policy, higher education in these countries started to be regarded as an important means to assist development policies in integrating local work forces into the global economy. These policies tangibly contributed to the spread of higher education in the last decades and expansion in private education.

Under the influence of global trends, most Arab states adopted the policy of economic liberalisation

As part of their reform efforts, and within the framework of global interaction, countries adopting the first model witnessed progress leading some of them to adopt policy aspects based on "neo-liberalism" within the trend of globalisation. As such, private institutions of higher education were established, and in some countries that were adopting the public higher education model, the Arab Mashriq in particular, the ratio of private institutes and universities reached 48.5%.[7] During the past 25 years, the number of private universities in the Arab region increased to more than 200 in

2011, representing 40% of the total number of universities in the Arab region.[8]

What is noteworthy is that most of the private universities in Lebanon, as well as the American University in Cairo, were non-profit institutions. In fact, the first for-profit private university was founded in Jordan in 1990, and then many other countries followed, such as Yemen, Sudan and the Arab Gulf states.[9] It should also be note that private universities in the West are generally non-profit institutions, although "profitability" started in certain western universities, it rather remains very restricted and does not represent a trend, as is currently the case in the Arab region.

As for the third model, which is the private foreign model, it appeared in the context of progressing efforts towards adopting neo-liberalism and the knowledge economy within the framework of globalisation. Branches of mostly western foreign universities were widely introduced in many countries in the Arab region. This policy did not only result in the increase of the private sector share in higher education, but also in more diversity, as well as new programmes such as distance learning, open education and parallel education programmes that reached out to more students. This policy also drove the expansion of education in Jordan, the Gulf countries and Egypt, while Arab Maghreb states showed reservation in adopting this policy and recorded relatively low rates in higher education enrolment compared to other countries in the region.

Higher education has witnessed diversity with regard to the types of universities, specialisations and student distribution over the public and private institutions

Meanwhile, one study shows how the Gulf countries have created, to some extent, a new model of higher education that enables the building of the knowledge society. The model relies on opening branches of foreign universities, mainly western, in compounds with innovative names such as Doha Education City, Dubai Knowledge Village, and University City of Sharjah. For instance, Doha Education City was built on an area 14 km2 and is the largest international compound for universities in the world. It includes branches of internationally renowned universities such as Georgetown, Carnegie Mellon, and Cornell. In Abu Dhabi, Massachusetts Institute of Technology was founded as part of Masdar City, a huge university city. However, these private universities are characterised by expensive fees and the majority of students are foreigners or children of expatriates from other Arab countries.[10]

Box 4.1

The Internationalisation of Universities and Higher Education in the Arab Region

The existence of foreign universities, or their subsidiaries, or higher education institutes outside their country of origin, has become an apparent phenomenon due to the influence of the knowledge and technology revolution, as well as the hegemony of globalisation that goes beyond country borders.

Studies and inte national reports show that the Middle East has hosted 34% of the total foreign university branches in 2009. In this same year, there were 160 foreign university campuses – outside their countries of origin – in the Arab world. Most of them were inaugurated during the past fifteen years, especially after the year 2000, and the majority of them are affiliated with American universities. The origins of the foreign universities in the Arab region vary from Australia, to the United Kingdom, Canada, France, Russia, as well as India and Singapore. The UAE hosts almost one quarter of the region's international university branches, followed by the State of Qatar, with around nine branches. Kuwait, Bahrain, Jordan, and Tunisia also have branches of international universities, as well as local-international universities such as the German University in Cairo and Paris IX in Tunis. Accordingly, the pattern of internationalisation of education varies on the Arab region territory. Saudi Arabia, for instance, has adopted a different model, where high-level international universities were involved in the design and establishment of the King Abdullah University of Science and Technology, with respect to the development of the programmes, building global partnerships in the fields of research, helping students and faculty members to communicate with international researchers, obtaining knowledge facilities and exchanging visits and expertise with the finest universities and research centres in the world.

Source: World Bank 2012b.

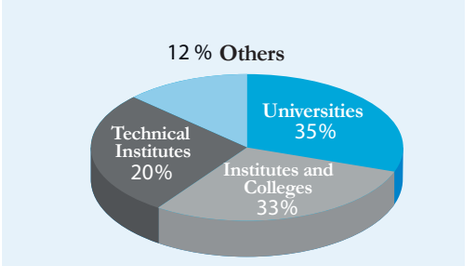
Thus, higher education has witnessed diversity with regard to the types of universities, specialisations and student

distribution over the public and private institutions. The UNESCO data (2010) indicate that the percentage of public universities and higher institutes amounts to 63.8% compared to 36.2% private, and that the percentage of public universities is almost equal to that of private universities (51.5 compared to 48.5).[11] As for the distribution of students, the public sector still prevails in the region (See Figure 4.1).

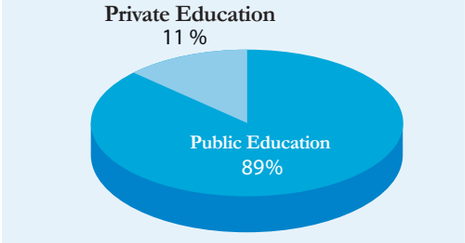
There is no doubt that efforts in expanding higher education in the Arab region are a necessity imposed by the requirements of the knowledge-based society in need of highly-skilled labour forces. However, these efforts will remain futile unless backed up by similar efforts to advance the quality of education services and outputs. The following question then arises: to what extent can one say that these policies of expanding higher education in the region are effective in enhancing the development processes and arming the youth with opportunities and capabilities enabling them to participate and contribute in building a knowledge society? [12]

Figure 4.1

Classification of Higher Education Institutions in the Arab States



Distribution of Students between the Private and Public Education in the Arab Countries



Source: UNESCO 2010a.

Problems of Higher Education in the Arab Region

Apart from the lower rates of youth enrolment in higher education institutes, in comparison to developed countries, higher education in many Arab countries is also affected by the following:

First: There is still a genuine concern surrounding the adequacy and effectiveness of these systems in equipping the youth with the opportunities and capabilities that enable them to participate in economic development. Arab universities, especially the reputed public universities accommodating most of the Arab students, have inadequate teaching methods, extreme shortage of research policies, in addition to obsolete academic decisions. Furthermore, they are not coping with the requirements of the knowledge society. Therefore, these countries are witnessing the brain drain phenomenon among their gifted citizens, and have inadequate technical training and scientific formation needed for the progress towards the aspired knowledge economies.[13]

Arab universities, especially the reputed public universities accommodating most of the Arab students, have inadequate teaching methods, extreme shortage of research policies, in addition to obsolete academic decisions

Second: the extended presence of western universities, particularly in the Gulf countries, can help in introducing new methods, decisions and specialisations that cope with the requirements of the knowledge society. However, this might create certain social and political controversies, including, for instance:

- Progress in research might occur in natural sciences, mathematics and technology, but the culture surroundin g these universities will remain unchanged. These universities also face the risk of non-integration of knowledge, or as it is referred to in the history of society development, the non-integration of the scientific culture and the human one.

- International universities located in the region remain expensive. At the same time, Gulf countries endorse policies

of free education at all stages for their citizens and fulfil their social needs. This puts the largest burden in educating citizens on public universities. As for international universities, their students are likely to be the children of expatriates or foreign workers, whose numbers may reach up to 75% of the population, and who have the wealth and capacity to enrol their children in these universities.[14] This could also create a gap in the acquired skills of citizens graduating from traditional universities and expatriates graduating from international universities. It could also impede policies aimed at raising employment rates among young citizens and localising jobs; policies that governments in the Gulf countries are striving for achieving. Meanwhile, the knowledge localisation process transferred though these universities will also be impeded.

Geographical, social, political, economic and educational factors combine to make the employment structure in the Arab countries non-conducive to the knowledge society

This last point illustrates the higher education situation in Arab countries in a clear and obvious duality; national, traditional local universities versus foreign, advanced international universities. The latter will remain isolated in a cultural space in the country they were established, unless major economic progress occurs in these countries and the controversies are absorbed so that the whole community benefits. If this does not occur, the problem could worsen and jeopardise the future of foreign institutions. These controversies are the result of the growing impact of globalisation reflected in the Arab states in what is called the commodification of knowledge, as opposed to its localisation.

Higher Education and Unemployment of University Graduates in the Arab Region

As we have already witnessed with knowledge effectiveness, the unemployment rates among those with higher education, whether in the Gulf States or the Arab region in general has reached an alarming level. A serious attempt should be made to examine the extent and capabilities of the Arab countries in preparing a human capital that meets the requirements of youth integration in the process of transfer and localisation of knowledge and for moving towards the knowledge economies. The question raised is: What are the reasons behind high unemployment among educated people? In other words, how much does the labour environment (the labour market) contribute to the aggravation of the phenomenon of youth unemployment in general, and that of higher education graduates in particular?

According to various reports and indicators on unemployment, the issue is complex and multidimensional. Geographical, social, political, economic and educational factors combine to make the employment structure in the Arab countries non-conducive to the knowledge society. The employment structure strongly contributes to the marginalisation and exclusion of the youth and women, who are victims of the absence of development policies. Therefore, one cannot understand these reasons, their impacts and interactions without analysing the general features of this structure.

The General Features of the Labour Market and Unemployment in the Arab Region

Statistics show that the highest rate of participation in the work force exists in countries that import technical labour, where male participation is estimated at almost three times that of women. The agricultural sector includes the largest proportion of labour in poorer countries where employment in this sector reaches more than 50%, while this rate drops to 20% in economies with rich resources. The social and personal services sector constitutes more than 40% of the labour force in developed countries that import labour; workers leave the agriculture sector and seek better wages in the services sector.[15] It is also noticed that labour exceeds 50% in the social and personal services sector in countries that are affected by conflict. The agriculture sector accounted for 27.8% of jobs in the region in 2008. This sector remains predominant in the employment of women, as 39.3% take up jobs in agriculture, while it accounts for 27.8% of men's

employment.[16] The employment of women is centred on services and community activities in developed countries that import labour, as well as in countries subject to conflict, while the participation of women in the agriculture sector in less developed countries is significant.

The public sector still plays a major role in the recruitment process, as the International Labour Organisation report in 2009 indicates that around 29% of the total number of people employed in the Arab world are in the public sector.[17] This might lead to a distortion of the labour market due to the fact that this sector focuses on diplomas instead of skills when recruiting workers, in addition to the inadequacy of the skills acquired by learning with the actual needs of the labour market.[18] The danger of this phenomenon lies in the possibility of directing the human capital away from the jobs that enhance economic growth.[19] This means that the labour market structure in this sense is far from the process of youth integration in the localisation and employment of knowledge, due to the scarcity of job opportunities in the sectors related to knowledge, knowledge production and research. This was reflected in the quantities and types of specialisations chosen by the Arab youth in universities, and the low rates of those enrolled in science, engineering and medicine faculties, as well as other specialties required for the transfer and localisation of knowledge.

Job Opportunities in the Arab Region

The labour market in most countries of the region is characterised by rigid regulations that are not in harmony with labour and employment. These regulations have become obstacles impacting the flexibility of the economic activity in the labour market.[20] One study shows that the employment to population ratio in the region is below 45%.[21] There are different estimates regarding the number of job opportunities needed to be created in the Arab Region. One estimate suggests that 80 million job opportunities are needed in the region to reach a 64% employment ratio in 2020. If the ratio is to reach 70%, then the region will need 100 million job opportunies for the same period, which requires a steady growth at the rate of at least 4.4 yearly.[22]

Other investigations suggest even higher figures. According to one study, and in order for non-GCC countries to be able to reach full employment and increase women's participation in the labour force to 35% (which is 15% less than the average in developed countries), by 2030, they will have to create 92 million jobs. This requires an investment estimated at USD 4.4 trillion (in fixed prices for the year 2005). This means that the average annual investment value amounts to USD 220 billion (i.e. approximately 50% of the GDP of these countries in 2009). As for the least developed countries, the investment rate required is much higher; it reaches 100% of the GDP approximately, which definitely requires large foreign support to be achieved. Others estimate that for the creation of 29 million jobs, an investment of USD 1.4 trillion is needed, and this amount rises to USD 2.1 trillion for the creation of 41 million jobs.[23] Whatever the case, all of these estimates clearly indicate the magnitude of the unemployment problem and the need to address it effectively to ward off mounting costs on the present and future generations.

The labour market in most countries of the region is characterised by rigid regulations that are not in harmony with labour and employment

Another characteristic is represented by the weakness of the private sector contribution. Despite the efforts the Arab region countries have made in economic liberalisation policies in order to push the private sector to play a larger role in the economy between 2002 and 2008, the impact of these efforts on economic and social development processes was limited. Research touched on the fact that these efforts did not lead to a tangible increase in invigorating and supporting the private sector to fulfil its role in integrating the youth into the process of knowledge production and transfer, encouraging entrepreneurship among the youth, as well as improving job opportunities and the quality of life. The administrative and political environment of civil society, as well as the private charity entities remained heavily exhausted and unaffected by change.[24] As indicated earlier,

this imbalance in the economic structure has resulted in an increase in the unemployment rates among highly qualified youth and weak entrepreneurship.

Obstacles That Have Led to the Youth Unemployment Crisis

The Weak Quality of Higher Education in the Arab Countries

Many Arab countries have strived, especially in the beginning of the 21st Century, to establish quality assurance organisations. They have established the Arab Network for Quality Assurance in Higher Education (ANQAHE) with the support of the World Bank. Still, these government-affiliated organisations, which lack independence most of the time, seem to have limited capabilities, and have not directed their efforts in a serious manner towards the modification of higher education institutions, or in their vision of basic reform.[25] Studies show that current governance and the application of practical methods and mechanisms that are far from the new requirements for achieving change and transformation hinder efforts to achieve the requirements of excellence and more towards greater competitiveness. Arguably, higher education institutions in many Arab countries are a continuation of the higher authorities of the state, with an evident absence of public policies and legislations that enable and facilitate independence and transparency, in addition to the accountability of these institutions.[26]

Developed countries are aware of the connections between higher education institutions and local, regional and international labour markets, and have worked towards achieving them as a matter of importance for continuing economic development

A Gap between Higher Education Outputs and the Requirements of the Labour Market

The decrease in productivity, increase in unemployment rates among the educated and weak competitiveness of the Arab labour force compared to foreign labour are in large part due to the gap between the educational formation and the requirements of the labour market, as well as the weakness of educational programmes and vocational and technical training. Developed countries are aware of the connections between higher education institutions and local, regional and international labour markets, and have worked towards achieving them as a matter of importance for continuing economic development. Nevertheless, we find that these connections remain extremely frail and weak in the Arab region and do not effectively serve the major objectives of Arab societies. This explains the demand and the continuous call for higher education institutions to achieve harmony between their education and research outputs and their research functions, and the development of their communities in terms of linking knowledge and research with the labour markets and the human economic development.[27] The education as well as technical and vocational training have not benefited from vertical and horizontal reforms and effective governance that would enable them to overcome the gap between their quantitative and qualitative outputs and the reality of professions and skills in the labour market.

Poor Skills and Their Relation to the Weak Connection between Universities and the Public and Private Sectors

The dissatisfaction of employers with the skills of university graduates, which we already addressed in the previous chapter within the framework of knowledge effectiveness, is considered among the main obstacles to recruitment. Higher education institutions do not bear the responsibility of this issue alone; they share it with the weakness of the participation of the public and private sectors.

Acquiring skills, developing creativity and innovation, and investing in research cannot be achieved without the link between higher education and the private sector, and without establishing partnerships with the public and private sectors, and developing mechanisms that help achieve the third function of university and other higher education institutions,[28] that is in addition to creating economic environments that encourage the youth to acquire knowledge and high-level skills that are relevant to the knowledge economy and society.

The Weakness of the Vocational and Technical Formation and Training Systems in Higher Education Institutions

If the mismatch between the skills and the requirements of the labour market is one of the factors contributing to the spread of unemployment among higher education graduates, then this is due, in addition to the aforementioned reasons, to the absence of vocational formation and training systems in higher education institutions. It is true that there is diversity in the Arab countries in formal education and vocational training, but they follow mostly pre-university education ministries, or various authorities whether "agricultural", "industrial", "construction" or "service'. The second AKR has delved deep into detailing their types and features.[29] Nevertheless, certain Arab countries have begun various initiatives that aim to develop technical education and vocational training systems in the public sector, or with the contributions and collaboration with the private sector. These include; Applied Education and Training in Kuwait, Technical Education and Vocational Training in Yemen, Technical and Vocational Education and Training in Bahrain and Tunisia, the Vocational Preparation and Training of Trainers Centre, founded by the Vocational Training Corporation in Jordan, and the dual education known as Mubarak Kohl Initiative in Egypt.[30]

For the purpose of integration through technical education and preparing specialists and researchers who would combine knowledge and applied skills, new specialisations in technical baccalaureate and technical higher education were introduced in collaboration with employers with their financial and human resources. This took place during in the last decade of the past century, in specific fields such as welding, glass, prosthodontics, medical labs and tissue culture. The experiments which started with clear visions succeeded, while those that could not overcome the academic style staggered. However, technical and vocational education and training in most Arab countries has been criticised for the lack of national strategies and policies and the weak contribution of the private sector in partnering with education and training public institutions. One of the major drawbacks of vocational and technical training is the stereotyping of the training specialisations and curricula, the limitation of training programmes and the weakness of their connection with higher education and university education.[31]

Higher Education and Brain Drain in the Arab Region

The growth of giant transnational corporations, within the framework of globalisation, has led to the internationalisation of higher education and scientific research employment, be it for researchers, students and institutions. This has been especially witnessed in sectors of electronics, metallurgy and medications and has resulted in the emigration of great numbers of scientific cadres from the Arab region to countries abroad.[32] The absence of education and research environments coupled with low wages has supported the brain drain in the Arab region as people search for distinguished jobs at international corporations and research centres. This has become one of the main issues in Arab countries.

The absence of education and research environments coupled with low wages has supported the brain drain in the Arab region as people search for distinguished jobs at international corporations and research centres

A World Bank study (2012) shows that there are millions of Arab immigrants, both youth and adults, in OECD countries. Most of them are from Morocco (1.5 million), Algeria (1.3 million), Tunisia (400,000), Lebanon, Iraq, and Egypt (300,000 from each country). The biggest portion of these immigrants are graduates of higher education (35%). The Arab immigrants amount to 42% of the total immigrants in France, and around 15% of the total immigrants in Sweden, Spain, Germany, and Belgium, and 2.6% of immigrants in the United States of America.[33] A UNDP report regarded the brain drain phenomenon as a reverse aid from less developed countries to developed ones. It presents a severe crisis in the development of the Arab region,[34] for it makes the region lose an important source of education, knowledge and technology, as well as intellectual elements and historical

experiences.[35] It also indicates the inability of the region to retain its human resources with varying degrees among countries.

This is evident in Table 4.2, which shows the performance of a number of Arab countries on the indicator "Country capacity to retain talent", or the ability of the state to provide job opportunities to university graduates and keep national competences and talents. Qatar came first in the international ranking, followed by UAE (rank 6), while a great number of countries failed to keep their national capabilities and talents such as Yemen (rank 139), Algeria (rank 137), Mauritania (136) and Egypt (rank 133).

Table 4.2

Capacity of A Country to Retain Talent (2013-2014)

Country	Value of the Indicator (7-1)	Global Ranking (of 148 Countries)
Algeria	2.1	137
Yemen	2.1	139
Egypt	2.3	133
Libya	3.1	87
Lebanon	2.7	115
Mauritania	2.1	136
Morocco	3.6	54
Jordan	3.7	53
Kuwait	3.5	66
Bahrain	4.6	22
Oman	4.8	16
Saudi Arabia	4.6	18
UAE	5.5	6
Qatar	6	1

Source: World Economic Forum 2013
**Note: 1 = Skilled people leave for better opportunities in other countries*
7 = The country offers the required opportunities for those with capabilities

Emigration does have its positive aspects; it opens doors to new experiences before the youth, helping the formation of cognitive and social capitals and the achievement of financial returns that constitute between 5% and 20% of the GDP in some labour-exporting countries

The internationalisation of labour markets, skills, knowledge workers and research centres, as well as the production of knowledge in the framework of globalisation, necessarily require a reconsideration of the phenomenon of emigration of the highly skilled from developing to developed countries. It also requires a change in thinking about this phenomenon from a study of the reasons behind the movement to focusing on the movement itself, and how to benefit from it. Studies show that the emigration of scientists takes place when living conditions are difficult, whether for professional, political or economic reasons, or when advanced professional opportunities present themselves along with better living conditions for further scientific growth.[36]

Emigration does have its positive aspects; it opens doors to new experiences before the youth, helping the formation of cognitive and social capitals and the achievement of financial returns that constitute between 5% and 20% of the GDP in some labour-exporting countries. Financial returns sent to the country of origin have helped to provide job opportunities for women or opportunities of self-employment in areas that do not require high skills, such that the returns constituted capitals that are exploited in achieving public economic activities that provide flexible employment (the cases of Egypt and Morocco).[37] However, this does not overshadow its negative aspects that are represented in the brain drain phenomenon and the decrease of production at the national level. Many emigrants also face problems related to the type of policies that are enforced upon them abroad. This entails greater responsibilities on states and governments to prepare adequate conditions and offer incentives to encourage the immigrants of intellectuals, scientists, researchers and creative people to return in order to localise what they own in terms of knowledge capital and to contribute to the renaissance of their countries and increase development.

One can be guided in this area by the experiences of several developing countries that have aspired to build progress focused on knowledge and interest in research (East Asian Countries).[38] These countries have succeeded in benefiting from the emigration of their scientists, researchers and highly skilled citizens, and have turned loss into profit. They have gathered the scientific skills of emigrants in institutional networks that facilitate the distribution of cadres and information, and initiates research and scientific programmes in common with the research communities and institutions,

locally and abroad. In addition, these countries were able to benefit from their emigrated citizens in ways that have gone beyond financial returns.[39] For instance, India built organised and strong ties with its emigrant citizens abroad, and extended these ties locally into networks and partnership programmes. It also encouraged its scientist citizens abroad to return to invest in the national economy and to bring along their savings and high-level scientific expertise, which benefited the nation's institutions economically and politically. The same applies to China, which encouraged its citizens to return by providing them and their children with education and housing, and opened research centres and highly skilled jobs. Studies show that there are one million highly skilled Indian scientists abroad that only represent 3.43% of the number of scientists in the country. There are also more than 600,000 highly skilled Chinese scientist emigrants, representing less than 3% of scientists in the country. On the other hand, we find more than half of Lebanon's scientists abroad.[40]

R&D System in the Arab Region

The technological research and development system aims at inducing accumulated knowledge that leads to the production of knowledge in the form of scientific discoveries, new technology applications or inventions. The research system encompasses Research & Development (R&D), Science and Technology (S&T), Innovation & Renovation, Education and Training, infrastructure, and Information and Communication Technologies (ICTs). This research system also includes three activities: basic scientific research, applied scientific research and technological development. It operates with its diverse activities in all areas of natural and engineering sciences, as well as social and human sciences.[41] Research in its integral system is entrusted with the generation of knowledge, theories, and ideas, as well as the formation of knowledge capital and building knowledge cadres. Technological development is considered an objective and a means, as it is considered the medium between research and production sectors. It is at the same time a product that represents the progress of research for creating tools, designs, innovative methods and new products.

In this part of the fourth chapter of the report, we analyse the status of research systems and monitor the extent of scientific progress, development and innovation in the Arab region. This aims at studying the strengths and weaknesses of these systems, which might help define the Arab needs imposed by the necessity of pursuing the development of this system, enhancing its skills and role in the transfer and localisation of knowledge, and anchor a new development model based on knowledge, innovation and novelty.

Scientific Research Institutions

Most researchers agree that the status of scientific research in the Arab region is still one of the major obstacles standing in the way of knowledge, hindering the efforts towards real achievements in building the knowledge society.[42] The efforts in building an effective research system face several obstacles, most importantly the absence of a culture that supports research and creativity, the weakness of research institutions governance, the absence of comprehensive policies for building integrated systems of R&D and the weakness of funding and human resources.

Most researchers agree that the status of scientific research in the Arab region is still one of the major obstacles standing in the way of knowledge, hindering the efforts towards real achievements in building the knowledge society

The first problem is an outcome of the region's historical and cultural legacy. Studies show that there is concern over the adequacy of cultural dimensions in making social, economic and political changes for building an advanced system of research in the Arab region achieving the mission of localisation of knowledge in terms of transfer, employment and production (see Chapter 3 "Cultural Effectiveness"). In fact, countries that succeeded in advancing towards modernity and renaissance and building a knowledge society (such as Japan, Singapore, and Malaysia) are the ones that succeeded in reshaping cultural structures in their communities, and were able to introduce major cultural adaptations. This has resulted

in spreading the culture of education, scientific thinking, critical thinking, research, experiments and values of relativity, change, openness to the future and to the world, and individual and academic freedom, which enabled them to achieve their astounding renaissance in knowledge economies.[43] This is not available in the Arab countries, where implicit knowledge[44] derived from the Arab patriarchal cultural heritage is still more influential than explicit knowledge systems that universities and schools are trying to spread.

Box 4.2

Arab Science and Technology Foundation (ASTF) in the UAE: Achievements in Knowledge Transfer, Employment and Production

The Arab Science and Technology Foundation http:www.astf.net, is a non-governmental non-profit civil institution working to support scientific research and technological innovation, to contribute to the efforts of building the knowledge society and economy in the UAE. The institution's headquarters is in Sharjah City. It was founded in April 2000, on the recommendation of 375 Arab scientists in Arab countries and abroad.

The institution has focused on knowledge transfer, employment and production in the UAE, and the ASTF established more than 30 companies and supported 750 researchers working in 142 research projects. The institution is also concerned with **the programme of Technology Transfer Offices TTO, as well as programmes to extract innovation and creativity**, http://adenobserver.com/read-news/4315

The institution is also concerned with **turning scientific research and technological innovation into start-ups.** We recall here **the case of the company Vestec**, http://www.vestec.com, which currently provides its technological products for the employment of artificial intelligence technology.

There are **other companies that were founded by the ASTF, including the company Accuvis Bio** http://www.accuvisbio.com, which is considered "the promotion arm of the institution's scientific research products", in collaboration with the Abu Dhabi University and the Khalifa Fund for Enterprise Development, which is **the first and largest biotechnology incubator of its kind in the UAE and the Arab region** and is based on the campus of the Abu Dhabi University. The incubator aims at marketing the investment in Emirati patents among regional and international companies that work on corresponding products.

Source: Arab Science and Technology Foundation (ASTF) 2013. (Reference in Arabic)

Only a small number of research centres specialise in the development of essential strategies for scientific research

The second problem arising from the historical inheritance of long colonial eras is the governance of scientific research. After independence, from the mid-20th Century, the region's countries took it upon themselves to establish universities and spread education as one of the mechanisms to support the independence and unity of the nations. The central authority of each country played a key role in this, acquiring great strength as the main supporter of the expansion of education and scientific research. Accordingly, the historical origination of scientific research activities in the Arab countries was characterised by two main features: the first was its inception in the confines of universities established by the government, with the exception of research centres scattered outside universities to face some of the problems in agriculture and health, as happened in Egypt, Lebanon and some countries of the Maghreb. The second feature was represented in the government origination that directed its efforts from the beginning with the omission of many important political and scientific issues.[45]

This strong presence of Arab governments in the management of the scientific research sector in most countries in the region resulted in general in the existence of a permanent central authority in the form of a ministry or a central governmental institution. Therefore, the stronger the government and its political will towards scientific research, the more research activities advanced and prospered. Studies show that most of the Arab countries still rely on the Ministries of Higher Education and Scientific Research to directly supervise the centres of scientific research and development programmes.[46] It should be noted that this general characteristic is present to varying degrees in different Arab countries. In Egypt and the Maghreb countries, governmental bodies for scientific research have been established and they employ permanent researchers to study the important sectors in the state. The government is responsible for these bodies so these researchers work in agriculture and health in general, and are distributed over multiple ministries and agencies. Only a small number of research centres

specialise in the development of essential strategies for scientific research. Europe and France specifically have succeeded in the creation of this type of centre that ensures future planning for scientific research and monitoring of the public interest, with the application of the findings in agriculture, health, marine science, defence, space, energy and other vital public sectors.[47]

Such institutions exist in a very limited manner in the Arab Mashriq, especially in Syria, Lebanon and Jordan. They employ experts who are different from academics working in university research centres, and whose research findings are closer to implementation than to innovation and novelty. However, in Tunisia and Morocco, and in Algeria to some extent, governments have played a major role in establishing strong research institutions. The budget for scientific research relatively increased in these countries. It is expected that this will lead to the liberation of scientific research, development and innovation from bureaucratic control, which may yield effective and sustainable development.

Some countries in the region witnessed the establishment of science villages or cities, or the import of foreign universities and research centres. The attitudes of people involved in research regarding these establishments varied, as was the case with the establishment of foreign university branches in the Arab countries. In the GCC countries peculiarities reside in matters of "sustainability" and knowledge localisation. Some are in favour of this direction, considering this experience essential for achieving links between knowledge production sites in the world and the Gulf countries within the context of the internationalisation of skills and knowledge, in the midst of globalisation and the internationalisation of scientific research standards and functions. On the other side, reservations point to the weakness or absence of national cadres in these villages and centres that are capable of transfering knowledge. In addition, foreign researchers might return to their home countries at any time, which could threaten sustainability due to the drain of acquired implicit knowledge that leads to real localisation of knowledge.

Box 4.3

From the Global Research Report by Thomson Reuters

The report indicates the long-term success of initiatives such as the King Abdullah University of Science and Technology (KAUST),[47] the Education City in Qatar and Masdar in Abu Dhabi will rest on their capacity to develop a pool of high quality, locally trained graduates and faculty members. Sustained investment in all levels of the education system is required to ensure success of these high standard establishments. Primary and secondary schools must be equipped with quality staff able to inspire students to pursue further academic study, and equip them with required capabilities. Graduates need a vibrant research and entrepreneurial community in which to pursue rewarding careers if they are not to be tempted overseas. These make it necessary to search for talent and capacities in all parts of the Arab region in order to include them in such projects. If economic integration is a necessity among the countries of the Arab region, the integration of scientific research activities and the integration of the Arab youth - from wherever in the region – in the transfer and localisation of knowledge processes are no less important and they are necessary to achieve economic integration. Without this, these efforts – at least in sparsely populated countries – will continue to be isolated projects at best, thus making us fear their continuity.

Source: Thomson Reuters 2011.

Box 4.4

Smart and Academic Villages in the Arab World

Maadi Technology Village and the Smart Village, Egypt

Egypt has long adopted ICT as part of its national development agenda, with an ICT Master Plan already established in 2009. The Information Technology Industry Development Agency (ITIDA) and the Ministry of Communications and Information Technology were instrumental in establishing the Maadi Technology Village in southern Cairo and the Smart Village in Cairo's western suburbs. The Maadi call centre is expected to serve as a major outsourcing destination and also create 40,000 jobs. The Smart Village, established in 2003, already has more than 120 companies and 28,000 professionals

Dubai International Academic City (DIAC), the UAE

This major project was launched in May 2006 and will be a centre for schools, colleges and universities. By 2015, the Dubai International Academic City is expected to host more than 40,000 students.

Source: International Telecommunication Union 2012a. (Reference in Arabic)

Some countries in the region witnessed the establishment of science villages or cities, or the import of foreign universities and research centres.

Spending on Research and Development Activities

Statistics show that the rates of spending on R&D in the Arab countries as a percentage of GDP during the past four decades do not meet the requirements of this sector. In recent years, the Arab countries only allocated modest amounts of their GDP to research and development, at a rate ranging between 0.03 and 0.73%.[49] Table 4.3 shows that the Arab states' allocations for R&D, as a percentage of the GDP, are far below the global average reaching about 2.13%. The gap is evident if we compare the Arab region to countries of the European Union, whose percentage of R&D expenditure reaches 1.98%, or Japan, whose percentage is about 3.39% of the GDP. Figure 4.2 shows that the combined share of the Arab countries from the global spending on scientific research did not exceed 0.5% of the total global expenditure in 2009, even though they count more than 5% of the world population, which is not at all commensurate with the development aspirations of the Arab citizens and their human and material abilities, capacities and potentials.[50] This spending on R&D in the Arab countries is not enough to generate wealth and address the needs related to securing food, water and energy to improve services and infrastructure.

In recent years, the Arab countries only allocated modest amounts of their GDP to research and development, at a rate ranging between 0.03 and 0.73%

Table 4.3

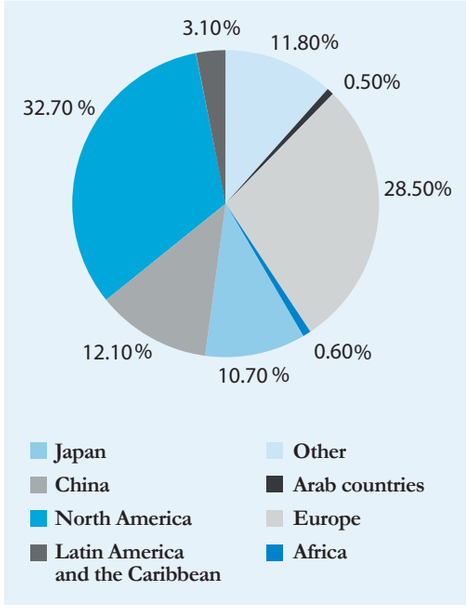
Research and Development Expenditure as a Percentage of GDP (2010-2011)

Country/Country Grouping	R&D Expenditure as a Percentage of GDP
South Korea (2011)	4.04
Finland (2012)	3.55
Japan (2011)	3.39
Germany (2012)	2.92
Global Average (2012)**	2.13
Singapore (2012)	2.1
European Union (28 countries) (2012)*	1.98
China (2012)	1.98
England (2012)	1.72
Turkey (2012)*	0.92
Morocco (2010)	0.73
Greece (2012)	0.69
UAE (2011)	0.49
Mozambique (2010)	0.46
Egypt (2011)	0.43
Sri Lanka (2010)	0.16
Oman (2011)	0.13
Kuwait (2011)	0.09
Iraq (2011)	0.03

*Sources: UNESCO 2014a * OECD 2014 ** World Bank 2014a.*

Figure 4.2

Combined Share of Arab Countries from Global Expenditure on Research and Development Compared to Selected Countries and Regions of the World (2009)



Source: Akoum and Renda 2013.

The expenditure of scientific research institutions in the private sector remains very low. Among the 131 countries included in the UNESCO study, Tunisia ranked 36th and Qatar and the UAE both ranked 42nd, while Jordan ranked 96th, Egypt 99th, Syria 108th and Bahrain 119th. There is no doubt that the low participation of the private production and service sectors in funding scientific research and technological development clarifies to some extent the limited innovative activity in the Arab countries.[51]

Human Resources in Research and Development

UNESCO data indicate that the number of full-time researchers per million citizens in 2011 was 864 in Morocco, 524 in Egypt, 132

in Kuwait, 426 in Iraq and 160 in Oman.[52] The number of part-time researchers who work on scientific research per million citizens was 290 in Sudan, 61 in Libya and 42 in Saudi Arabia. The average number of full-time researchers per million citizens in the Arab countries was 373, while the global average was 1,081. There are more than 500 researchers per million citizens in developing countries (Table 4.4). From the data, perhaps with the exception of Jordan and Tunisia, it can be concluded that the number of full-time employees in research and development in the Arab countries was low compared to the number of full-time scientists and researchers in the same year in countries such as Argentina, where the number was 1,236 researchers per million citizens, with 2,800 in Spain and 7,423 in Finland.[53] Statistics on the share of Arab states of world researchers, compared to various countries, reveal an evident lower level. Figure 4.3 offers a comparison between the share of Arab states from researchers compared to countries or regions with similar knowledge and economic features (such as Latin America and the Caribbean) whose share reaches 4% of world researchers, with 0.2% to 0.5% for the Arab region compared to nearly double for Africa with 0.9%.

The working conditions of the current research institutions in the Arab countries do not help scientists in achieving advanced scientific levels of knowledge in the fields of cognitive production and technical innovations. Therefore, the UNESCO Science Report in the world for the year 2010 indicates that a very limited number of researchers in the Arab world were recognised by the international scientific institutions.

Box 4.5

Scarcity of Scientists in the Arab Region

Only one of the world's top 100 highly cited scientists comes from the Arab world: Professor Boudjema Samraoui, a biologist at the University of Annaba in Algeria. The annual L'Oréal-UNESCO Awards for Women in Science grants five women US$100,000 each, one from each continent. The 13 recipients of this award for the Africa and Arab States region between 1998 and 2010, include only five Arab women: Egyptian immunologist Rashika El Ridi (2010) and Egyptian physicist Karimat El-Sayed (2004), Tunisian physicists Zohra Ben Lakhdar (2005) and Habiba Bouhamed Chaabouni (2007) and Lihadh Al-Gazali from the United Arab Emirates (2008). Egyptian-born Ahmed Zewail is the only Arab Nobel laureate in a scientific discipline; he received the distinction for chemistry in 1999 while working at the California Institute of Technology in the USA.

Source: UNESCO 2010b.

Scientific Production and Dissemination

In terms of the Arab countries' production of published research papers, studies indicate that it is modest compared to other

There is no doubt that the low participation of the private production and service sectors in funding scientific research and technological development clarifies to some extent the limited innovative activity in the Arab countries

The working conditions of the current research institutions in the Arab countries do not help scientists in achieving advanced scientific levels of knowledge in the fields of cognitive production and technical innovations

Table 4.4

Research and Development Expenditure

Region	Researchers (in Thousands)		Share of Total of Researchers in the World (%)		Researchers per Million Citizens		Total Local Expenditure on Research and Development* per Researcher	
	2002	2007	2002	2007	2002	2007	2002	2007
World	5,810.7	7,209.7	100	100	926.1	1,080.8	136	158.9
Developed Countries	4,047.5	4,478.3	69.7	62.1	3,363.5	3,655.8	161.3	195
Developing Countries	1,734.4	2,696.7	29.8	37.4	397.8	580.3	78.5	100
Less Developed Countries	28.7	34.7	0.5	0.5	40.5	43.4	37.6	43.8
Arab Countries Combined	105.2	122.8	1.8	1.7	354.9	373.2	34.3	38.4

Note: *The gross local spending on research and development* per researcher (by thousands of USD, using PPP)*
Source: UNESCO 2010b.

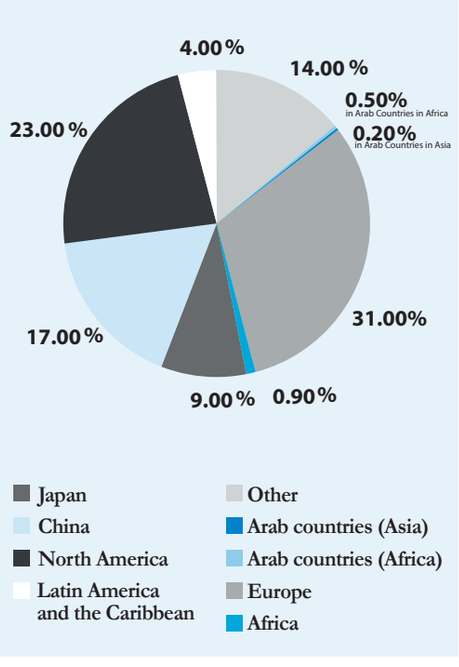
countries in the world. According to the results of the UNESCO Scientific Research Report 2010 monitoring the activities of scientific publication in the world between 2000 and 2008, the number of scientific publications in the Arab countries increased from 7,446 in 2000 to 13,574 in 2008.[54] The average production of research per million citizens in Arab countries was only 41, compared to a world average of 147. In this regard, Kuwait ranked first, followed by Tunisia. This is also evident by the total absence of Arab universities from the results of the "Search Interfaces" report,[55] which reviewed the most prominent research works in 100 sciences and social sciences fields around the world in 2013.

Although all the Arab countries, except Mauritania, witnessed during the period 2002-2008 a significant increase in the number of scientific journal articles,[56] they still lag behind the developing countries and even behind the less developed ones. The situation has not changed much over the last five years, and statistics show that the scientific production of the Arab countries is still low and published research only constitutes 0.8% of the global average.[57]

In terms of the Arab countries' production of published research papers, studies indicate that it is modest compared to other countries in the world

Figure 4.3

Arab Countries' Share of Researchers Compared to Selected Regions and Countries of the World (2009)



Source: Akoum & Renda 2013.

The Global Research Report for 2011 confirmed the low level of Arab scientific production through the analysis of research outputs in 14 Arab and Middle Eastern countries: Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, Turkey, the UAE and Yemen. According to this report, these countries constitute a regional grouping that is similar in terms of the grouping concept to the European Union (E4) countries, the African Group and the Asian Group. Figure 4.4 reveals the extent of the disparity in scientific research progress between the Group of Arab countries and other similar and neighbouring countries, such as Turkey and Iran.[58]

Box 4.6

Initiatives to Digitise Iraqi Publications and Documents

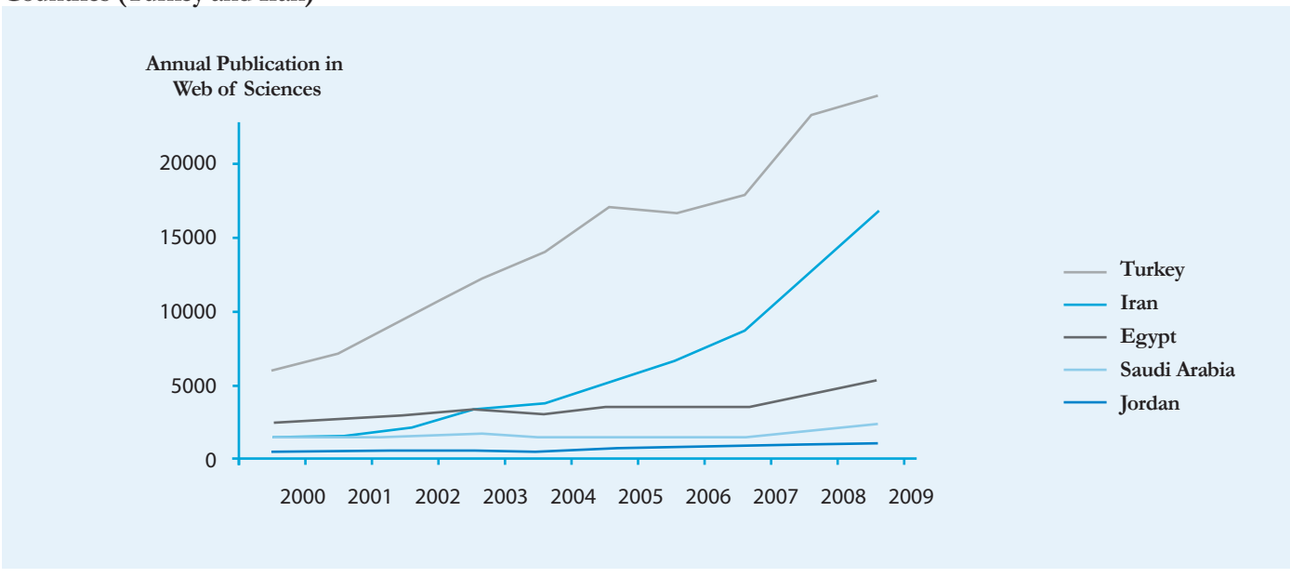
Iraq has a rich tradition of journalistic and scientific publications, which are considered invaluable tools for research in human sciences in the Arab region, particularly in history, literature and politics. Though these journals have been part of a long established and creative scholarly tradition, they are not easily accessible nor available digitally on a large scale. However, in 2006, the American Yale University, in collaboration with the State Library of Pennsylvania and the Royal Library of Alexandria in Egypt, launched a project aimed at digitising the Iraqi publications. The project seeks to digitise a selection of up to 600 Iraqi scientific journals in order to facilitate access to their rare content in the Arab region.

Source: Yale Library 2006

Turkey is one of the largest producers of scientific research among countries of the aforementioned study. Between 2000 and 2009, its productivity rose from 5,000 research publications to nearly 22,000. Its share of the global output of scientific research also increased from 0.7 to 1.9%. The same applies to Iran, where it began from 1,300 research publications in 2000 and increased to 15,000 in 2009. Its share of the global output of scientific research increased from 0.2 to 1.3% during the same

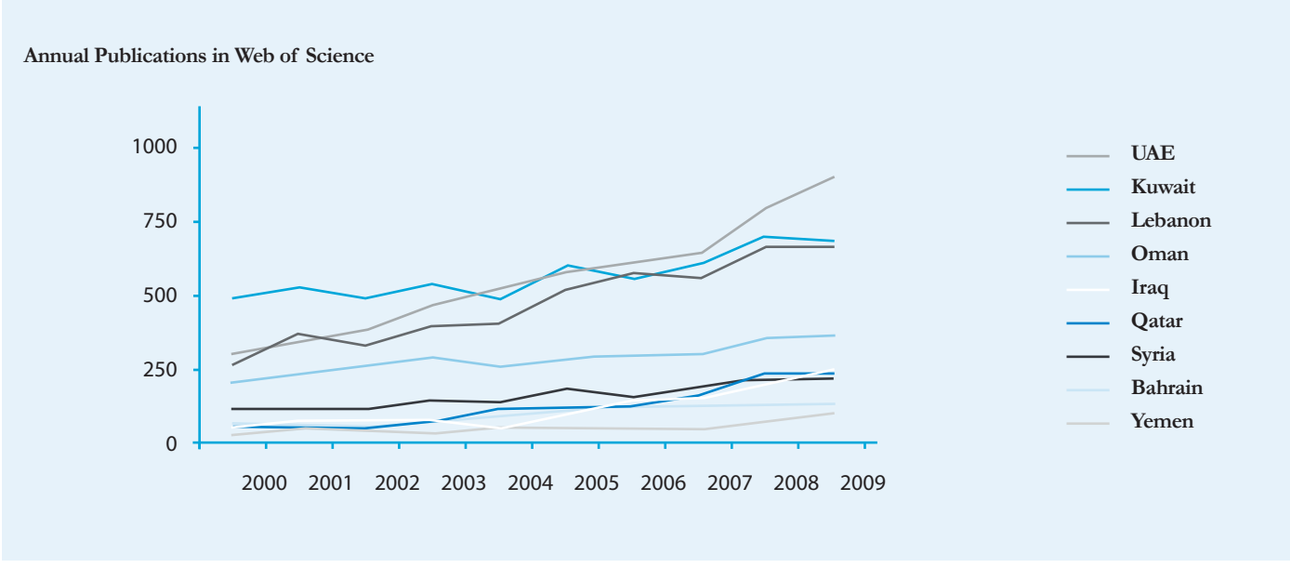
Figure 4.4

Annual Research Publication Output of the Three Most Producing Countries in the Arab Region and Comparison Countries (Turkey and Iran)



Source: Thomson Reuters 2011.

Annual Research Publication Output of the Nine Least Producing Countries in the Arab Region



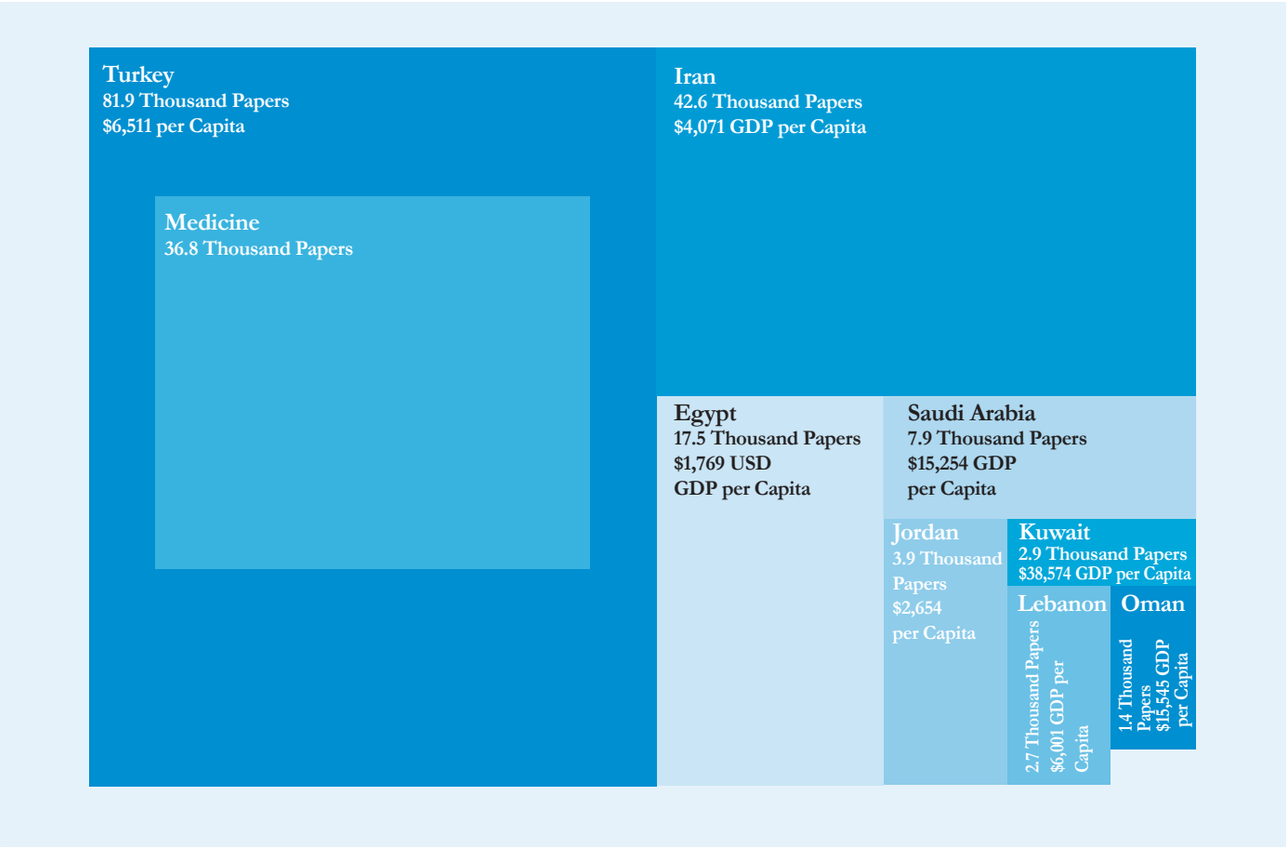
Source: Thomson Reuters 2011

period. As demonstrated in Figure 4.4, Egypt, Saudi Arabia and Jordan have made little progress over the past decade and the share of the three countries increased by about one-third of the production. The UAE has emerged at the head of this group and produced 900 scientific researches in 2009 with a significantly increasing rate since 2000, an indicator of continued progress. The UAE is followed in this order by Kuwait, Lebanon, Oman, Iraq, Qatar, Syria, Bahrain and Yemen.[59]

Figure 4.5 shows that Turkey produces about half of the total publications of the countries compared, which include six Arab countries in addition to Iran and Turkey. The field of medical science dominated the

Figure 4.5

The Publication Output of Selected Arab Countries and Comparison Countries (Turkey and Iran) (2005-2009)



Source: Thomson Reuters 2011.

Turkey produces about half of the total publications of the countries compared, which include six Arab countries in addition to Iran and Turkey

total of Turkish publications. The share for Iran is about a quarter of the production of the group, while Egypt produces one eighth of the production of the group and the rest is produced by the five other Arab countries combined. Saudi Arabia publishes about half that total.[60]

Weak Arab Collaboration in Scientific Research

Collaboration has become a dominant feature in the field of scientific research as it helps countries in sharing experience, costs and resources. Collaboration also facilitates the exchange and exploitation of new knowledge. With its analysis of research interactions between nations in the Middle East – including Arab countries, Turkey and Iran, the Thomson Reuters Global Research Report for 2011 reveals a low level of collaboration in the region. Despite this situation, some Arab countries such as Egypt, Jordan and Saudi Arabia are relatively frequent research collaborators with around 40% of their domestic output having one or more co-authors from another country. Iran and Turkey have much lower levels of collaboration, while Syria, Yemen, Oman and Qatar have particularly low levels of research connections with other countries. The report highlights the necessity of expanding collaborative research partnerships that would enhance growth and develop joint work with the most developed countries.

In the Arab region, as also appears to be the case worldwide, the most frequent partner in research collaboration is the United States. In addition, there is also a special and repetitive partnership between Saudi Arabia and Egypt. For Egypt, Saudi Arabia is a key partner after the United States. Jordan is the most collaborative nation, with a 43% rate

Table 4.5

Global Share of Research Output for Three Arab Countries and Two Comparison Countries

Turkey		Iran		Egypt		Saudi Arabia		Jordan	
Field	%	Field	%	Field	%	Field	%	Field	%
Agriculture	2.87	Agriculture	1.71	Pharmacy	0.71	Mathematics	0.32	Environment	0.16
Medicine	2.84	Medicine	1.68	Materials Sciences	0.66	Engineering	0.31	Engineering	0.15
Engineering	2.22	Engineering	1.19	Chemistry	0.64	Medicine	0.26	Agriculture	0.15
Plant & Animal Sciences	2.17	Plant & Animal Sciences	1.19	Engineering	0.57	Pharmacy	0.22	Mathematics	0.13
Environment	1.82	Environment	1.16	Agriculture	0.48	Materials Sciences	0.19	Pharmacy	0.12
Materials Sciences	1.67	Materials Sciences	1.05	Physics	0.4	Geosciences	0.16	Chemistry	0.11
Chemistry	1.34	Chemistry	0.93	Microbiology	0.35	Chemistry	0.15	Computer Sciences	0.11
Mathematics	1.30	Mathematics	0.79	Geosciences	0.34	Computer Sciences	0.15	Geosciences	0.10
Pharmacy	1.29	Pharmacy	0.76	Plant & Animal Sciences	0.32	Physics	0.14	Plant & Animal Sciences	0.09
Neurosciences	1.25	Neurosciences	0.60	Mathematics	0.31	Microbiology	0.13	Medicine	0.07
All fields	1.70	All fields	0.87	All fields	0.36	All fields	0.17	All fields	0.08

Note: Analysis of the most representative fields in each country.
Source: Thomson Reuters 2011.

of research collaboration. Egypt appears to hold a pivotal role in linking collaborations within the region as well as with Europe, North Africa, the United States and Japan. UK and Germany are also frequent partners for all the nations.[61]

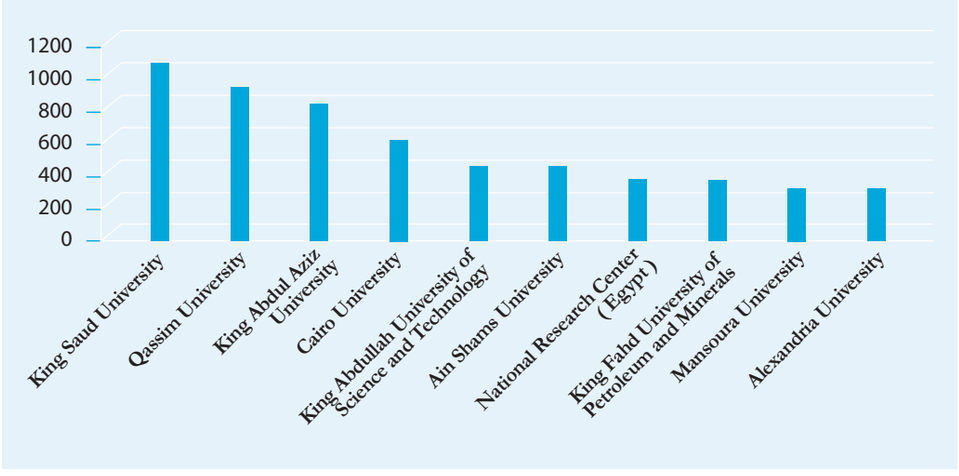
Distribution of Research Shares per Specialisation

Data from the Arab Scientific Community Organisation (ASCO) concerning Arab publications in 2012 shows that the number of research papers in the fields of engineering, chemistry, geology, water resources and physics increased significantly. Meanwhile, other areas such as pharmacy and polymer science experienced a decline. Water resources, for example, ranked 14th in 2013 with the publication of 250 research papers, while it was ranked 20th in 2012 with 164 research papers. On the other hand, Arab universities differed in the number of papers they published in 2013. Saudi Arabia recorded the highest rate with 993 research papers published by King Saud University, 835 by Qassim University, 738 by King Abdulaziz University (KAU) and 368 by

Collaboration has become a dominant feature in the field of scientific research as it helps countries in sharing experience, costs and resources. Collaboration also facilitates the exchange and exploitation of new knowledge

Figure 4.6

Ranking of Arab Universities per Number of Published Research Papers in First Half of 2013



Source: Arab Educational, Cultural and Scientific Organisation 2013. (Reference in Arabic)

KAUST (Figure 4.6). Table 4.5 shows the share of specialised research publications in five countries, including three Arab countries, from the global production in the period extending from 2005 to 2009. The table reveals some similarities in research interests between these countries and the specific orientations of each of the five countries.

Use of Scientific Research Output

The achieved efforts of the Arab countries in higher education and scientific research, although important, did not yet translate into distinct output, in comparison with other regions in the world. It is hoped that these efforts increase and that the output of science and scientific research improves, compared to the progress these countries already achieved during the last decade. The Global Research Report reveals that the rate of use of research output, measured by the number of scientific citations in the Arab countries, has been increasing according to knowledge measures. The report shows that at the start of the 1990s, research citations in the five countries – Turkey, Iran and the three largest producers of scientific research among Arab countries, i.e. Egypt, Saudi Arabia and Jordan – did not exceed a quarter of the world average. However, in 2009, the citation rate rose to half of the world average rate. This average differs from one country to another, and among the different scientific research fields. Based on the same scale, we find that among the highly cited papers in the world, Jordan's share is 0.28%, while that of Egypt is 0.26% and Saudi Arabia, 0.25%.[62]

The achieved efforts of the Arab countries in higher education and scientific research, although important, did not yet translate into distinct output, in comparison with other regions in the world

Patents

Patents registered within the competent offices in the United States and Europe are considered an appropriate criterion for assessing the extent of the youth and scientists' participation in new technological innovations worldwide. As indicated in Table 4.6, the number of registered patents by the Arab countries remains low compared to the production of other countries, except for Saudi Arabia (which surpassed Turkey and Greece in the total number of patents registered since 1963). The total number of registered patents in 18 Arab countries since 1963 till 2013 reached 1,821, which was less than that of Malaysia.[63]

It seems that innovation does not represent a major component of Arab projects in science and technology. This may be attributed to the weakness of the overall links between research and development in the public and private sectors, as evidenced by the weakness of the output of registered patents. Chapter 1 discussed the progress of the Arab countries in terms of global competitiveness with regards to innovation and development and in terms of the global

Table 4.6

Patent Production of Arab Countries and Selected Countries According to the US Patent and Trademark Office

Country	Patents (2013)	Patents (1963 to 2013)
Saudi Arabia	237	858
Kuwait	84	272
Egypt	34	212
UAE	18	120
Lebanon	7	101
Morocco	1	78
Tunisia	4	37
Jordan	6	36
Syria	0	22
Oman	3	18
Qatar	7	18
Algeria	0	14
Iraq	0	10
Bahrain	2	8
Sudan	0	7
Libya	0	4
Yemen	0	3
Mauritania	0	3
Arab Countries Combined*	403	1821
Malaysia	214	1892
Finland	1221	19513
South Korea	14548	118443
Germany	15498	375692
Greece	65	815
Turkey	74	417
Philippines	27	509

Source: US Patent and Trademark Office 2014.
** Report team calculations*

Box 4.7

Steps to Support Innovation and Entrepreneurship in Egypt

1. The development of a Technology Incubators Programme to support these incubators, which employ a large number of graduates, through the provision of a range of financial incentives
2. The establishment of a number of research and development centres in collaboration with international companies. Among the most important of these centres:
   - The Nanotechnology Research Centre in collaboration with IBM, the Cairo University and the Nile University;
   - The Orange Wireless Network Centre in collaboration with the National Telecommunications Institute;
   - The Cairo Microsoft Innovation Centre (CMIC) that specialises in Arabic translation and the development of technological solutions for the Middle East and Africa region;
   - The Centre of the French company Valeo that specialises in international vehicles software and applications.
3. The support of research proje cts within the framework of an initiative to support research collaboration between universities, research centres and information systems companies (Information Technology Academia Collaboration, ITAC) through four sub-programmes that encourage scientific research for the production of viable products or ideas that are beneficial to the industrial sector, and through financial support that can reach up to 3 million Egyptian pounds per project, as in the case of the Advanced Development Project.
4. The establishment of a centre of excellence for research and development in the field of information extrapolation and computer models in the sectors of tourism and oil, in partnership with the Egyptian universities, specialised companies and Egyptians working abroad. Another excellence centre for wireless technology and electronics and one for mobile services will be established in collaboration with the Egyptian universities.
5. The establishment of a centre of excellence for software engineering, in collaboration with international companies, to provide technical support for companies and support them to get international certification (Capability Maturity Model Integration – CMMI).
6. The establishment of a Technology Development Fund and the support of small businesses operating in the field of innovation, research and development.

Source: United Nations, Economic and Social Commission for Western Asia 2011. (Reference in Arabic)

The total number of registered patents in 18 Arab countries since 1963 till 2013 reached 1,821, which was less than that of Malaysia

Box 4.8

Arab Initiatives Supporting Knowledge and Innovation

Education Reform for Knowledge Economy (EFRKE), Jordan

ERFKE is a major Jordanian education initiative specifically targeted towards at the knowledge economy. Phase two of the initiative is running until 2015. Jordan's Education Initiative (JEI), launched in 2003, won the UNESCO prize for the use of ICTs in education. Today, 6,000 IT graduates enter the workforce annually.

Source: International Communication Union (ITU) 2012b. (Reference in Arabic)

King Abdulaziz City for Science and Technology, Saudi Arabia (KACST)

This city represents the national scientific agency in Saudi Arabia and its national laboratories at the same time. The function of the KACST includes the drafting of scientific and technology policies, data collection, foreign research funding and services such as the patent office. Among the KACST's main responsibilities is to support national innovation and technology transfer between research and industry institutes.

Source: King Abdulaziz City for Science and Technology 2014. (Reference in Arabic)

Innovation Programme in Information and Communication Technology, Tunisia

The basic drivers of this programme include encouraging research and development activities under the leadership of the key players in the field of production and contributing to projects with high technological value, especially in the digital economy.

The main objectives include the development of new types of partnerships between the public and private sectors; the establishment or development of companies geared towards innovation and that include research and development activities in the process of socio-economic development in the medium and long term; the contribution to building a structured ecosystem that allows the development of information and communication technology; the assistance of operators to access their technical activities to the optimal level and the formulation of new commercial offers through innovative solutions in order to meet users' requirements: (security, quality of service and ergonomic aspects; and the translation of innovation to competitive excellence.

Source: United Nations, Economic and Social Commission for Western Asia 2011. (Reference in Arabic)

innovation guide, which is called Global Innovation Index by the European Institute for Business Administration (INSEAD).

However, this does not negate progress in these areas. The analysis shows that some Arab countries have made progress in the transition to economies that are relatively characterised, to a greater degree, by knowledge, innovation and economic diversification, particularly the UAE, Bahrain, Oman, Saudi Arabia and Kuwait, as well as Jordan, Tunisia and Lebanon. These countries witnessed several political initiatives that have contributed positively to building the capacities of national innovation for education reform, new universities and new research institutions; to supporting entrepreneurs and incubators of start-ups; and to disseminating an advanced infrastructure for information and communications technology. The most evident changes were in the Gulf region, where the abundance of financial resources sped up the implementation of the initiatives to build knowledge and innovation.

It seems that innovation does not represent a major component of Arab projects in science and technology

Development in the Arab Region and Its Economic and Political Directions

As highlighted earlier, the problematic side of the relationship between the youth and knowledge localisation "lies in the question of development in the region and the extent to which it succeeds in expanding youth opportunities and developing their abilities". Young people's readiness to transfer and localise knowledge is primarily a development issue. Moreover, the transfer and localisation of knowledge is inseparable from development in its economic, political and social aspects. Hence, Arab development is a broad new sense of development, one that is based on knowledge, freedom requirements and social justice that enables young people to effectively integrate in the transfer and localisation of knowledge and drive development forward.

Human development reports issued by the UNDP since 1990 to today have contributed to the evolution of the concept of development. Development was no longer measured primarily by the per capita income, but rather by health and education levels. UN reports evolved from that concept to include indicators related to the contribution of women and the different poverty scales within nations. Amartya Sen[64] also developed this concept by linking development to freedom.

This Arab Knowledge Report adopted a concept of development that focuses on a very important dimension without which development cannot be achieved; it is social justice, which is based on the triad: 1) the development of individuals' capacities; 2) the development of protective policies and enabling environments in education, economy and health; and 3) the development of active citizenship based on equality, participation and non-discrimination. The concept of social justice in this sense includes but also goes beyond the conditions presented by Amartya Sen, to achieve a third condition, which is citizenship, along with equality, participation and non-discrimination.

Consequently, this part of the report provides an analysis of the reality of development in the Arab region, in its economic and political dimensions, focusing on clarifying the philosophy of Arab development and building its institutions. With this analysis, we complete the dimensions that we targeted in this chapter by discussing the status of enabling environments and their effectiveness in the transfer and localisation of knowledge.

The Status and Challenges of Arab Economic Growth: Disparity in Performance between Countries in the Region and the World

The Human Development Report 2014 showed the performance disparities between the Arab countries. Five Arab countries appeared within the very high development index with Qatar ranking first among Arab countries and 31st globally, followed by Saudi Arabia in the 34th place,

then UAE (40). Bahrain and Kuwait ranked 44 and 46 respectively while Mauritania came at the bottom of the region's list at 161 followed by Sudan (166) and Djibouti (170). The report indicated that the Arab region includes six countries from the high human development group; Libya, Oman, Lebanon, Jordan, Tunisia and Algeria (they ranked 55th, 56th, 65th, 77th, 90th, 93rd respectively). There are also five Arab countries in the medium human development group, namely Palestine, Egypt, Syria, Iraq and Morocco (they ranked 107th, 110th, 118th, 120th and 129th, respectively). Countries in the low human development group are Yemen, Comoros, Mauritania, Sudan and Djibouti (they ranked 154th, 159th, 161th, 166th and 170th respectively).[65]

The report pointed out that the performance level of the Arab region was lower than the rest of the world in terms of population growth, the average years of schooling, the proportion of the population with secondary education and the Human Development Index, which includes several indicators: literacy rates among adults and youth, school enrolment rates and life expectancy at birth. The region's rates did not exceed the global average except in the level of GDP per capita.

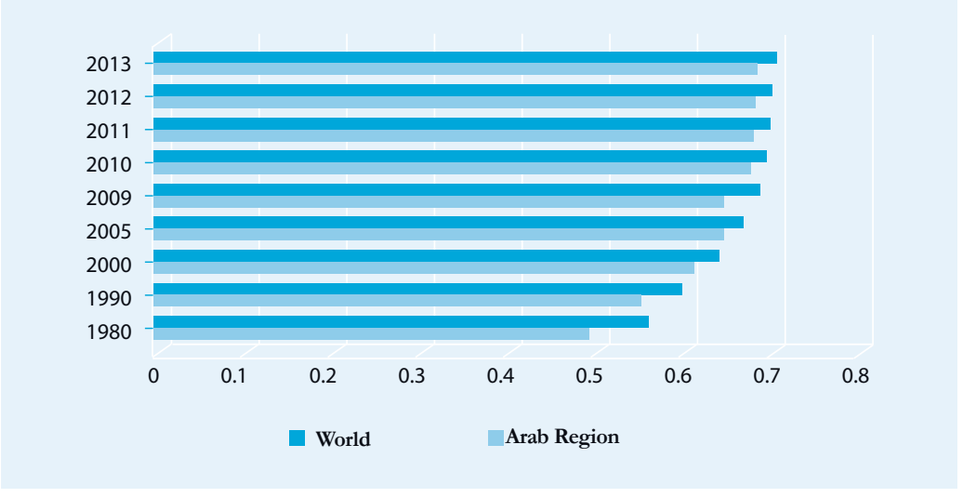
According to the Human Development Index for 2014, the average human development index of Arab countries was about 0.682, which is higher than that of countries with medium human development (0.614) and of countries with low human development (0.493). It is also lower than the global index (0.702) and that of countries with high human development (0.735). Moreover, it is much lower than the index of countries with very high human development (0.890).[66]

The Arab region has been witnessing events and changes that have created instable situations and economic deterioration in the countries affected.[67] Preliminary estimates of the impact on Syria and Yemen, two countries that are facing severe economic and social repercussions, reveal a strong negative impact on growth, the fiscal deficit, employment, poverty and the obstacles hindering progress in other economic activities. Similarly, reports indicate an economic slowdown in the middle-income oil-importing Arab countries that had undergone these changes and political events, specifically Egypt and Tunisia. While this is the case in these countries, the recent rise in oil prices led to a positive performance of the overall economy in 2011-2012 in oil-exporting

The problematic side of the relationship between the youth and knowledge localisation "lies in the question of development in the region and the extent to which it succeeds in expanding youth opportunities and developing their abilities"

Figure 4.7

Human Development Index in the Arab Region and the World (1980-2013)



Source: UNDP 2014. (Reference in Arabic)

countries mainly, as well as a brighter economic outlook in the medium term. Given the region's noticeable disparity in growth, the socio-economic trends in the ESWA annual report have led to the conclusion that more disparities will be produced between these countries on the register of the Millennium Development Goals, especially if they continue beyond 2015.[68]

The Problematic of Wealth and Development: Poverty Gap and Inequality

The achievements of the Arab countries in the field of development are mostly limited to quantitative achievements

The achievements of the Arab countries in the field of development are mostly limited to quantitative achievements. In education, and while enrolment ratios in various stages of education are experiencing a steady improvement, the quality indicators are still far from international standards (See Chapter 3 on Knowledge Effectiveness).

Concerning health, we notice an improvement in life expectancy at birth from 51 to 71 years in the period between 1960 and 2012. The Mashriq and Maghreb countries recorded a 60% decline in maternal mortality and the Gulf countries recorded percentages similar to those in developed countries. But the Least Developed Countries in the Arab region are still recording high mortality rates equal to twice the rate of the region. The same applies to access to safe water, and even more for the reduction of hunger and malnutrition.[69] The same also applies in other development indicators, where human development reports have indicated that the majority of Arab countries are still facing difficulties in achieving sustainable economic development. Those difficulties are evident in the fluctuating economic growth rates (Figure 4.8).[70]

Box 4.9

World Happiness Report

This index is issued in partnership with the Earth Institute at Columbia University and Sustainable Development Solutions Network for the United Nations. The index was built on a number of important development indicators, including health indicators such as life expectancy; indicators related to governance regarding perceptions of corruption; indicators about income (per capita GDP); and other indicators such as freedom of choice and social support. The index is measured on a 10-degree scale. The World Happiness Report for 2013 indicated that Denmark ranked 1st globally with a rate of 7.693 and the UAE ranked in the 14th place globally and 1st among Arab countries with a rate of 7,144, no more than 0.56 degrees behind Denmark. Oman ranked 23rd globally and 2nd in the Arab world with a rate of 6.853. Qatar ranked 27th globally and 3rd in the Arab world with a rate of 6.666, while Egypt ranked 130th, Yemen 142nd and Syria 148th out of 156 countries.

Source: Helliwell et al. 2013.

Figure 4.8

GDP Growth Rate at Constant Prices for Arab Countries

Source: Arab Monetary Fund 2012. (Reference in Arabic)

In addition, the Arab countries showed a marked disparity in the distribution of income and the GDP per capita. While the average GDP per capita of the Arab region as a whole was USD 16,367 in 2012, it ranges between USD 40,658 and 133,713 in the oil economy countries (which represent 13.3% of the Arab population and 50.3% of the Arab GDP). On the other hand, it did not exceed USD 3,996 in any of the countries dependent on the export of raw materials, which represent 18.6% of the population, and 4.6% of the Arab GDP. The maximum GDP per capita reached USD 14,527 in countries with a mixed economy, which represent 21.6% of the Arab population and 18.9% of the Arab GDP. The share of the countries with a diversified economy, which represent 43.7% of the Arab population, amounts to 25.7% of the total Arab GDP with a maximum GDP per capita of USD 16,509.[71]

Table 4.7

GDP per Capita in Arab Countries in 2012

Country	GDP in 2012 (Million USD)	Per capita GDP in 2012 (Million USD)
Bahrain	53.6	40658
Kuwait	273.7	84188
Qatar	274.2	133713
Saudi Arabia	1436.8	50791
UAE	525.1	57045
Iraq	473.3	14527
Algeria	491.7	12779
Egypt	862.5	10685
Jordan	71.6	11340
Lebanon	73.1	16509
Morocco	227.5	6818
Tunisia	74.4	10612
Comoros	1.1	1493
Mauritania	11.2	2938
Sudan	125.4	3370
Yemen	95.3	3996
Arab Region	5098	16367

Source: UNDP 2014. (Reference in Arabic)
Note: PPP prices for 2011

The majority of Arab countries are still facing difficulties in achieving sustainable economic development

The GDP per Capita Gap in Arab Countries and Its Consequences

Data show that the distribution of natural resources and geographical factors have caused a gap in the national income of the Arab countries as evident in Table 4.7, revealing a wide disparity in the GDP per capita from one country to another. While in Qatar the GDP per capita is USD 133,713, it does not exceed USD 1,493 in Comoros.[72]

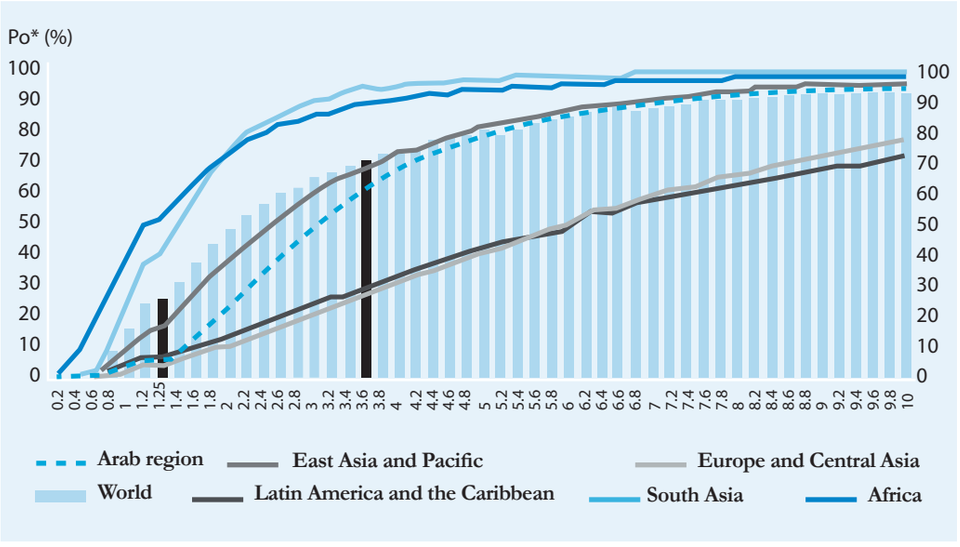
Poverty

According to the international poverty line (USD 1.25 per person per day), the proportion of the population living in poverty in the Arab region seems very small and does not exceed 7.4%.[73] The poverty scale indicates a significant decline in poverty levels since 1990, but this sharp decline of the population living under the poverty line does not allow an objective comparison in relation to material poverty among the Arab countries and other developing regions. We notice when estimating the level of poverty using the standard of two dollars per person per day, this percentage increases dramatically.[74] Therefore, the quantitative measurement of poverty must include food security and the essential needs that ensure human dignity and citizenship rights.

Human development reports reveal that the true values of per capita consumer spending did not increase in most of the Arab countries to achieve tangible results to reduce poverty, based on the results of national surveys of income and households expenditure. The distribution of income also did not show any signs of significant improvement. It is interesting that this reality is incompatible with indicators that show a significant increase in the rate of the GDP per capita since 1990 to today.[75] This indicates that the Arab region has failed to build effective mechanisms and create social policies to protect large segments of society from falling into poverty, given that poor people hold a marginal position in economic systems that seek social justice while failing to establish mechanisms for participation and accountability.

Figure 4.9

Poverty Levels in Arab Countries and Developing Regions According to Various Poverty Lines 2009-2000 (in PPP 2005)

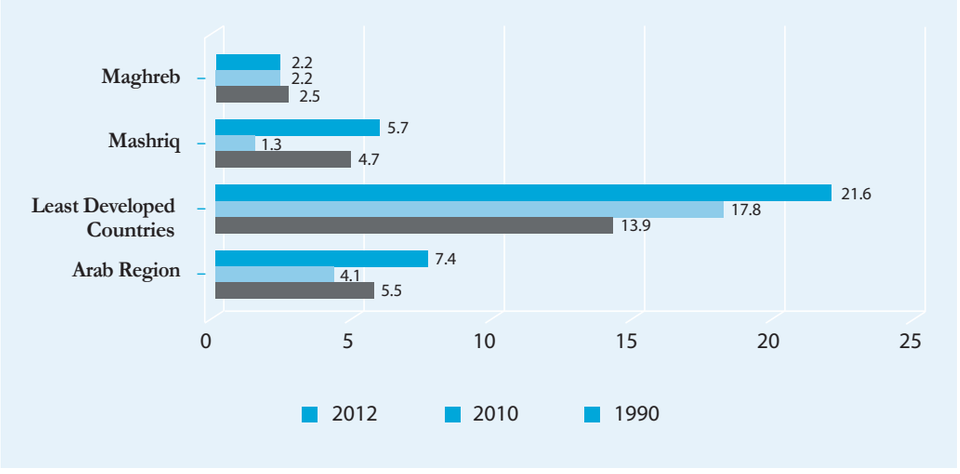


Source: ESCWA and the League of Arab States 2013. (Reference in Arabic)

According to the international poverty line (USD 1.25 per person per day), the proportion of the population living in poverty in the Arab region seems very small and does not exceed 7.4%

Figure 4.10

Poverty Levels in Arab Countries as per the International Poverty Line USD 1.25/Day per Person



Source: ESCWA and the League of Arab States 2013. (Reference in Arabic)

Figure 4.9 shows how the selection of National Poverty Lines clearly affects the estimated poverty rates everywhere in the world, but more importantly in Arab countries. We notice that poverty rates drastically increase with a poverty line of three dollars per person per day. Reports show that the rate of the decline of poverty in the Arab region is one of the slowest globally and is not enough to have a significant impact on poverty in the near future. Poverty in the Arab region is primarily centred in rural areas, which reflects the severity of the great disparity between rural and urban development. Moreover, despite the fact that the majority of the Arab population lives in rural areas, the contribution of agriculture, the main economic activity in these areas, does not exceed 15% of the total Arab GDP.[76]

The Arab Development Challenges Report 2011 presented a significant comparison between the performance of the Gross National Income per capita and the human development indicators. This comparison revealed that all the Arab countries, with the exception of Tunisia, Jordan and the Comoros, were below the regression line that separates countries with a gross national income higher than their human development index on the one hand, and countries with a gross national income lower than their human development index on the other. Thus, with the exception of Tunisia (2010), all the Arab countries, which have been classified in the Global Human Development Report at a higher level, are still lagging behind in human development compared to their income levels. This means that most of the Arab countries could achieve higher levels of human development if they enjoyed the same degree of efficiency that characterises their counterparts in the developing world.[77]

By reference to the scale of human poverty (non-material poverty), which includes three aspects - health, education and the level (or quality) of life - we find that the rate of human poverty in the Arab region fell from 31% in 1997 to 23% in 2007.[78] Human poverty has decreased at a slower rate in the Least Developed Arab Countries, where the rate fell from 40% in 1991 to only 34% in 2007. The Gulf countries have achieved the highest rates of decline in the human poverty index standing at 45%, with a significant progress in Kuwait, Qatar, Oman

Table 4.8

Percentage of Population Living under National Poverty Lines

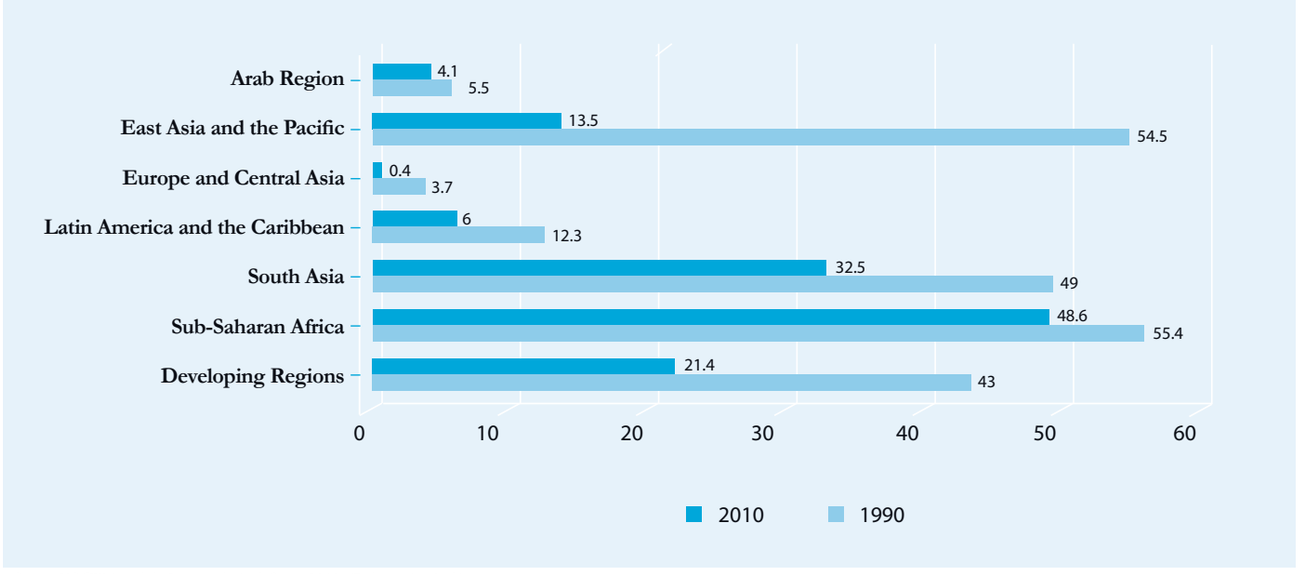
Country	Year	Poverty rate (%)
Mashreq		
Egypt	2011	25.2
Iraq	2012	18.9
Jordan	2010	14.4
Lebanon*	2005	8
State of Palestine	2011	25.8
Syria*	2007	12.3
Arab Maghreb		
Morocco*	2007	9
Tunisia	2010	15.5
Less Developed Countries		
Mauritania*	2008	42
Sudan	2009	46.5
Yemen	2005	34.8

*Sources: World Bank 2014a, and * Abu-Ismail et al. 2011.*

Human development reports reveal that the true values of per capita consumer spending did not increase in most of the Arab countries to achieve tangible results to reduce poverty

Figure 4.11

Prevalence of Extreme Poverty as per the International Poverty Line of USD 1.25/Day per Person



Source: ESCWA and the League of Arab States 2013. (Reference in Arabic)

and the UAE. Despite this decline, reports on the Millennium Development Goals show that the index is still high compared to the national income per capita.[79]

Inequality

The issue of equality is one that is currently given priority in national dialogue about social justice in many Arab countries or other countries seeking growth. The issue of equality and social justice is directly related to the issue of social cohesion, which is closely associated with strong economic growth and the development of a human capital able to contribute effectively to the knowledge economy and society. Social inequality is also linked to the issue of gender. Inequality is strongly reflected in the status of women economically and socially and also on important issues such as the quality of life, education, citizenship and social environment. Acute inequality, particularly among the youth, often results in political and social instability in these various areas.

Inequality is strongly reflected in the status of women economically and socially and also on important issues such as the quality of life, education, citizenship and social environment

Most international studies tend to measure inequality with the Gini coefficient. According to this coefficient, Arab countries are among the developing countries with the least disparity in income distribution, where the average Gini coefficient estimates the status of the distribution of income in the Arab region by about 39.5%. This rate is considered acceptable if compared with those of some Asian countries such as China (48.2 %), the Philippines (45%) and Thailand (40%).[80] However, some criticise this measurement and consider it not enough to estimates of the Gini coefficient only because of its reliance on consumer surveys that tend to exclude the 5% of people with the highest income, thus resulting in relatively moderate inequality rates.[81]

The Structure of the Economy Remains That of the Rentier Model

The lack of adequate infrastructure and the weakness of public economic structures in the Arab region are two of the most important challenges facing the transfer and localisation of knowledge. The rentier economic pattern prevailing in the region is characterised by these economic structures and it neither motivates the processes of the transfer and localisation of knowledge nor the effective integration of the youth in these processes. The great reliance on oil production and its export has resulted in the threat of relying on a single non-renewable economic source. The economic abundance caused by this rentier economy resulted in a large degree of neglect of the enabling economic environments that are centred on knowledge as a renewable economic resource characterised by its readiness for transfer and dissemination and for the achievement of the greater added value. Knowledge economies are also characterised by the intensive use of technology and digital technology with rapid development, high productivity revenues and influence on the shape of modern society. Oil revenues supported a pattern of development that is led by the services sector at the expense of the productive sectors, making the region the least industrial among developing regions, including sub-Saharan Africa. Moreover, the contribution of agriculture in the GDP has already reached the minimum.[82]

Despite the fact that the economies of non-Gulf countries are less dominated by oil and gas, mining and public utilities still hold 31% of the GDP in these countries, while they do not provide jobs for more than 1% of the population. In parallel, manufacturing remains significantly marginal, as it contributes to the GDP by 10% and only employs 8% of the labour force. One of the tragedies is represented in the limited contribution of agriculture (12%) to the GDP, while about 13% of the population is still working in this sector, which reflects this sector's cognitive and technological recession. The services sector contributes the highest share in the GDP and absorbs the highest share of the labour force (52%), while this rate drops in the GCC countries (42%). The types of services available in the Arab countries occupy the lowest rings of the value chain, and consequently provide little contribution to the development of local knowledge.[83]

Box 4.10

Common Characteristics among the Arab Countries Based on the Attributes of the Rentier Economy

Despite the large differences between the countries of the Arab region in terms of the economic situation and social structures, there is a set of characteristics that constitute a series of similarities and represent a common denominator, combining all the Arab countries. The weak economic diversity and the high concentration in a limited number of economic sectors is one of the most important of these characteristics, in addition to the rentier management of the sources - including the non-natural sources - and the low employment rates with high rates of young highly skilled expats.[84] Add to this the inflation of the public sector, the weak climate for investment, the brain drain, the trade imbalance in favour of import and export concentration in low value-added commodities, which reflect the weakness of knowledge economies and the prevalence of the rentier economy.

Source: Harlik 2012.

Arab Countries' Poor Export of Advanced Manufacturing Products

In general, the ratio of exports to the GDP in the region amounts to 28% and their openness to trade is still relatively weak. Protection regulations on foreign trade play a negative role as well, according to estimates by the IMF.[85] However, the main factors behind poor exports do not lie in overprotection itself, but in the weakness of export industries in terms of competitiveness; the focus of exports on low value-added products and the lack of labour force skills that could advance export industries. The flaw in the revenue-generating structure of the economies of the region reflected negatively, as we have seen, on the size and structure of foreign trade.[86] Raw materials still dominate the Arab export composition, as fuel constitutes 70% of the region's exports. These percentages are even higher in oil countries, reaching 80%. As for the export composition of countries with little or no oil, it is the most diverse, however, dominated by exports of textile and clothing up until 2005.[87]

The importance of the growth of high value-added products, and the resulting revenue that reflects on the rates of export, lies in the belief that it is a central process in the transfer, production and localisation of knowledge. Moreover, knowledge and innovation development and shaping them into moulds which facilitate their use by the industry sector, production firms and national services, the production of advanced technological goods and their exportation are all significant indicators in measuring society's knowledge and innovation capacity. Many international organisations, including the World Bank, use these indicators and the country's percentage of high-technology exports to compare the different levels of knowledge and innovation capacity that countries have reached.

The readiness of the Arab world, in terms of technological productivity, capacity and commercial weight in the technological production chain, is measured through a number of indicators issued by the World Bank and the Global Competitiveness Report shown in Table 4.9. The Global Competitiveness Report's Value Chain Breadth indicator assesses the "presence" or involvement of the country in the steps of the value chain.[88] On a scale of 1 to 7, countries close to 7 have had a broad presence across the entire value chain. The 2013-2014 results show that many Arab countries have scored a higher value than the average 3.5 and some Arab countries (Qatar 10, UAE 18, KSA 28, and Lebanon 41) even scored higher ranks than China (43), Turkey (42), and Canada (57).[89]

In terms of Venture Capital Availability in the Global Competitiveness Report 2013-2014, Qatar came in second worldwide, followed by the UAE (10), Oman (14), and Bahrain (15), reflecting the direction taken by the Gulf countries in this regard, while Yemen scored very poorly (134).[90] On another hand, the quasi-absence of high-technology exports (as a percentage of manufactured exports) in 2011 is apparent in certain countries such as Qatar, Bahrain, Yemen and Djibouti. While Morocco scored the highest percentage in the Arab

Raw materials of low added value still dominate the Arab export composition, as fuel constitutes 70% of the region's exports

Table 4.9

Indicators of Trade in Technological Goods

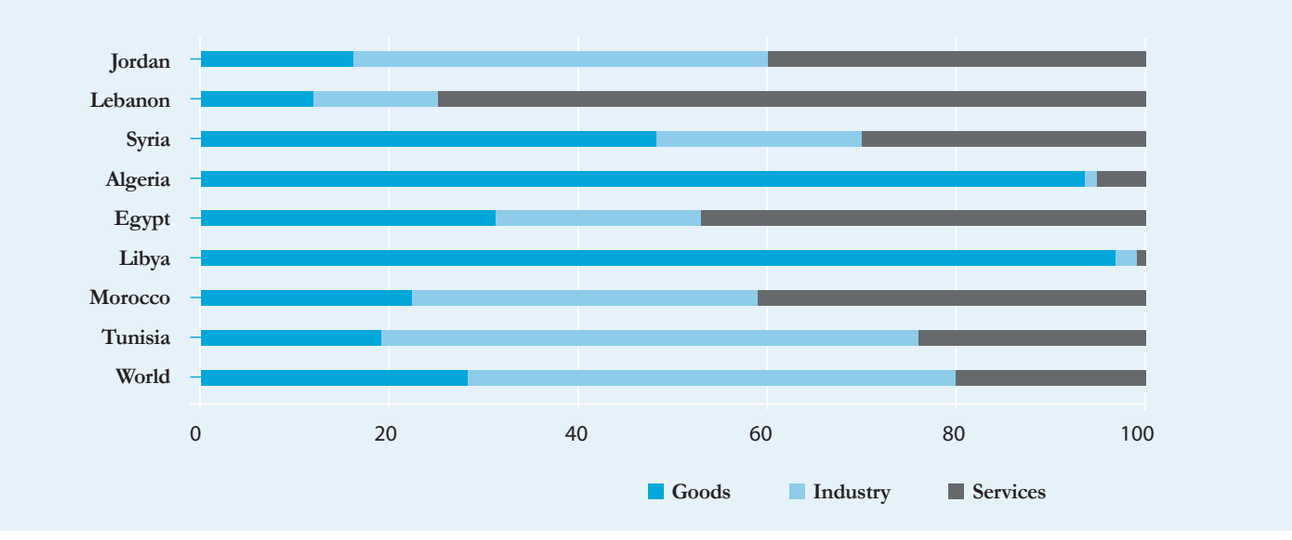
Country	Value Chain Breadth (Scale of 1 to 7) 2013-2014 (a)		Venture Capital Availability (Scale of 1 to 7) 2013-2014 (a)		High-Technology Exports (% of Manufactured Exports) 2011 (b)	Trade of Manufactured Goods 2009 (c)	
	Value	Global Rank (of 148)	Value	Global Rank (of 148)		% of GDP	KAM Index
Qatar	5.2	10	4.5	2	0	-	-
UAE	4.9	18	4.1	10	***3	-	-
Saudi Arabia	4.5	28	3.4	25	*1	13.25	0.36
Lebanon	4.1	41	2.7	62	2	38.01	6.22
Jordan	3.9	49	3.9	14	3	36.09	5.86
Bahrain	3.9	51	3	45	3	52.18	8.38
Oman	3.9	53	3.8	15	0	-	-
Morocco	3.8	61	3	44	6	63.09	9.01
Egypt	3.7	76	2.8	56	*8	32.54	5.32
Mauritania	3.6	79	2.9	51	1	-	-
Kuwait	3.2	111	1.9	132	-	-	-
Yemen	3.1	121	2.6	71	**1	-	-
Libya	3.2	113	1.9	134	0	16.54	1.17
Algeria	2.7	143	2	128	-	-	-
Syria	2.6	145	2	123	0	23	2.28
Sudan	-	-	-	-	*1	-	-
Tunisia	-	-	-	-	-	13.82	0.54
Djibouti	-	-	-	-	**0	30.74	4.86

* World Bank database 2010 ** World Bank database 2009 *** World Bank data 2009

References: a. World Economic Forum 2013 - Global Competitiveness Report 2013-2014
b. World Bank database 2014, World Bank 2014a
c. World Bank KAM database 2012, World Bank 2012a

Figure 4.12

World and MENA Export Composition



Source: Havlik 2012

region (6%), which remains modest on a global level compared to the Philippines (49%) and Singapore (45%) scoring the highest percentages. The USA's percentage on the other hand was 18%, Germany's 15%, and India's 7%.[91]

Weak Labour Market, Foreign Direct Investment and Investment Environment[92]

The report had previously discussed two important issues indicative of the weakness of the labour market in the Arab world in general. The first is related to the rigidity of the labour market, regulations, and all related financial institutions and banks. The second is the incompatibility or rather the gap between the youth's skills and knowledge (outcomes of education) and the requirements of the labour market, which has led to the unemployment and marginalisation of many young people.[93]

In this part of the report, we discuss the investment climate and the environment of foreign direct investment. Studies have shown that the investment climate is correlated with the encouragement of foreign direct investment, reform of the legislation and regulations governing work, reduction of corruption and evasiveness in problem solving, and re-examination and restructuring of the role of the public sector to achieve a competitive and transparent environment.

Moreover, the establishment of a market economy needs the reform and development of the region's heritage in terms of skills in marketing, trade and entrepreneurship, financial institutions and banks and governance of the public sector. It also requires accessibility to project funding in accordance with encouraging and supportive regulations, and the Arab countries are not starting from scratch. However, it is imperative to expand the scope of reform of all these structures in order to expand the bases of existing ones and achieve a level of effectiveness in the localisation of knowledge, creation of job opportunities for the youth and their integration into the aspired knowledge society.[94] In a study conducted by the World Bank in 2013[95] focusing on the Ease of Doing Business index in more than 180 countries, Arab countries did not achieve good rankings (see Table 4.10).

Foreign direct investment is an effective tool in the transfer and localisation of knowledge and technology. It also supports sustainable development in the Arab region and helps improve the economic situation of the youth. FDI has played an important role in the region since 2002. However, it was affected by the global economic crisis, which led to a decline in foreign direct investments – down to 7% in some Arab countries as of 2011. The Arab region witnessed a small FDI impact centred in the sectors of real estate and petrochemicals, which are considered fertile lands for the rapid growth of job opportunities. However, this is not the case for the

Table 4.10

Ranking of Arab Countries on the Ease of Doing Business Index

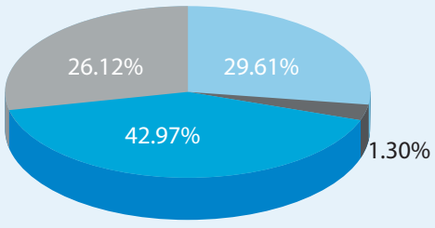
Country	2013
UAE	23
Saudi Arabia	26
Bahrain	46
Oman	47
Qatar	48
Tunisia	51
Morocco	87
Kuwait	104
Lebanon	111
Jordan	119
Egypt	128
Yemen	133
State of Palestine	138
Sudan	149
Iraq	151
Algeria	153
Comoros	158
Djibouti	160
Syria	165
Mauritania	173
Libya	187

Note: The Ease of Doing Business index ranks economies from 1 to 189, where countries with the highest rankings enjoy business-friendly environments.
Source: The World Bank & the International Finance Cooperation 2014.

The establishment of a market economy needs the reform and development of the region's heritage in terms of skills in marketing, trade and entrepreneurship, financial institutions and banks and governance of the public sector

Figure 4.13

Distribution of Foreign Investment per Sector



Source: Khalid Wazani, background paper for the report.

transfer and localisation of knowledge that these countries need in their quest to build a knowledge society and develop science and innovation.[96]

FDI received by Arab countries dropped from US$68.6 billion in 2010 to $43 billion in 2011, a decline of 37.4%

FDI received by Arab countries dropped from US$68.6 billion in 2010 to $43 billion in 2011, a decline of 37.4%. The value of FDI received by Arab countries accounted for 2.8% of the world total, which amounted to $1.5 trillion and around 6.3% of investments received by developing countries, which amounted to $684.4 billion. The performance of Arab countries varied in terms of investment, with high levels in Algeria, Bahrain, Djibouti, Iraq, Jordan, Kuwait, Morocco, State of Palestine and UAE, and low levels in Lebanon, Mauritania, Oman, KSA, Somalia, Sudan, Syria and Tunisia. Saudi Arabia was the Arab country that received the highest FDI with $16.4 billion and a share of 38.2% of the total, followed by the UAE with $7.679 billion (17.9%), then Lebanon in third place with $3.381 billion (7.9%), and Sudan in fourth place with $2.692 billion (6.3%).[97] [98]

Figure 4.13 illustrates the distribution of foreign investment by sector, showing that most investments primarily focus on service sectors, with a smaller focus on productive sectors, namely those related to industry and production sectors, which have a direct impact on and correlation with the transfer and localisation of knowledge.

Box 4.11

Attracting FDI in Arab Countries

The Business Environment Index 2012 reports that, over the past six years, many Arab countries (18 in total) have improved their laws and legislation to make them more encouraging and attractive for investment. The unemployment rates that exceed 16% in the Arab region, according to Arab Labour Organisation estimates, as well as the low level of women's participation in the labour market are considered to be among the region's economic weaknesses, and they both negatively affect the ability to attract foreign investment. As such, it may be important for the Arab region to address the laws in force in order to improve the level of women's participation in the national economy, through the provision of equal opportunities and encouraging the participation of women in economic, social and political life, noting that women constitute half the Arab population.

The above factors have also affected the ability of Arab countries to attract foreign investment that is beneficial for the transfer and localisation of knowledge, despite these countries' central role in global energy production with 58% of the world's oil reserves and almost 30% of natural gas reserves. The Arab region's share of total foreign investment worldwide was limited to less than 3% in 2012 and only 6.3% of total foreign investment received by the developing world.

Source: Khalid Wazani, background paper for the report.

Governance and Institutional Quality

The concept of governance is defined as the practice of authority for managing the affairs of the state or its national institutions, be they political, economic or administrative. Good governance is a concept that relates to the capacity of the public "institution" or civil society to manage public resources in such a way that fulfils the requirements of development and progress, in favour of human welfare. The UNDP considers good governance as one of the most important ingredients for sustainable human development, provided that it is based on three pillars: (1) accountability and transparency, (2) participation, and (3) the rule of law.[100] The World Bank and the International Monetary Fund (IMF) refer to six main indicators to measure good governance and institutional quality around

Box 4.12

The Turkish Experience in Youth Empowerment in Terms of Production and Knowledge

Since 2001, Turkey has initiated economic restructuring policies in various fields, starting with the liberalisation of the economy, to the creation of an investment-friendly environment and the improvement of the macroeconomic performance. Between 2002 and 2012, Turkey achieved an annual growth rate of 5% and significantly attracted FDI amounting to US$36 billion in 2002 and $153 billion by the end of 2012. Returns from tourism have also increased from $8.5 billion in 2002 to $25 billion in 2012. It is worth noting that 50% of Turkey's population is under the age of 30, and that its population growth rate is the highest among the Organisation for Economic Cooperation and Development (OECD) countries, as the number of inhabitants in Turkey reached 76 million people in 2012. Turkey has boosted science, technology, creativity and innovation, spending $3 billion on research and development in 2002 and $10.8 billion in 2011, i.e. an increase of 260%. Turkey is currently focusing on research-based science and technology policies, and is moving towards the promotion of creativity and innovation through entrepreneurship in technology, and through the transfer and localisation of technology. Turkey's second area of focus is the development of human resources, especially the youths who are involved in creativity and innovation. Furthermore, Turkey focuses on research, development, creativity and innovation as a key mechanism in economic development. In general, Turkey's experience in scientific research is based on the following pillars:

- Human resources development policies;
- Identification of skills required by the private sector and review of school curriculums in all educational stages;
- Orientation of education and training systems to f ocus on research and development activities;
- Adoption of joint programmes between the private sector and universities in research and development and student training;
- Adoption of the mandatory internship project for university graduates in private sector companies;
- Adoption of the mandatory practical training policies for university students in work while still in school;
- Orientation of secondary education students towards a mandatory course in design and technology;
- Promotion of Public – Private Partnership (PPP) projects;
- Evaluation of the work institutions and granting them facilities according to four criteria:
- Technology and innovative thinking in the project;
- Structure and comprehensiveness of project plan;
- Impact of the project on the level of competitiveness and development;
- Analysis of its compatibility with the market and marketing strategies.
- Evaluation of students in schools and universities according to advanced knowledge and skills standards
- Improvement of vocational and educational training (VET) programmes.

Source: Sirin Elci, background paper for the report.

Box 4.13

Misconception of the Liberalisation of the Economy in Arab Countries

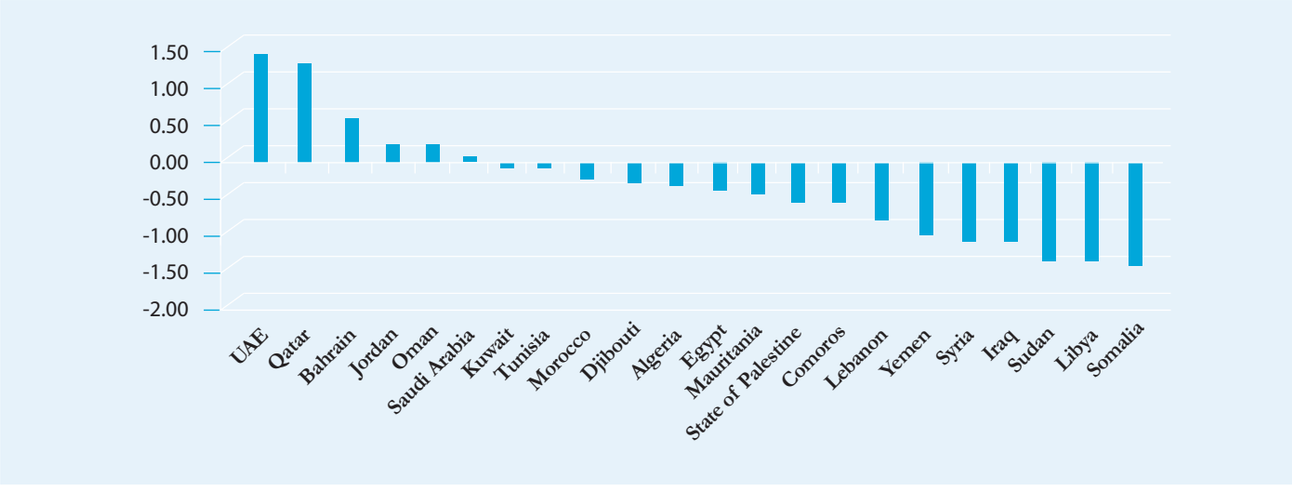
Studies reveal that most Arab countries have confused the "liberalisation of economy" with "privatisation" in their efforts towards restructuring the economy and promoting the private sector. They have understood privatisation in a narrow sense, i.e. a transition from state-owned public property to private property. However, privatisation, in essence, means transition towards a philosophy of market freedom and its integration into the global economy. Moreover, it is a comprehensive process whereby states move towards modernity in its contemporary form and build foundations for the knowledge economies and knowledge community. The market liberalisation philosophy means starting from the current economic structures in the Arab world towards comprehensive reforms that enhance competitive advantages, restructure commerce in order to increase exportation, build global networks in R&D, attract FDI, reform the labour market and build strong democratic institutions.[99] Furthermore, studies confirm that foreign direct capital is essential as a basic element in the transition to the free market philosophy, the success of modernisation efforts, private sector development, knowledge transfer and exploitation and creation of new jobs that require high levels of knowledge and skills. This ensures integration into global market policies. Yet, such integration and transition into knowledge economies need the help of global economic blocs and developed countries that are ahead in their transition towards advanced economies, through bilateral conventions and trade agreements as well as lifting barriers to free trade and starting arrangements that lead to integration. In this respect, studies confirm that Arab countries need now more than ever to accomplish a regional integration that enables them to exploit their wealth in localising knowledge in the Arab region, and to achieve full integration with the global market. The integration of Arab economies would ensure a competitive advantage, whether in terms of human resources, wealth or a large commercial market. It also provides the Arab region with an advantage in negotiation with various other global economic blocs.
Sources: Saidi 2005

Source: Saidi 2005.

Most investments primarily focus on service sectors, with a smaller focus on productive sectors, namely those related to industry and production sectors, which have a direct impact on and correlation with the transfer and localisation of knowledge

Figure 4.14

Control of Corruption



Source: World Bank 2014b.

the world, namely, (1) rule of law, (2) voice and accountability, (3) government effectiveness, (4) political stability, (5) regulatory quality, and (6) control of corruption.[101]

Studies show that the Arab region still scores low in these indicators,[102] and has done since the World Bank began to measure the indicators of good governance and to calculate its rates in 1996. The percentile rank of the majority of Arab countries has remained the same, despite the disparity in ranks between countries. The World Bank statistics in 2013 show that despite the progress, the process remains a slow-moving one in comparison to countries of Eastern Europe and East Asia. These figures show institutions' poor performance and quality in terms of governance and exercise of authority. Despite the progress achieved in some countries, the Arab region's rate is only higher than that of African countries, which has the world's lowest scores.[103]

Studies show that the Arab region still scores low in governance indicators with varying degrees between countries

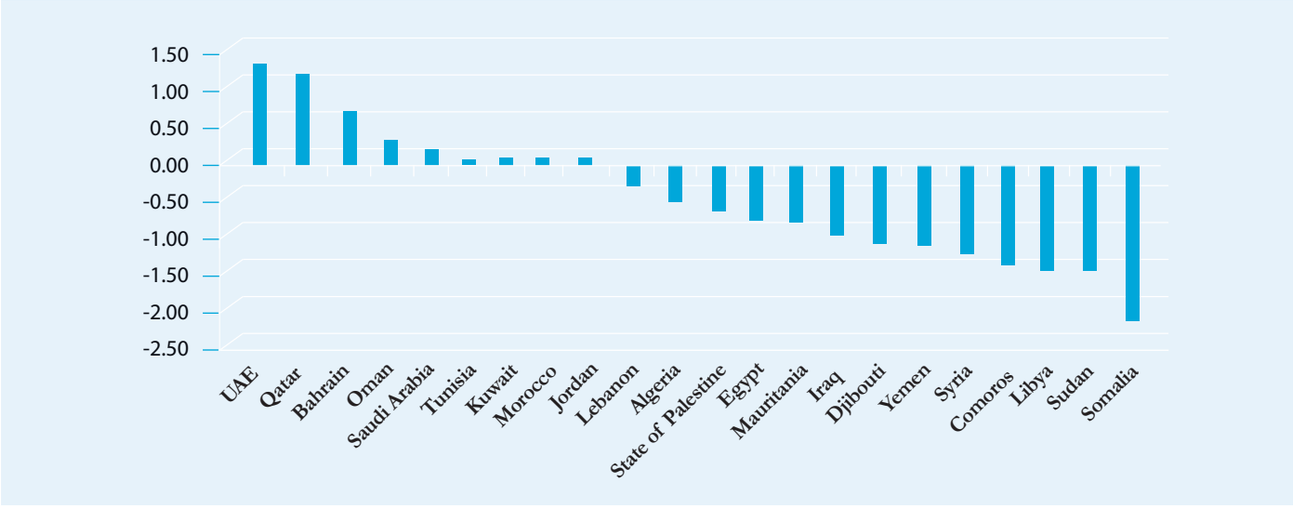
However, the disparity between Arab countries is stark across the various indicators. Qatar and the UAE, for example, registered high rates in the "control of corruption; 1.24 and 1.29 respectively. The rank of these two countries is close to that of USA (1.28), and France (1.3), while Denmark has ranked first on this indicator with a rate of 2.41. However, the rates of other countries, such as Libya (-1.52) and Somalia (-1.58) are among the lowest globally. This shows that in specific countries, governance indicators are in desperate need of improvement and support.[104]

The rule of law indicator also shows this disparity between the Arab countries. The 2013 rates indicate that Yemen, Libya, Iraq, Lebanon and Djibouti ranked the lowest, while Qatar, Oman and Kuwait ranked the highest. The rule of law indicator measures the availability of fair legal frameworks that guarantee the full protection of human rights, especially for minorities. It indicates the existence of an independent and neutral judiciary authority. Countries with low such rates reveal the close relation between stable security and citizen's perception on the ability of laws to protect their rights. In the political stability indicator, we notice that the Gulf countries have scored the highest, while Yemen, Lebanon and Iraq have scored the lowest, as is the case with the rule of law indicator.

The government effectiveness index also shows great disparity between the Arab countries. Qatar and the UAE topped the list, scoring 1.17 and 1.07 respectively, while Somalia (-2.21), Sudan (-1.53), and Libya (-1.5) have been listed at the bottom since 1996.[105] We notice a close relation in the

Figure 4.15

Governance Index



Source: World Bank 2014b.

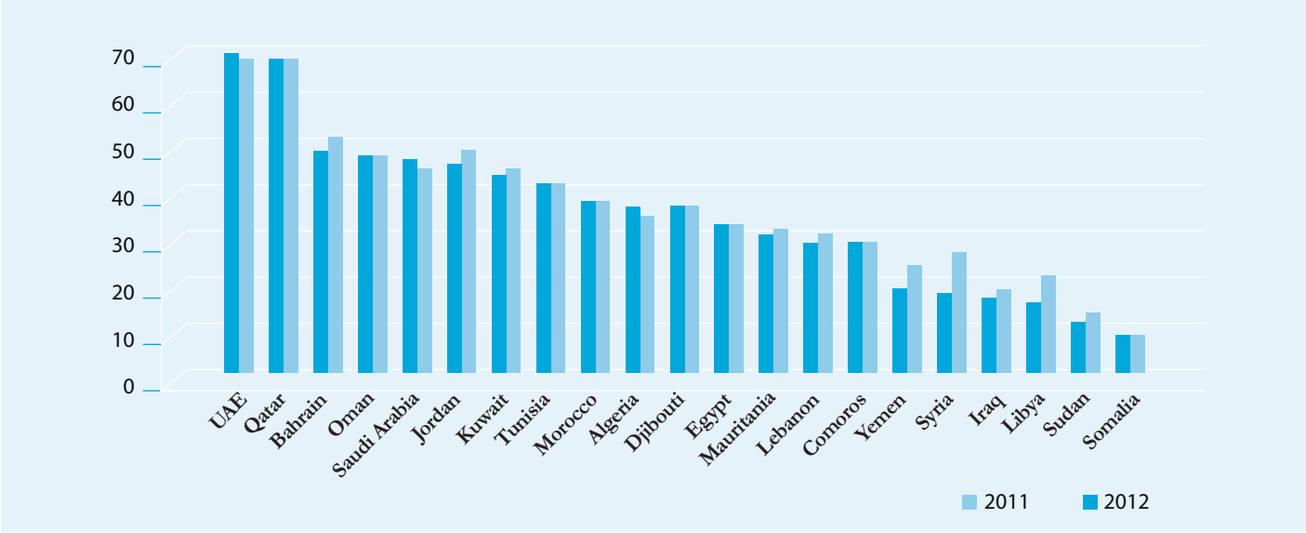
countries with the highest ranks, between their rates and their high annual per capita income.

Accountability cannot be discussed separately from corruption. The low governance rates of the Arab countries are directly related to their ranking on the Corruption Perception Index, issued by Transparency International. On a scale of 0 to 100, where 0 refers to the highest levels of corruption. The rates of all Arab countries were below 50, except for the UAE and Qatar, which scored 69 and 68 respectively. This can be traced to a number of factors including the adoption of e-government practices and the use of the internet.[106]

There is consensus among many researchers that the lack of good governance, weak management of the economy and the absence of institutional quality are the main reasons behind the failure of many Arab countries to encourage the private sector,

Figure 4.16

Corruption Perception Index



Source: Transparency International 2013

The lack of good governance, weak management of the economy and the absence of institutional quality are the main reasons behind the failure of many Arab countries to encourage the private sector, to attract FDI, and use available resources efficiently to improve the labour market and eliminate unemployment and poverty

Laws constitute successful tools for ensuring the integrity of societal life, regulating relations among individuals and groups, and giving all citizens a feeling of justice under authority

to attract FDI, and use available resources efficiently to improve the labour market and eliminate unemployment and poverty.[107]

In this context, it was found that many oil-producing Gulf countries had succeeded in attracting highly-skilled workers to improve their work environments and accelerate economic growth. These efforts, however, were mostly in the oil sector, while the needed change was not brought about in others. This shows the adverse effects of having petroleum as a natural wealth on the management of the economy.[108] Furthermore, non-oil exporting countries also struggle with gaps in development. Although these countries are not considered poor in terms of resources, they have an abundance of labour power and agricultural opportunities. Some of these countries, such as Jordan, Tunisia, Egypt and Morocco managed to improve their development factors by liberating the economy, encouraging development and attracting direct foreign investment. The development rates in these countries, however, remained low in comparison with countries that achieved progress. Researchers note that the slow pace of development in the majority of oil exporting and non-oil exporting countries of the region is not attributed to a lack of resources but rather to inadequate management of the economy and weak institutional quality.[109]

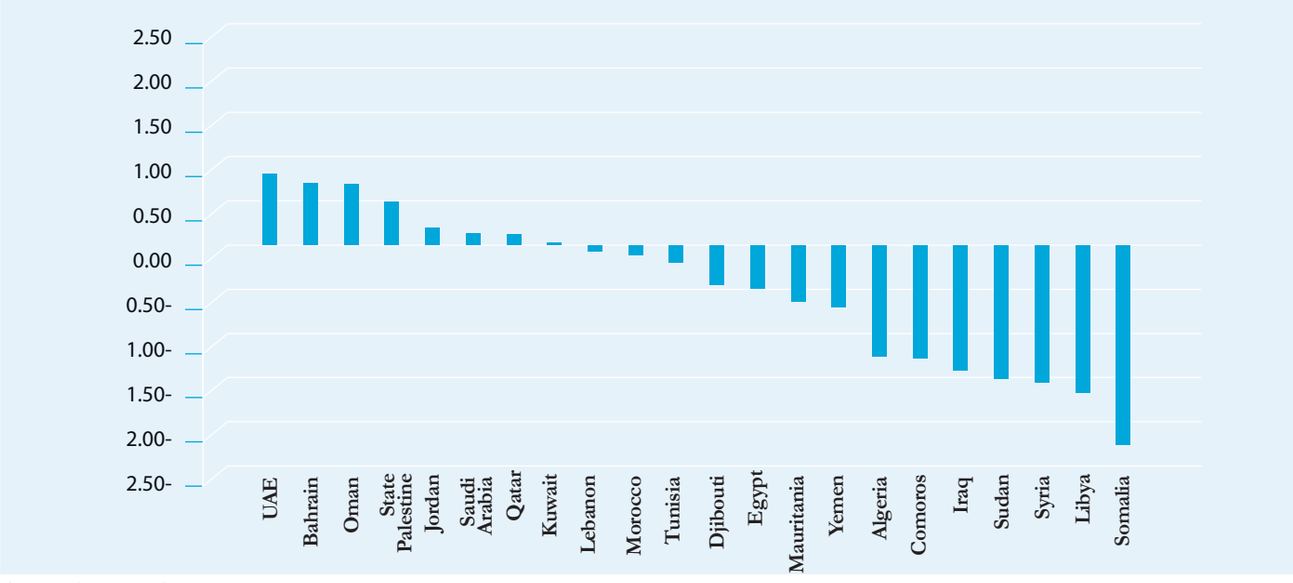
Various studies highlight the many reasons behind the poor economic performance of Arab countries, such as reforms not conducive to government performance, the adoption of policies unfavourable to productivity and low competence in managing the economy.

Regulatory Structure and Rule Of Law

There is no doubt that the regulatory structure, the rule of law for protecting intellectual property, guaranteeing political stability and fighting corruption form an efficient mechanism that guarantees the transfer of knowledge and supports its localisation. Laws constitute successful tools for ensuring the integrity of societal life, regulating relations among individuals and groups, and giving all citizens a feeling of justice under authority.[110] It is important to note that the majority of Arab countries have endorsed the concept of rule of law and have passed protection laws.[111] However, World Bank data shows a great disparity in regulatory quality and rule of law indicators between the Arab countries.

Figure 4.17

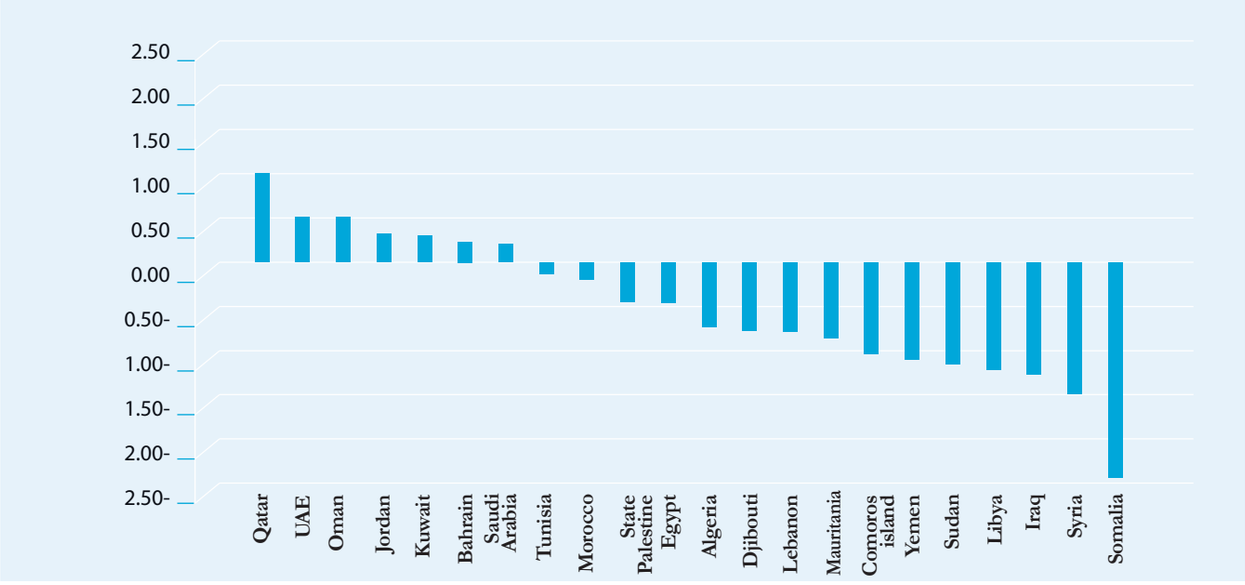
Regulatory Quality Indicators in the Arab Region (2013)



Source: World Bank 2014b.

Figure 4.18

Rule of Law Indicators in the Arab Region (2013)



Source: World Bank 2014b.

In terms of the quality of legislation, the UAE (0.78), Bahrain (0.6) and Oman (0.47) take the lead among the Arab countries, while Libya (-1.83), and Somalia (-2.21) rank the lowest (Figure 4.7). As for the rule of law, Qatar (1.11) and the UAE (0.64) ranked the highest while Syria (-1.611) and Somalia (-2.21) ranked the lowest.[112]

Information Technology Infrastructure: Readiness and Implementation

The ICT infrastructure is a main component in the knowledge economy. It is the key determinant of the infrastructure and level of competitiveness of a macro economy based on knowledge, creativity and innovation. The efficiency of the technological structure constitutes a main factor in achieving transparency and flow of information, improving the climate of economy management and attracting investments, especially FDI. This supports the process of the transfer and localisation of knowledge and youth integration. The readiness of the infrastructure and its accessibility depend on the success of technology in achieving these goals, in addition to the efficiency of its investment in society. Arab countries have taken measures to increase the use of internet, computers and mobile phones. Despite this, as mentioned in the first chapter of this report, the gap still exists.

The penetration of computers in the Arab World remains much lower than

Table 4.11

Percentage of Households with Computer

Country	Percentage
Algeria (2010)	20
Bahrain (2012)	92.7
Djibouti (2010)	13.01
Egypt (2012)	37.92
Iraq (2008)	18.2
Jordan (2012)	54.6
Kuwait (2012)	82.31
Lebanon (2011)	71.50
Mauritania (2010)	2.99
Morocco (2012)	43.06
Oman (2011)	58
State of Palestine (2012)	53.94
Qatar (2012)	91.51
Saudi Arabia (2010)	57.3
Sudan (2012)	14
Syria (2010)	40.37
Tunisia (2010)	19.10
UAE (2012)	85.2
Yemen (2010)	3.96

Source: ITU Statistics 2014.

The penetration of computers in the Arab World remains much lower than the developed countries, except for Gulf countries

the developed countries, except for Gulf countries, notably Bahrain, Qatar and the UAE, whose rates draw close to those of most developed countries in the number of computers per 100 inhabitants. Bahrain ranked first in the Arab world, with 92.7% of its households owning a computer, followed by Qatar (91.51%), and the UAE (85.2%). As shown in Table 4.11, the majority of the remaining Arab countries scored low in comparison to the Gulf countries and the rest of the world.

The GCC and Tunisia achieved advanced ranks worldwide in terms of the use of ICT in public services, such as hospitals

At the end of 2014, only 36% of households in the Arab countries were connected to the internet, a rate that is lower than the global average (43.6%). The gap is smaller when we consider the number of internet users, which is around 40% in the world and 40.6% in the Arab world. This disparity in the results can be traced to the lack of land phone services in households in the Arab world, which forces the youth to use the internet outside the house or on their phone. Three Arab countries ranked 23th, 24th, and 29th globally in the Networked Readiness Index for 2014: these are respectively: Qatar, the UAE and Bahrain.[113]

These indicators highlight the position of the Arab region in terms of (1) internet infrastructure, degree and price of access indicators, (2) telecom networks that are increasingly important to the use of the internet through smartphones and 3G, and (3) use of internet in governmental and social services.[114]

The Internet Price Basket indicator comprises the prices of land and mobile phones and internet subscription, and is determined as a percentage of the GNI per capita. In 2012, it ranged between 0.4 in Qatar, which occupies the second place globally, and 0.5 in the UAE (rank 7) and 21.8 in Mauritania, which ranks 134th among 161 countries.[115]

Table 4.12

Use of ICT in Public Services

Country	Internet Access in Schools		Use of New Technologies in Businesses	
	Rank (out of 148 Countries)	Value*	Rank (out of 148 Countries)	Value*
Algeria	147	3.2	-	-
Bahrain	30	5.5	45	5.0
Egypt	110	4.2	125	2.7
Jordan	27	5.6	44	5.0
Kuwait	57	4.9	66	4.4
Lebanon	86	4.5	107	3.4
Mauritania	109	4.2	141	2.0
Morocco	95	4.4	113	3.1
Oman	53	5.0	47	4.9
Qatar	10	5.9	15	6.0
Saudi Arabia	15	5.8	49	4.8
Tunisia	70	4.7	-	-
UAE	4	6.1	21	5.8
Yemen	119	4.1	146	1.7

Note: On a scale of 1 to 7 (7 being the highest) according to surveys of users and stakeholders
Source: World Economic Forum 2013.

Use of Mobile Phones in the Arab Region

Table 4.13

ICT Indicators in the Arab World

Country	Networked Readiness Index*		ICT Development Index (IDI)**		
	World Ranking (out of 148 Countries) 2012	Value in 2014	Value in 2012	World Ranking (out of 157 Countries) 2012	Value in 2011
Algeria	129	2.98	3.07	106	2.98
Bahrain	29	4.86	6.3	39	5.79
Comoros			1.7	138	1.68
Djibouti			1.77	131	1.71
Egypt	91	3.71	3.85	86	3.65
Jordan	44	4.36	4.22	76	3.9
Kuwait	72	3.96			
Lebanon	97	3.64	5.37	52	4.62
Libya	138	2.75			
Mauritania	142	2.61			
Morocco	99	3.61	3.79	89	3.59
Oman	40	4.56	5.36	54	48
Qatar	23	5.22	6.54	31	6.41
Saudi Arabia	32	4.78	5.69	50	48
Tunisia	87	3.77	3.7	91	3.58
UAE	24	5.2	6.41	33	5.68
Yemen	140	2.73	1.89	127	1.76

*Sources: * World Economic Forum 2014. ** ITU 2013.*

The level of mobile coverage is not considered a challenge in many areas in the Arab region, with 13 Arab countries exceeding the proportion of mobile subscribers of 100% in 2013.[116] It is worth noting that there are many low-income Arab countries that are not among high income countries that have achieved good mobile charges per minute, as is the case in Egypt.

Use of ICT by the Government and the Public Sector

E-government is still a concept that is not entrenched in the Arab region. The majority of countries did not score higher than 50% in the e-government services indicator. Some countries, however, consider ICT among the government's top priorities, as is the case in the UAE, Bahrain and Qatar, which achieved high ranks globally.

The United Nations E-Government Survey Report measures the willingness and capacity of governments to use ICT in the provision of public services by presenting the E-government development index. It is a composite index that compares countries on a scale of 0 to 1, with 1 being the highest. It consists of the size and quality of e-services, the status of telecom infrastructure in the country and the needed human capital for the use of internet. We notice in this report that the GCC countries are at the forefront with all of the countries ranking within the top 50 out of 193 countries: Bahrain 18th (0.8089), the UAE 32nd (0.7136), KSA 36th (0.69), Qatar 44th (0.6362), Oman 48th (0.6273) and Kuwait 49th (0.6268). Meanwhile, other Arab countries with low development levels are at the bottom of the list, such as Djibouti (184) and Somalia, which ranked last. Countries such as Libya scored 0 in the index, which means that none of its services are electronic. None of the Arab countries surpass developed countries in terms of e-government services, except for the Gulf countries. The E-participation Index is another indicator that illustrates the extent to which these technologies are used in the decision-making process.[117]

Use of ICT in Public Services

The GCC and Tunisia achieved advanced ranks worldwide in terms of the use of ICT in public services, such as hospitals. Qatar ranked second in the world in this area, and seventh in terms of internet access in schools.

Based on the above, we deduce that regardless of the efforts of many Arab countries to improve the level of internet access and use of ICT, internet disparity still exists between countries in the region, and it is still defined by their level of income. The GCC countries, for example, remain at the top of the list of the ICT indicators (see Table 4.13), and have high ranks globally. Low-income countries, however, remain at the bottom of the list.

Regardless of the efforts of many Arab countries to improve the level of internet access and use of ICT, internet disparity still exists between countries in the region

Problems and Challenges of the Arabic Language and Translation

Considering that language is an incubator of knowledge and culture it must be protected and developed so that it can absorb new and growing content of the knowledge economy and society. This applies to the Arabic language, which now more than ever, has to lose the unbendable moulds that have constrained its progress, in order to enter new spaces of innovation and effective contribution to the production of knowledge. In this general perspective, the Arabic language is facing a number of challenges in the era of knowledge and globalisation, including explicit challenges such as being limited to literature/linguistic mummification and hybridisation, and the decline of educational systems. Other challenges are implicit, such as "claiming the inability of the use of Arabic language in science, internal and external marginalisation, and the rising trend of colloquialism".[118]

Considering that language is an incubator of knowledge and culture it must be protected and developed so that it can absorb new and growing content of the knowledge economy and society

Translation is considered an important channel that helps develop the Arabic language, being a process of interaction that reinforces communication and the sharing of knowledge gains. It contributes to the development of the local intellectual product, and opens it up to other

possibilities by looking at other phenomena from a different perspective. Until now, no new and real initiatives have been put forth to open the door for dialogue and constructive criticism, in order to review the Arabic language and set alternative rules and new linguistic formats that go in line with the requirements of innovation and knowledge production, and the transfer and localisation of knowledge. Such an initiative has to address different intellectual movements and break rigid mind-sets. The lack of such initiatives highlights another gap in our public cultural, social and political systems on both the regional and national levels in the Arab countries. This gap should be dealt with through a policy of linguistic reform that comprises all the concerned sectors, sets the priorities, and specifies the needed steps. The reform of the language, and subsequently of the Arabic education system, and the capitalisation on information technology should be done according to a vision that aims at building a knowledge society and achieving sustainable human development.

Table 4.14

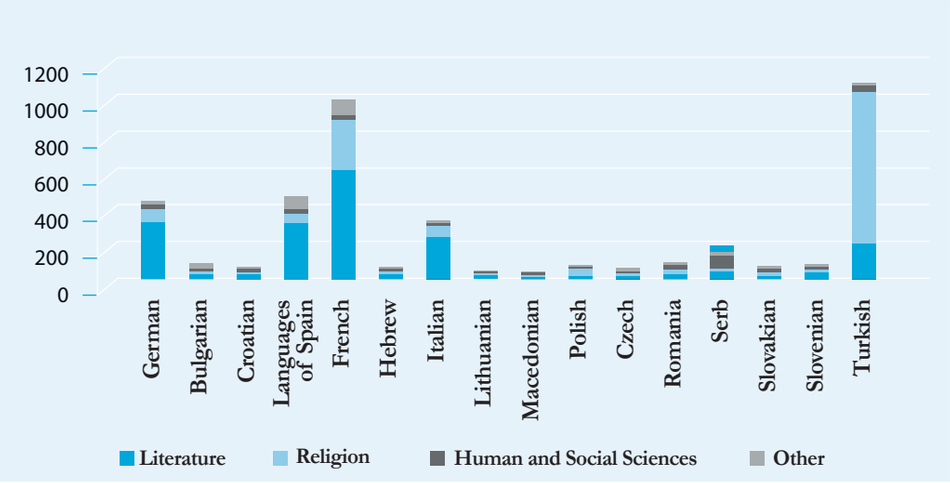
Ranking of Languages From and into Which Publications are Translated

Rank	Top 30 Destination Languages (to Which Translations Have Been Made)	Number of Books	Rank	Top 30 Source Languages (from Which Translations Have Been Made)	Number of Books
1	German	301934	1	English	1264944
2	French	240043	2	French	225744
3	Spanish	228557	3	German	208060
4	English	164499	4	Russian	103587
5	Japanese	130649	5	Italian	69538
6	Dutch	111270	6	Spanish	54535
7	Russian	100806	7	Swedish	39976
8	Portuguese	78905	8	Japanese	29241
9	Polish	76705	9	Danish	21250
10	Swedish	71209	10	Latin	19951
11	Czech	68921	11	Dutch	19659
12	Danish	64864	12	Ancient Greek	18049
13	Chinese	63123	13	Czech	17154
14	Italian	59937	14	Polish	14655
15	Hungarian	55214	15	Norwegian	14273
16	Finnish	48311	16	Chinese	14065
17	Norwegian	35161	17	Arabic	12407
18	Greek	30459	18	Portuguese	11566
19	Korean	28168	19	Hungarian	11294
20	Bulgarian	27457	20	Hebrew	10272
21	Serbian	23732	21	Multiple languages	8727
22	Estonian	20508	22	Finnish	8525
23	Romanian	20468	23	Catalan	7991
24	Croatian	19729	24	Serbian	5632
25	Slovakian	19644	25	Romanian	5546
26	Slovenian	18692	26	Estonian	5517
27	Catalan	17972	27	Modern Greek	5113
28	Lithuanian	15389	28	Serbo-Croatian	5002
29	Arabic	12711	29	Korean	4701
30	Turkish	11919	30	Sanskrit	4387

Source: UNESCO 2014c.

Figure 4.19

Proportion of Books Translated from Arabic in EU Countries



Source: Transeuropéennes and the Anna Lindh Euro-Mediterranean Foundation for the Dialogue between Cultures 2012.

The Challenges of Translation

Among the challenges that impede the use of the Arabic language and translation is what is called the "terminology vacuum", especially when it comes to modern scientific terminologies, as it is difficult to find smooth equivalents in Arabic and adapt the language in favour of science. The issue of the terminology vacuum relates to a large extent to translation, and is faced by the ever-increasing emergence of different translations for one term and one connotation. This highlights the need for an Arabic Corpus, which can be defined as a huge collection of writings or recordings (which count billions of words), including samples of written and spoken texts from a large spectrum of independent sources. Such a corpus gives an accurate image of the language in its different forms and daily, scientific and literary usages during a specific period of time.[119] This corpus takes on the role of a "laboratory", from which we can devise various linguistic studies on the structure and phenomena of the language and the different connotations of its words.[120]

Among the efficient factors of the reform process is developing what is known as the Optical Character Recognition, which is a programme available in other main languages. It allows transforming the text through scanning into a digital text that can be altered and archived.

Among the other challenges that face translation in particular and the language in general is the lack of accurate statistics in terms of volume and quality, the translation of literature and humanities only, the lack of professionalism in the field, and the lack of cooperation between translation institutions and publishing houses, in addition to the shallowness of scientific translation.[121] Table 4.14 shows that the Arabic language ranks low in terms of content being translated (to and from Arabic), despite the huge population of Arabic speakers and even though a large number of countries have Arabic as an official language.

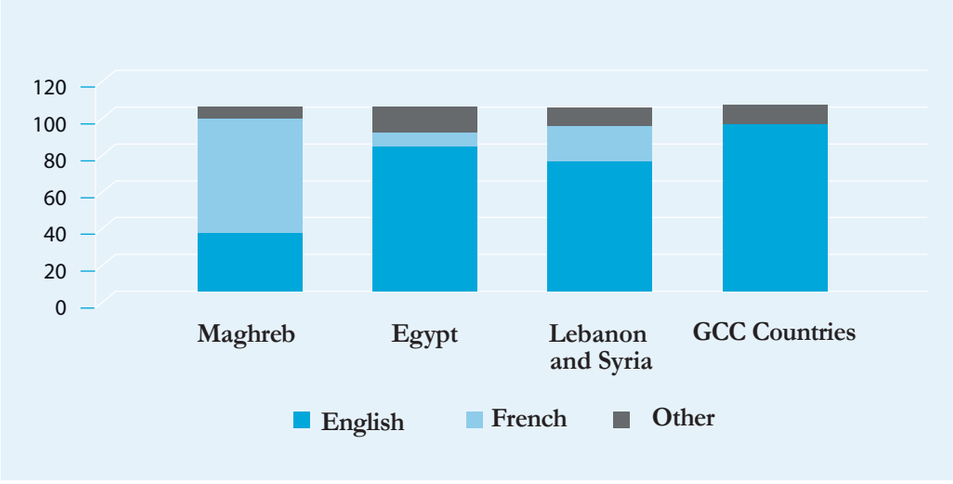
In a study that focused on mapping translation in the Mediterranean countries, the number of translated publications from Arabic into another language was still low, while demand for translation had increased. Figure 4.18 shows the distribution of translations from Arabic per subject and target language.

The same study shows that the percentage of books translated from Arabic in EU countries does not exceed 1/1,000 of the total translated books. In terms of translations into Arabic, estimates show

Among the challenges that impede the use of the Arabic language and translation is what is called the "terminology vacuum", especially when it comes to modern scientific terminologies

Figure 4.20

Languages into Which Arabic Is Being Translated (%)



Source: Transeuropéennes and the Anna Lindh Euro-Mediterranean Foundation for the Dialogue between Cultures 2012.

Investing in human capital is a priority in translation and languages in the region

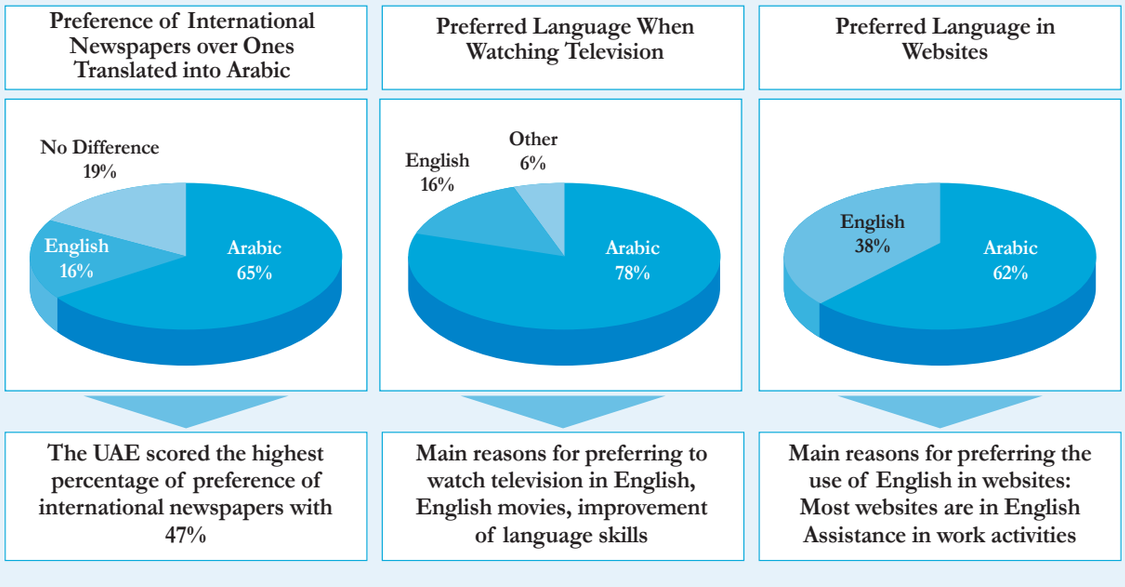
that from 2002-2012, around 1,500-2,000 books were translated per year. The share of Arabic publications from translated texts is 6% globally. Investing in human capital is a priority in translation and languages in the region. The report on translation in the Mediterranean region shows that human capital in translation in the Arab region struggles from lack of moral and financial reward, which is needed and well-deserved by translators.

Arabic Digital Content

The production and publishing of Arabic digital content face many obstacles, further complicated by the need to overcome the obstacle of internet access. Posting Arabic content on the internet requires adjusting some available technologies to suit the Arabic language. It also requires developing technology solutions to issues that can be sorted under two categories. The first

Figure 4.21

Language Choices in Means of Communication and Media in the Arab Region



Source: ESCWA 2012.

Table 4.15

Status of the Arabic Language among the Top Languages on the Internet 2013

Top Ten Languages on the Internet	Number of Internet Users per Language in Millions	Internet Penetration as a Percentage of the Population	Internet Users Growth (2013-2000)	Internet Users of the Language (of Total %)	Population Speaking This Language (2014) in Millions
English	126 004 565	43.4%	301.4%	26.8%	1 302 275 670
Chinese	103 965 509	37.2%	1 478.7%	24.2%	1 372 226 042
Spanish	742 968 164	39.0%	807. 4%	7.8%	423 085 806
Arabic	000 182 99	78.4%	110.7%	4.7%	126 475 664
Portuguese	600 586 82	32.5%	990.1%	3.9%	253 947 594
Japanese	674 422 75	79.5%	174.1%	3.6%	94 842 656
Russian	400 365 65	18.8%	501.2%	3.3%	347 002 991
German	525 779 59	17.2%	398.2%	3.0%	347 932 305
French	000 700 59	42.8%	1825.8%	3.0%	139 390 205
Malay	400 440 39	55.2%	107.1%	2.0%	71 393 343
Top Ten Languages	333 957 615 1	36.4%	421.2%	82.2%	4 442 056 069
Other Languages	483 557 350	14.6%	588.5%	17.8%	2 403 553 891
Total of the World	965 926 099 2	30.3%	481.7%	100.0%	6 930 055 154

Source: Internet World Stats 2014.

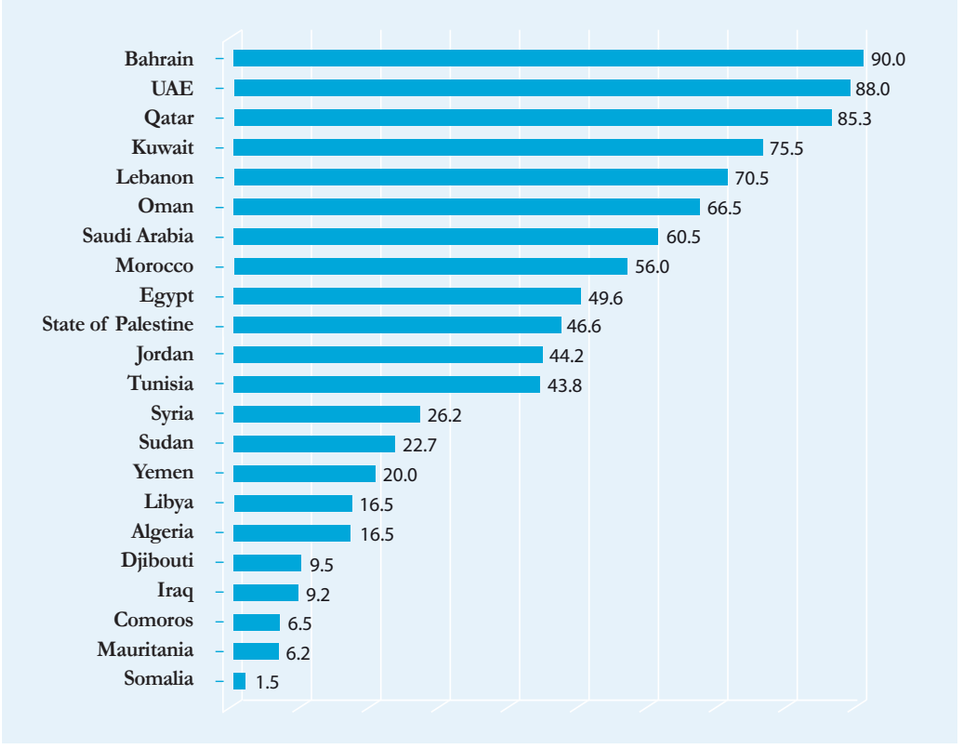
relates to the Arabic language itself, and the second to preparing Arabic content to be processed in-depth.

In order to pave the way for indexing and research in Arabic, texts need to be prepared for meticulous electronic processing. This

The various obstacles preventing the Arabic language from merging into the internet and the digitisation era represent additional threats towards the fragmentation of this language and its isolation from the knowledge society and the progress it brings about

Figure 4.22

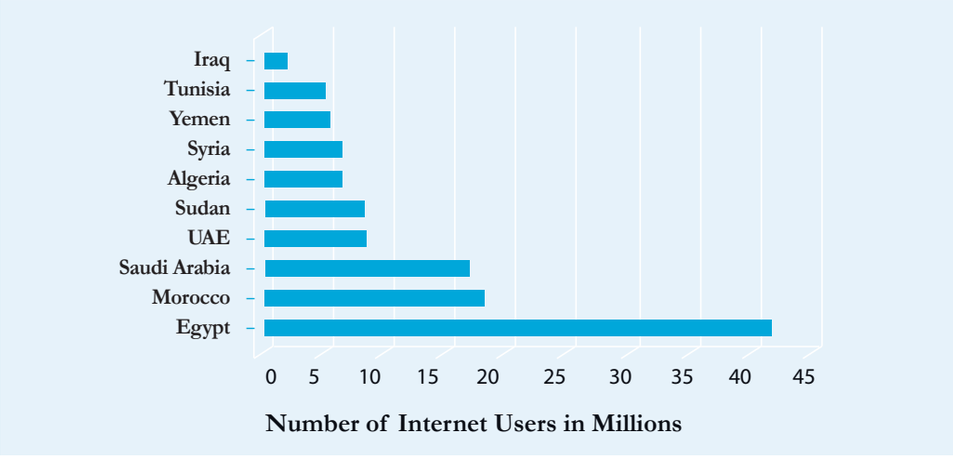
Broadband Penetration in the Arab Countries



Source: ITU Statistics 2014.

Figure 4.23

Number of Internet Users in the Top Ten Arab States in Terms of Using the Arabic Language

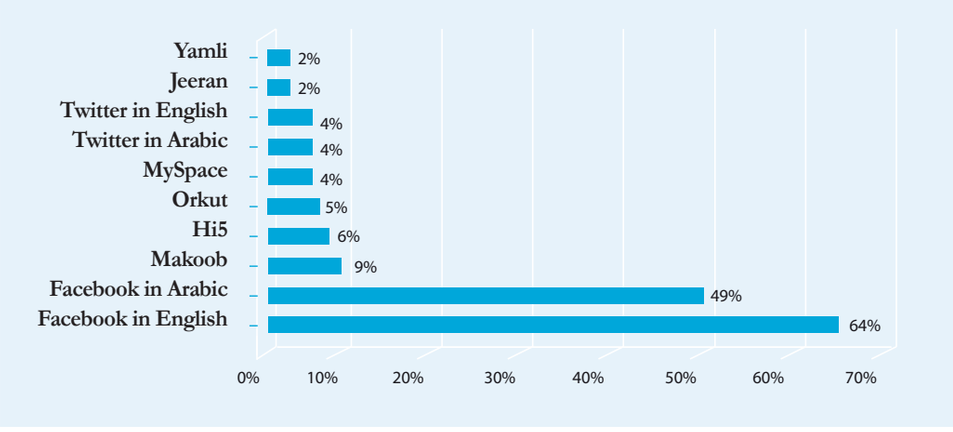


Source: Internet World Stats 2014.

The history of the Arabic language shows that it is flexible

Figure 4.24

Use of Social Media (%)



Source: 2012 ESCWA.

requires developing software that allows for morphological analysis, automatic configuration, and automated analysis of expression. The automated analysis of expression of the Arab sentences is considered a main requirement for the language to be able to catch up with the second generation of language processing applications, which include systems of automated understanding and analysis of the narrative structure of language. Some Arab and foreign businesses are carrying out remarkable activities in this field, yet these efforts and the yielded results are still inadequate.

The various obstacles preventing the Arabic language from merging into the internet and the digitisation era represent additional threats towards the fragmentation of this language and its isolation from the knowledge society and the progress it brings about. As language represents existence per se, such existence has become related to the online presence of a language.[123] The use and presence of the Arabic language in the virtual world are still extremely limited compared to the important value this language should have due to its demographic scale, communication abilities and cultural and aesthetic values.

Table 4.15 classifies the Arabic language among the top ten international languages, based on the number of the speakers and the growth rate of their online presence. The Arabic language ranks 4th among the top ten international languages used online. In 2011, people using the Arabic language online reached 135.6 million[124] compared to 60 million users in 2008.[125] The Arabic language reached the highest growth rate from 2000-2013 where it grew by an average of about 5,296% (see Table 4.15).

Moreover, Figure 4.22 indicates the number of users of the Arabic language on the internet in the top ten Arab countries in 2013. According to this table, Egypt has the highest number of Arabic users (43.5 million), followed by Morocco (18.5 million) and Saudi Arabia (16.5 million).[126]

Today's audio-visual media has helped the knowledge era branch into new creative forms, further enhanced by the growing presence of e-publications. It has also provided new possibilities and capabilities in terms of dealing with subjects by incorporating Arabic and adopting new expressions and syntax-related mechanisms. Reform plays again an important role in maintaining the safe and proper use of such new mechanisms. Reform measures also help ensure that these mechanisms respect grammar and morphology rules, mainly in view of the linguistic weakness in today's virtual world and social media. The history of the Arabic language shows that it is flexible, distanting itself from strict rules which could result in linguistic chaos and misinterpretations. And though some modern interpretations can enrich the language, they can lead to chaos if not dealt with appropriately.

The fundamental question today is, will existing and future technologies lower the status of the Arab identity and Arab civilisation? Or maybe, will such technologies help maintain and consolidate this identity on the human civilisation map? A positive answer to this question depends on the online presence of Arab countries and their citizens, including future generations. For instance, if Arab universities provide their students with e-educational services, design telecom infrastructures that conform to multimedia applications, while providing all social groups with access to all media, the Arab identity might then succeed in maintaining its existence, achieving tangible results that guarantee communication opportunities, creativity and progress for the future.

Conclusion

The knowledge, creativity and innovation of developed countries are all results achieved through the knowledgeable and highly skilled human capital they have. This human capital is formed and developed through training and educational environments and research centres in the fields of science, technology, creativity and innovation. Such environments are nurtured by active social, political and economic circles that are created through long periods of social development and change. There is another important factor supported by previous knowledge reports related to the empowering environments through which the human capital is prepared and trained to transfer and produce knowledge. These environments, with their many characteristics, can either enhance development or slow it down.

Arab states still need, despite their numerous achievements, to effectively promote enabling environments

This chapter focused on analysing the enabling environments of integrating the youth in the transfer and localisation of knowledge in the Arab countries. According to the data and analyses related to the various topics discussed earlier (higher education systems, scientific research systems, development pattern in the Arab region), Arab states still need, despite their numerous achievements, to effectively promote enabling environments. They also need to actively motivate and develop such environments in order to support the transfer and localisation of knowledge and effectively engage the youth in such processes. Establishing these environments is the first basic step towards achieving these aspired goals.

ENDNOTES

1 Wilkins 2011.
2 Abu-Orabi 2013.
3 Abu-Orabi 2013.
4 Abu-Orabi 2013.
5 Abu-Orabi 2013.
6 Buckner 2011.
7 UNESCO 2010a.
8 Abu-Orabi 2013.
9 Abu-Orabi 2013.
10 Buckner 2011.
11 UNESCO 2010a.
12 Fore more on the discussion of the issue of establishing university branches outside their country of origin, refer in this context to: Altbach & Salmi 2011; Mazawi 2011; Donn & Monthri 2010.
13 Romani 2009.
14 Romani 2009.
15 Chaaban 2010.
16 Chaaban 2010.
17 Chaaban 2010.
18 Ahmed et al. 2012
19 Ahmet et al. 2012
20 See Chapter 3 on the economic effectiveness of youth, for more details on the status of youth in the Arab region.
21 ESCWA and the League of Arab States 2013. (Reference in Arabic)
22 Cabras 2010, and for more data unemployment, refer to Annex 4, table A 4-3.
23 UNDP 2011.
24 Abdou et al. 2012; Dhillon et al. 2009.
25 Ahmad Hajji, background paper for the report.
26 Wilkens 2011.
27 Wilkens 2011.
28 Jaramillo & Melonio 2011.
29 See Arab Knowledge Report 2010/2011, UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012.
30 Ahmad Hajji, background paper for the report.
31 Ahmad Hajji, background paper for the report.
32 Regarding the effect of globalisation on the internationalization of universities, skills, and knowledge, and the effect on inducing a global mobilisation of human capitals across the world borders similar to the mobilisation happening in the financial capitals, see Chapter 2, the part related to globalisation.
33 World Bank 2012b.
34 UNDP 2003. (Reference in Arabic)
35 Mohamed et al 2008.
36 World Bank 2012b.
37 World Bank 2012b.
38 NIC's: the Newly Industrialised Countries, refer to the group of countries that are newly industrialised and that are not categorised as developing or developed in terms of income, standards of living, human development and industrialisation. This group includes South Africa, Mexico, China, Malaysia, Brazil, India, Philippines, Thailand, and Turkey.
39 Gaillard 2010
40 Gaillard 2010.
41 Gaillard 2010.
42 Arab Knowledge Reports 2009 and 2010/2011, UNDP and Mohammed bin Rashid Al Maktoum Foundation 2009 and 2012. (Reference in Arabic)
43 Kishore Mahbubani 2009. (Reference in Arabic)
44 See Chapter 2 in differentiating between the explicit and implicit knowledge patterns and the importance of each pattern and its method of transfer.
45 Arventis and M'henni 2010.
46 UNESCO 2010b.
47 Waast 2010.
48 KAUST 2010.
49 UNESCO 2014a.
50 Akoum and Renda 2013.
51 UNESCO 2010b.
52 UNESCO 2014a.
53 UNESCO 2014a.
54 UNESCO 2010b and Kamal Najib, background paper for the report.
55 King & Pendlebury 2013.
56 UNESCO 2010b.
57 Gaillard 2010.
58 Thomson Reuters 2011.
59 Thomson Reuters 2011.
60 Thomson Reuters 2011.
61 Thomson Reuters 2011.
62 Thomson Reuters 2011.
63 US Patent and Trademark Office 2014.
64 Sen 2004.
65 UNDP 2014. (Reference in Arabic)
66 UNDP 2014. (Reference in Arabic)
67 ESCWA and the League of Arab States 2013. (Reference in Arabic)
68 ESCWA and the League of Arab States 2013. (Reference in Arabic)
69 ESCWA and the League of Arab States 2013. (Reference in Arabic)
70 Arab Monetary Fund 2012. (Reference in Arabic)
71 Report Team Calculations based on Human Development Report data 2014 (UNDP 2014). The group includes countries of oil-based economies namely Bahrain, Kuwait, Qatar, Saudi Arabia, the United Arab Emirates and Oman (income data not available for Oman). The group of countries dependent on exports of raw materials includes: Comoros, Mauritania, Sudan, Yemen and Djibouti (income data not available for Djibouti). Countries of mixed economy include: Algeria, Iraq, Libya (income data not available for Libya). Countries with diversified economies include: Egypt, Jordan, Lebanon, Morocco, Syria and Tunisia.
72 UNDP 2014. (Reference in Arabic)
73 ESCWA and the League of Arab States 2013. (Reference in Arabic)
74 ESCWA and the League of Arab States 2013. (Reference in Arabic)
75 UNDP 2011.
76 UNDP 2011.
77 UNDP 2011.
78 UNDP 2011.
79 UNDP 2011.
80 Arab Monetary Fund 2012. (Reference in Arabic)
81 UNDP 2011.
82 UNDP 2011.
83 UNDP 2011.
84 Mouhoud 2012.
85 Havlik 2012.
86 O' Sullivan et al. 2012; Havlik 2012.
87 UNDP 2011. (Reference in Arabic)

[88] The Value Chain includes activities that contribute to adding value to the product that surpasses its cost. The chain stages steps include for instance R&D, product design, and transfer to the consumer market.
[89] World Economic Forum 2013.
[90] World Economic Forum 2013.
[91] World Bank 2014a.
[92] This part relies on a background paper for the report prepared by Khalid Al Wazani.
[93] See Chapter 3.
[94] Khalid Al Wazani, background paper for the report.
[95] The World Bank & the International Finance Corporation 2014.
[96] Abdou et al. 2012.
[97] Khalid Al Wazani, background paper for the report.
[98] Arab Investment and Export Credit Guarantee Corporation 2011. (Reference in Arabic)
[99] O' Sullivan et al. 2012; Havlik 2012.
[100] The UNDP launched in 2000 the governance programme in Arab countries (Retrieved on August 15. 2014 from: http://www.pogar.org/arabc).
[101] The rate on the scale of governance with its 6 indicators ranges between (-2.5) and (+2.5). 0 indicates the average, while the highest rate indicates the best level on the scale.
[102] See Kaufman 2011.
[103] Layla Kabalan, background paper for the report.
[104] World Bank 2014b.
[105] Refer to Annex 4, table A 4-18. Source: World Bank 2014b.
[106] Layla Kabalan, background paper for the report.
[107] Kaufman 2011.
[108] Kandil 2009.
[109] Kandil 2009.
[110] Mohamed Maliki, background paper for the report.
[111] Mohamed Maliki, background paper for the report.
[112] Refer to Annex 4, table A 4-18, source: World Bank 2014b.
[113] The Networked Readiness Index comprises three components: the environment for Information and Communication Technologies, the readiness of individuals, businesses and governments to use technologies, and the level of this usage. The scale goes from 1 (the worst) to 7 (the best). The countries are considered the best in the world if they register a rate of 5.5-7. Refer to Annex 4, table A 4-12. Source: World Economic Forum 2014.
[114] Dina Abu El Futouh, background paper for the report.
[115] International Telecommunication Union (ITU) 2013.
[116] Refer to Annex 4, table A 4-11. Source: International Telecommunication Union (ITU) 2014.
[117] United Nations 2014.
[118] Inaam Bayoud 2010. (Reference in Arabic)
[119] Habib Srouri 2009. (Reference in Arabic)
[120] Inaam Bayoud 2013. (Reference in Arabic)
[121] Inaam Bayoud 2010. (Reference in Arabic)
[122] Transeuropéennes and the Anna Lindh Euro-Mediterranean Foundation 2012.
[123] Ibrahim Salah El-Hudhod 2013. (Reference in Arabic)
[124] Internet World Stats 2014
[125] Arab Knowledge Report 2009, UNDP and Mohammed bin Rashid Al Maktoum Foundation 2009. (Reference in Arabic)
[126] Internet World Stats 2014.

CHAPTER FIVE:

RESULTS OF THE FIELD SURVEY: REALITIES OF THE ARAB YOUTH INTEGRATION IN THE LOCALISATION OF KNOWLEDGE

Introduction

This chapter presents the results of studies and field surveys conducted on samples of the Arab youth in their final stages of university education in four Arab countries (UAE, Jordan, Tunisia and Morocco), in which more than 3,800 young Arabs participated. These surveys come in accordance with the field study methodology that the Arab Knowledge Report adopted for direct communication in the report issues through the exploration of opinions and statuses of the primary stakeholders, namely the youth. Using the outcomes of these field investigations, this chapter builds on the analyses presented by the previous chapters concerning the status and mechanisms of knowledge transfer and localisation and the effectiveness of the Arab youth in this process, in addition to research conducted over the surrounding enabling environments. The main goal of these tools that were used during 2013 was to directly observe the status of basic skills among the Arab youth in universities, which are required for their effective integration in the transfer and localisation of knowledge. Research tools also aimed at exploring the direct opinions of the youth regarding the most important relevant topics, including values and practices, as well as their perceptions of the surrounding enabling environment. With this goal in mind, innovative tools were designed and used for the first time in the preparation of this report. This field approach distinguishes this report and makes it more realistic when it comes to diagnosis; thus more accurate and realistic in terms of suggested recommendations and tendencies.

Methodological Clarifications

In accordance with the main focus of this report, the research aims at exploring what distinguishes university youth in terms of cognitive, value-based and practical features related to the transfer and localisation of knowledge. It also aims at exploring youth opinions, particularly in relation to the required enabling mechanisms and environments and the degree of their availability, as well as perceptions about their role in achieving this ambition and ways to overcome obstacles.

Clarifications on the Conceptual Basis

Before going into methodological and technical details related to the process of designing research tools, it is worth recalling certain basic concepts on which the report is based, and what they entail in terms of general or specific implications:

- Skills: With reference to international literature and certain regional studies that addressed the skills of university students and adults in general, and in light of the knowledge society requirements, a set of agreed upon basic skills is identified, namely:
  - Skills of understanding and using at least one foreign language;
  - Technological skills represented by the purposeful and productive employment of modern technologies;
  - Communication skills represented by possessing the tools of written communication;
  - Literacy skills represented by the skills of processing information of all sorts (texts, tables, figures, and charts);
  - Problem solving skills represented in the ability to employ knowledge of all sorts in solving daily life problems.

- Mechanisms of transfer and localisation: Mechanism refers to the nature of assembling the parts within a machine or in something similar. In futuristic studies and action plans, this concept refers to executive methods and procedures that can contribute to achieving the objective. This report adopts the latter concept of mechanism. As such, it focuses on the set methods, means and procedures that are employed for achieving the expected objective, which is the transfer and localisation of knowledge.

- Enabling environments: Along with what was set in the two previous reports regarding the concept of enabling environments, this term refers to "the

In accordance with the main focus of this report, the research aims at exploring what distinguishes university youth in terms of cognitive, value-based and practical features related to the transfer and localisation of knowledge

conditions of incubation and support, with all their various structures and forms", or in other terms, "knowledge tools, financial tools, framed legislations, supporting institutions and freedoms in their broadest sense".[1]

Clarifications on the Design of the Tools

According to the conceptual model adopted in the Arab Knowledge Report 2014, the tools required for collecting the necessary data included a skills test and a questionnaire to gather students' opinions and perceptions of knowledge transfer and localisation mechanisms and related enabling environments.

According to the conceptual model adopted in the Arab Knowledge Report 2014, the tools required for collecting the necessary data included a skills test and a questionnaire to gather students' opinions and perceptions of knowledge transfer and localisation mechanisms and related enabling environments

The Student Questionnaire

Based on the adopted concepts and the topics identified in relation to the transfer and localisation of knowledge, various sections of the field survey were determined. These sections are related, in particular, to the aspects that directly affect the student, from which one can conclude a series of tendencies relating to the extent of ability to integrate into the transfer and localisation of knowledge and satisfaction with what the environment in its broad sense has to offer, in terms of conditions that can help achieve this integration. In view of this, the preliminary version of the questionnaire was drafted. It included 55 questions divided into the main themes on which the conceptual model of the report is generally based, namely:

- The status of the Arab youth (human capital);
- The mechanisms of the transfer and localisation of knowledge;
- The enabling environments.

Regarding the values, the focus was particularly on the values and tendencies directly related to the topic of acquiring, transferring and localising knowledge, by calling upon the youth sample to express the extent of their acceptance or rejection of a series of positions and attitudes that hold specific values. 20 different values were targeted and represented.

Values Targeted by the Survey

Scientific integrity	Flexibility (against fanaticism)
Freedom of thought and creativity	Cooperation and altruism (rejecting selfishness)
The love of knowledge and curiosity	Religious tolerance
Cooperation and collective work	Self esteem
Appreciation for work	Scientific ambition
Objective judgment	Respect of intellectual property
Scientific modesty	Initiative and modernisation
Seriousness and discipline	The sense of responsibility
Respect of pluralism and diversity	Loyalty to the country
Work proficiency	
Diligence and perseverance	

The Skills Test

This test aims at measuring a number of required skills, i.e those skills that university students of all specialisations are supposed to possess. These are horizontal skills that are not related to one specific specialisation, but to knowledge and cognitive skills that every adult in general and every seeker of education and knowledge in particular needs to be able to respond to the requirement of a knowledge society (in terms of the transfer, localisation, production and diffusion of knowledge). In view of this, a test composed of five different exercises targeting the aforementioned skills was prepared:

- The first exercise aimed at measuring the basic knowledge related to employing modern technologies in the process of acquiring, transferring and localising knowledge. Given the nature of the targeted audience and the intended education stage, the focus was not placed on knowledge and preliminary operations related to using computers or its programmes. We rather directed all questions towards the tools and programmes required by the processes of knowledge communication, distance education, exchange of information and virtual cooperative work.
- The second exercise aimed at measuring the skill of written communication. We suggested for this purpose a situation that was relevant to the student, consisting of

writing a letter to a scientifically ranked party for a knowledge-related purpose. This was regarded as one of the most important situations that students usually experienced during their university years, regardless of their specialisations. Such a situation can have a powerful effect on the chances of success in broadening their scientific horizons and integrating into professional life.

- The third exercise aimed at measuring the skill of solving daily problems. The suggested situation consisted of placing the student before a specific need and a set of surrounding stressors. He or she was expected to find the best formula to respond to the need. This required the student to analyse the situation and to study a set of possible solutions to reach the best one. Therefore, we made sure that the student explained how the solution was reached, for us to be able to discuss the strategies used. To avoid straying from the context of the university students' interests and concerns, we suggested a university life situation related to time management.
- The fourth exercise aimed at measuring the skill to search for and process information. We adopted a situation consisting of three types of texts: a free text, a chart (or figure) and a table, accompanied by a set of questions relating to extracting information distributed in the three texts, for analysis and comparison. These were also among the situations that students regularly faced during educational and research years, especially in light of the large flow of information and the plurality of its sources.
- The fifth exercise aimed at measuring foreign language skills, understanding and writing. We adopted for this purpose a short text addressing the spread of modern technologies in the world and accompanied by two questions, to examine the extent of the student's understanding of the ideas of text. We also included a question in the form of a topic on social media, in which the student was expected to give an opinion. It is to be noted that we adopted the same texts and questions in two copies: in French for the students of Tunisia and Morocco and in English for the students of UAE and Jordan.

Testing and Adjusting the Tool

The research tool was developed in stages. At first, the topics and issues to be highlighted were identified during a specialised workshop. In light of that, the first draft was developed. The validity of its sections was checked through established scientific procedures. Then, the required amendments were performed for the final draft for testing in two copies; a copy with French translation to be used in Tunisia and Morocco, and a copy with English translation to be used in UAE and Jordan. Following this, the tools were subject to field testing in the concerned countries. The test sample included 393 male and female students from concerned majors (human sciences, engineering, management and medicine), distributed as follows:

The research tool was developed in stages. At first, the topics and issues to be highlighted were identified during a specialised workshop. In light of that, the first draft was developed

The field testing process resulted in a series of amendments related to the form and content of the tool. Consequently, the outcome was drafting a notebook composed of two parts: the first included the skills test, while the second included the questions related to the values and students' perceptions of enabling mechanisms and environments, distributed as follows:

As for the statistical analyses that were adopted to study the various internal connections (between the sections that fall under the same category) and external connections (between the categories that constitute the tool), and to verify the uniformity and consistency of the tools' content, they were represented by the Cronbach Alpha coefficient and the correlation coefficients of Pearson or Spearman.

The various analyses have made it possible to obtain a number of indicators that confirm the existence of high degrees of consistency that are presented in the following table:

The Target Group and Sample Selection

The field study targeted the university youth audience, considering them as the most important pillar of the knowledge society; the "Knowledge Human Capital". The importance of this group lies, as explained in the previous chapters, in constituting a major part of the labour and productive force, in addition to enjoying the most important requirements for establishing the knowledge society, represented in creativity along with the energy and ability to incur change. This study was performed on an indicative sample comprised of 3,822 male and female students, from public universities in the four countries of the case study, distributed according to gender, specialisation and age. As illustrated in Table 5.4, we notice in this sample that the number of female students significantly outnumbered that of male students, notably in UAE, Tunisia and Jordan, where the percentage of female students is double that of male students (in UAE approximately fourfold the male students percentage). This distribution reflects the realities, as it complies with the general tendency of distribution of male and female students in higher education. Official statistics in all the countries of the world, including Arab countries, show that the female academic presence is constantly

This study was performed on an indicative sample comprised of 3,822 male and female students, from public universities in the four countries of the case study, distributed according to gender, specialisation and age

Table 5.1

Distribution of the Experimental Sample

Country	Jordan	UAE	Morocco	Tunisia
Number of Students	76	113	147	57

Table 5.3

Distribution of Cognitive Skills and Their Reliability

Skills	Cronbach's Alpha
Problem Solving	0.82
Written Communication	0.99
Searching for and Processing Information	0.93
Use of Technology	0.88
Use of a Foreign Language in Understanding and Writing	0.92
Skills Combined	**0.882**

Table 5.2

The Structure of the Final Version of the Field Study Tool

	Axes of Interest
Status of the Youth as the Knowledge Capital	Information about the Respondent Values and Tendencies Belonging and Citizenship Cultural Effectiveness Economic Effectiveness Participation/Political Orientations Societal Effectiveness Openness and Global Intercommunication
Opinions of the Youth about the Transfer and Localisation Mechanisms	Translation Scientific Research Use of ICT Media Agreements and Partnerships
Opinions of the Youth about the Enabling Environments	Youth Institutions Knowledge Environment (University Education System) Political Environment Economic Environment Societal Environment Technological Environment Financial Tools
Pre-perceptions and Pre-Judgments Regarding the Transfer and Localisation of Knowledge	
Suggestions on the Contribution of Youth in the Transfer and Localisation of Knowledge	

increasing. This might be due to the fact that education is still, for women, the main gateway through which they guarantee their self-fulfilment and assert their presence on social and economic scenes.

Meanwhile, many studies show that attaining high ranks in education is of no interest to males anymore. This is due to the prevalence of unemployment among university graduates and the lack of correlation between scientific degrees and job opportunities, prestige or wealth.

The percentages of students vary from one specialisation to another in all the countries participating in the study (Table 5.5). This is due to several reasons, some of which are objective and others are circumstantial. The objective reasons lie in the actual distribution of the students in the relevant universities (in Tunisia for instance, the number of students in human sciences and languages exceeds the number of students in engineering or medicine specialisations). As for the circumstantial reasons, during the field research in Tunisia, for instance, the data collection process at the time was interrupted because of strikes in the Faculty of Science.

As for age, the average age of students participating in the questionnaire ranged from 21 to 22 years, given that we have recorded, in all countries, the presence of students whose age exceeds 30 years. Although constituting a minority, the presence of students aged over 30 indicates that the higher education system is not restricted to a certain age group. If true, this would serve as a good indicator of providing opportunities for lifelong learning. It is yet to be confirmed whether these cases were due to delay in education (failure, interruption), or cases resulting from a desire to continue university education.

This indicative field study is a quantum leap that enhances the analyses of this report and touches on reality through a field approach that encompasses a category of the youth group. Therefore, the report aims at attaining results that will help us understand the status of the youth, their opinions and positions, far from any generalisation.

Data Processing and Statistical Analysis

Following correction and data entry according to the set manual, the database for the statistical analysis was prepared. Analysis was performed along the following lines:

- The average (the arithmetic mean), the standard deviation, and the lowest and highest score, in order to study the general tendency of the group and the extent of its homogeneity or discordance regarding the data related to the section in the conceptual model, entitled "the status of the youth cognitive capital"
- Comparing the results obtained from the students according to gender and specialisation to analyse the general trends of the differences

This indicative field study is a quantum leap that enhances the analyses of this report and touches on reality through a field approach that encompasses a category of the youth group

Table 5.4

Distribution of the Sample According to Gender

	Jordan	UAE	Tunisia	Morocco	Total Sample
Male Students	28.6%	19.5%	27.65%	45.1%	31.6%
Female Students	71.4%	77.8%	72.35%	54.9%	68.1%
No Answer	0%	2.7%	0%	0%	0.3%

Table 5.5

Distribution of the Sample According to Specialisation

	Jordan	UAE	Tunisia	Morocco	Total Sample
Managerial Sciences	21.4%	41.7%	18.6%	7.6%	19.8%
Humanities Sciences and Languages	33.4%	20.1%	42.7%	39.6%	35.6%
Engineering Sciences	19.5%	37.5%	5.3%	16.7%	17.5%
Medical Sciences	25.7%	0.7%	33.4%	36.1%	27.1%

Table 5.6

Distribution of the Sample According to Age

	Jordan	UAE	Tunisia	Morocco	Total Sample
Average Age	21.42	22	21.82	21.11	21.52
Standard Deviation	1.05	1.29	1.71	1.57	1.46
Youngest	19	18	18	18	18
Oldest	37	29	35	27	37

- A descriptive analysis of the students' answers to the conceptual model section, titled "The opinions of the youth and their perceptions of the enabling environments".

It is to be noted that these tools (the questionnaire and tests) that we have introduced in this report, represent a powerful qualitative and quantitative addition to what the Arab world needs in terms of measures of the readiness of the youth to access the knowledge society and the associated skills, values and knowledge.

Undertaking such studies and using these tools to do so, perhaps for the first time in the Arab region, is an attempt at filling the gap by measuring the readiness of the Arab youth and identifying the relevant strengths and weaknesses. These studies are supposed to constitute the basis in the overall planning and organisational processes aimed at leading the Arab region into a knowledge economy and knowledge society. The addition of the field study in this report, which focused on young people in the university cycle, is complementary to the tools that were introduced in the previous report. Research tools in later reports addressed Arab adolescents in their final stage of school/pre-university.

Thus, we have contributed to providing integrated tools for the Arab region that should be built upon and used extensively. This is a very important issue if we compare the Arab region to the developed world, notably Europe. The developed world has established its tools to measure such dimensions among the youth and to be a continuous subject of study through which the planners and decision-makers can design policies that prepare and enable the youth to face the changing world.

The performance of the sample members participating in the test on "cognitive skills" is around average

Results: The Knowledge Capital

Overall Results on Cognitive Skills

Generally, we notice that the student scores ranged between 17.13 and 92.85. The arithmetic mean (average) equals 55.81; so, if we assume that the minimum level needed to approve the possession of skills in their minimum is to get a score of 50 out of 100, we conclude that the performance of the sample members participating in the test is around average. The percentage of those who received a score of 50 and above is 68.2%, while the percentage of those who got a score of 75 and above is 6%. The value of the standard deviation does not reflect a large variation between the members of the sample, which means that there is a degree of homogeneity in the results. As for the performance of each country individually, we notice that the Emirati students were better than their counterparts in other countries, followed by the students in Morocco, while the students of Tunisia ranked third followed by the Jordanians.

Table 5.7

Overall Result of Students on Combined Cognitive Skills

	Arithmetic Mean	Standard Deviation	Lowest Score	Highest Score
Jordan	51.25	11.81	18.05	81.20
UAE	64.01	11.08	18.67	92.85
Tunisia	51.83	11.55	20.63	81.20
Morocco	61.21	11.28	17.13	92.33
Total Sample	55.81	12.66	17.13	92.85

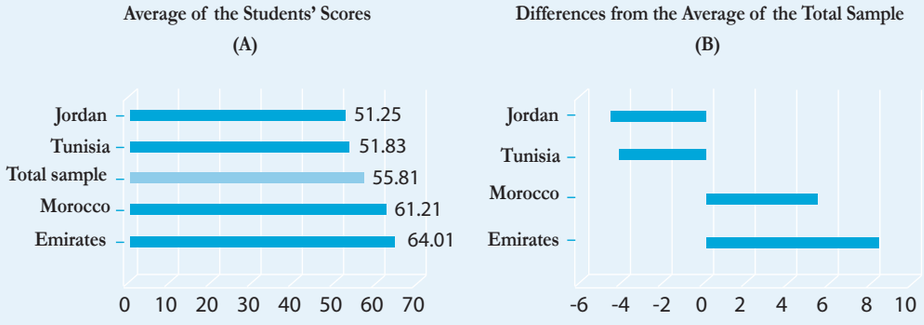
The total scores for the five cognitive skills combined range between 0 and 100.

The comparative advancement of Emirati students can be explained by the strategy the government set for 2011 and 2013 and which included seven priorities, the most important of which was the transition to the knowledge economy, in order to build the capacities of the human capital capable of producing knowledge; the cornerstone of sustainable human development.

With regard to the situation in Jordan, the results indicate a weakness in the different levels of education, particularly in the areas of cognitive communication through writing and the use of languages and technology. This clearly reflected on the sample results, which demonstrated that the performance of the students in the test is considered within the limits of the average, and about 46% of the students even ranked below the average in the field of cognitive skills, not to mention that only 2% received a score higher than 75%. This indicates that the acquisition of high cognitive skills was in individual cases. These individual differences refer perhaps to the fact that some of the students rely on personal interests to develop their cognitive skills in the different areas of languages and technology.

Figure 5.1

Countries' Results in Cognitive Skills Combined



The total scores for the five cognitive skills combined range between 0 and 100.

The absence of similar previous evaluation studies precludes the comparison of this result to others. Nevertheless, the general orientation revealed by the studies of TIMSS, PIRLS, and PISA, despite the different areas of interest and age groups they deal with, confirms that the Arab countries – with a discrepancy between them – lag behind in cognitive skills in general, whether these skills are related to mathematics, science or literacy. In TIMSS for example, the UAE ranked first among the Arab countries, while Morocco remained until the very last session in 2011 in last ranks. Jordan and Tunisia progressed in certain sessions and regressed in others (in 2007, Jordan progressed and Tunisia regressed and in 2011, Jordan regressed and Tunisia progressed).

Detailed Results on Cognitive Skills

Problem-Solving Skills

A total of 85 students scored zero (2.2% of the total sample), while only 851 students scored 20 (22.3% of the sample). The arithmetic mean (average) amounted to a score of 14.12 out of 20, 4 scores higher than the minimum level required to approve the possession of the skill (i.e. getting 10 degrees out of 20). Therefore, we conclude that the overall performance of the members of the participating sample in the skill to solve a problem from everyday life is acceptable, noting a 34% variation ratio as per the values of the arithmetic mean and the standard deviation. This means that there is a variation among the students in dealing with the problems of everyday life, despite this skill's importance in establishing the rules of systematic thinking and its use in all life aspects.

The overall performance of the members of the participating sample in the skill to solve a problem from everyday life is acceptable

Problem-solving skills are considered essential for social, economic and professional success. Some educators and specialists in vocational training even consider them critical[2] from the higher skills that the individual acquires through the school formation, and which need to be strengthened in the context of the ongoing acquisition of knowledge. The ability to identify a problem, determine the different factors contributing to it, and develop a coherent plan to resolve it is required to deal with the problems of the everyday life, as well as the problems associated with certain professions.

Problem-solving skills are considered essential for social, economic and professional success

According to a similar study[3] conducted in Western countries (Australia, Canada, Hungary, Italy, Norway, New Zealand, the Netherlands, Switzerland, Bermuda, Mexico and the USA) between 2003 and 2008, we find a confirmation of the link between problem-solving skills and the literacy skill. Solving a written equation or problem is determined by the extent of the person's ability to read, understand and interpret what is written. The study proved that these two skills are based on the cognitive resources, which are based on

working memory, processing speed and the accumulated knowledge and experiences. This would create a systematic difficulty in measuring problem-solving skills, which mostly rely on written tests that put the subject in various simulated situations. This study concluded that the countries where members suffered from a deficiency in problem-solving skills were threatened by an inability to adapt to the transformations taking place in the field of work and the difficulty of establishing a sustainable culture to acquire knowledge.

Table 5.8

Total Result for the Students in Problem-Solving Skills

	Arithmetic Mean	Standard Deviation	Lowest Score	Highest Score
Jordan	13.95	4.83	0	20
UAE	14.65	4.81	0	20
Tunisia	13.65	4.72	0	20
Morocco	14.54	4.83	0	20
Total Sample	14.12	4.81	0	20

The scores of the problem-solving skill range between 0 and 20.

Written Communication Skill in Arabic

When talking about accessing the knowledge society and looking into ways to transfer and localise knowledge, it does not make sense that we accept that university students about to graduate are this weak in the Arabic language , as well as in foreign languages

The scores that the students obtained ranged from 0 to 20, and only 53 students scored 20 (1.4% of the sample). However, 193 students scored zero (5% of the total sample). The arithmetic mean was 9.78 out of 20 scores, and this shows that student performance in this skill was below average. We also note a large variation between the members of the sample, as the percentage of discrepancy was 48.67%, which reflected varying levels in writing ability (from very poor to excellent). This result merits a pause, to look into its causes and ways to overcome it. When talking about accessing the knowledge society and looking into ways to transfer and localise knowledge, it does not make sense that we accept that university students about to graduate are this weak in the Arabic language, as well as in foreign languages, as we will see later. Add to this that the status of the Arabic language, in its comprehensive notion, is an element of identity and it is supposed to play a role in achieving development.

This weakness can be due to several factors, including that the school and university educational system does not work well at building the suitable writing capacities for students by making them write research or short articles or dwell in other areas of written expression. This is evident from their job applications. Perhaps the high numbers of students in university classes is one of the reasons for the decline in writing capacities, making the possibility of focusing on scientific research and writing a dilemma in many colleges and universities.[4] Add to this the role that the culture of pictures and symbolic expressions resulting from the use of modern means of communication plays. Studies show a link between this culture and the declining levels of the language skills as a form of expression. Writing as a form of communication is closely related to language and social communication skills and it has continued to regress to give way to alternative forms based on the symbolic and digital expression.

The volatile linguistic reality in many Arab educational systems often contributes to the emergence of a state of turmoil in language skills. In Morocco, for example, teaching in elementary, primary and secondary schools is done entirely in the Arabic language, but in scientific and administrative colleges and the faculties of engineering and medicine, all courses are taught in French, which reflects negatively on the level of perfection in both Arabic and French. The effects of this linguistic deterioration are deeper in the majors that are taught in Arabic, especially humanities and social sciences, which are specialities that require a theoretical and conceptual effort that can only be achieved by perfecting the language of research and teaching. This reflects negatively on the overall level of these majors, particularly on published scientific and research papers.

In this regard, Omar Barman says that "language should be a tool for development, and it will not be so, unless it produces knowledge that can be of benefit, especially since we are in the era of the knowledge economy that is based on knowledge investment and dissemination in a globalised

world... By using language, which means by using it as a development tool, we aim at proving its effectiveness in accelerating advancement, since it produces knowledge frameworks and intellectual contexts by itself."[5]

With regards to the relationship between language and development and cognitive advancement, one Arab theorist believes: "he who has the slightest amount of prudence knows that it is impossible for any society to establish a cognitive system without owning a linguistic system that is comprehensive, joint and deep-rooted with various dimensions in thought, spirit and creativity, because the language is the necessary immanent carrier of every development achievement."[6]

The hope of the Arab countries to produce and disseminate knowledge cannot be achieved without the participation of the Arabic language in this process. Moreover, this participation cannot be serious and meaningful without perfecting the use of the Arabic language in research, application and cognitive communication achieved with research institutions and others. It is enough to look at nations around us, nations that have been able to achieve a quantum leap in a short time, to see the status they have bestowed on their national languages, not out of closeness or compensation for an identity crisis, but because they were certain they could advance it and turn it into a serious cognitive tool.

Skill of Searching for and Processing Information

The arithmetic mean for this skill was 12.94. If we consider that the minimum score required to possess the skill is 10 out of 20, the overall performance of individuals in the sample participating in the test exceeded this threshold by nearly 3 degrees. Around 80% of the participants passed this threshold. However, the value of the standard deviation reflects a variation estimated at about 40% between the results of the students.

This result is worthwhile because it indicates that the surveyed university students had an acceptable level in information finding skills, which are considered essential to acquire knowledge and develop it. These skills are necessary in all majors because in the absence or weakness of the ability to search for information and process, analyse and evaluate it towards a particular goal, no student, regardless of the field of study and research, could take advantage of the huge amount of information available and employ it to upgrade their knowledge. Furthermore, this skill is the sole guarantor to establish the bases of a life-long learner society.

Table 5.9

Total Result of the Students in the Written Communication Skill in Arabic

	Arithmetic Mean	Standard Deviation	Lowest Score	Highest Score
Jordan	9.64	4	1.25	20
UAE	10.90	5.56	0	20
Tunisia	9.93	4.12	1.25	20
Morocco	9.22	5.59	0	20
Total Sample	9.78	4.76	0	20

The scores of the written communication skill range between 0 and 20.

The hope of the Arab countries to produce and disseminate knowledge cannot be achieved without the participation of the Arabic language in this process

The reason for the modest results is perhaps that humanities and administrative faculties do not significantly focus on research and development, and the adoption of subjects taught along pedagogic theoretical frameworks at the expense of practical applied education based on the preparation of research and the use of references. It could be argued here that the great pressure on the logistical capabilities of universities and the accumulative number of students in the majority of university faculties – in

the surveyed university students had an acceptable level in information finding skills, which are considered essential to acquire knowledge and develop it

Table 5.10

Total Results of Students in the Skill of Searching for and Processing Information

	Arithmetic Mean	Standard Deviation	Lowest Score	Highest Score
Jordan	12.50	5.04	0	20
UAE	13.74	5.14	0	20
Tunisia	12.57	4.90	0	20
Morocco	13.43	5.34	0	20
Total Sample	12.94	5.14	0	20

Scores for searching for and processing information range between 0 and 20.

particular in humanities and administrative faculties – is a clear reason for the outcome of the previous results.

If we go back to the studies that focus on this skill, such as PIRLS that is concerned with the evaluation of the reading skill, which is related to the acquisition of the literary experience to acquire information and use it, we find that the results of the latest session of 2011 revealed a large disparity between the participating countries. In the case of Dubai, "the students showed a relative and statistically significant strength in reading to acquire information and use it, and their achievement rate reached 488 points. They got 466 points in reading in order to gain literary experience." Comparisons showed that the performance of Emirati students was still behind that of their non-Emirati colleagues in reading, mathematics and science.[7] The overall results for the fourth class level in the participating Arab countries were below the international average. UAE (40th internationally and 1st among Arab countries with an average of 439) preceded Morocco (45th internationally and the last internationally and in Arab countries with an average of 310). Saudi Arabia, Qatar and Oman respectively ranked 41st, 43rd, and 44th (with averages of 430, 425, and 391). Jordan and Tunisia cannot be brought into this comparison because they did not take part in the study. Dubai and Abu Dhabi participated as part of the list of independent nine participants, with Dubai ranking 6th with an average of 476 and Abu Dhabi ranking 8th with an average of 429.[8]

Based on the results of this sample, one can say that Arab students still have a long way to go to acquire the skill of using technology

Table 5.11

Total Results of Students for the Skill of Using Technology

	Arithmetic Mean	Standard Deviation	Lowest Score	Highest Score
Jordan	11.08	2.45	3.08	17.95
UAE	13.12	2.64	1.03	18.46
Tunisia	11.56	2.29	4.62	17.95
Morocco	12.50	2.85	1.03	18.46
Total Sample	11.86	2.66	1.03	18.46

Scores for the skill of using technology range between 0 and 20.

Skill of Using Technology

The results of the total sample ranged between 1.03 and 18.46 with an arithmetic mean of 11.86 out of 20. This means that the overall performance of the individuals participating in the test sample is considered within the limits of the average. We note here that 22.8% of the students have not attained the minimum required level, while 10.2% got 15 or more. On the other hand, the value of the standard deviation reveals the homogeneity of the sample, which means the absence of any large variation between the students tested.

Based on the results of this sample, one can say that Arab students still have a long way to go to acquire the skill of using technology. We do not mean by this the daily normal use of communication tools, but rather the advanced use to search for knowledge, develop it and develop one's self. It is important in this context to emphasise that the use of technology is not considered an independent domain. The development of the youth capacities to search for information and knowledge, and understand, analyse and communicate this information and knowledge through advanced technologies is emphasised. Compared to the results stated in the previous Arab Knowledge Report (2010/2011) with regards to the possession of students in their last secondary class in the technology use skill, there was a relative improvement. In fact, the average of the total sample was 11 out of 25, with differences between the countries participating. As for the cases of the UAE and Jordan, we noted improved results for the former but regression for the latter.

These findings raise several questions, especially when viewed in light of the budgets allocated by Arab countries, including those that participated in the study, to import technologies and equip educational institutions with computers and their efforts to digitise the curriculum and lessons. They also participate in updating operations in an attempt to integrate education technologies into the teaching processes. The situation suggests an imbalance in the relationship

between the output and the size of the resources allocated for this purpose.

With regard to the situation in Jordan, this result is a real shock in light of the national trends toward the spread of the use of technology in various professional and scientific fields in the country. The results perhaps indicate the universities' weak interest in urging students to use technology academically, despite the good level of internet prevalence in the country and the relative freedom in the areas of its use. The same applies to the UAE, as the average it obtained in this study does not reflect the reality of its progress in this area. The UAE occupies advanced ranks in the Arab region and also on a global level in the report of 2013 on the Information and Communication Technology Development Index.[9] This confirms once again that the technology use skill certainly does not mean the simple use of social media and technical devices, but requires a real use of technology out of awareness of its importance and how to use it, benefit from it and turn the entire society into a knowledge society.

In the case of Morocco, the level that students showed in the technology use skill was questionable when compared to other results, such as the rapid increase of the rates of internet connectivity, particularly among young people. A report by the National Telecommunications Regulatory Agency noted that the internet bubble in Morocco never stopped growing year after year, as it was able to achieve a growth rate that exceeded 70% in 2012 alone, with 3.18 million internet subscribers until the end of December 2013, compared to 1.8 million in 2010. The third generation technology (3G) managed to acquire 81.4% of the internet bubble in Morocco, compared to 18.5% in 2010.

It should be noted here that the daily culture of using data, understanding information and gaining experience is considered more important than technical knowledge. Therefore, it is important for the individual to know the types of technologies and their different uses, operating systems and electronic software, but what is more important is how this knowledge is employed in the learning path, professional career or the scientific mentality that is developed through the conscious use of knowledge, and the technological culture that the individual acquires and which leads to excellence and perfection.

Skill of Using Foreign Language (English/ French)

We concluded that the overall performance of the individuals in the sample test was very weak, as the average of the sample did not exceed 7.09 points out of 20. It should be noted that the percentage of those who received zero was 28.6%, while 34.4% received scores of 10 or above, which indicates a lack of skills in English or French, both in understanding and writing. The value of the standard deviation revealed a significant variation of 85% between the sample individuals. While the UAE and Morocco results were to some extent acceptable (higher than 10), the results of Jordan and Tunisia were remarkably low.

The overall performance of individuals in the sample test in the skill of using foreign language was very weak

There is no doubt that these results are largely due to the system of secondary education and the status of foreign languages in this system. In Jordan, for example, despite the fact that English is taught from early grades in public schools, there is a general complaint about poor foreign language skills among students in public schools, as opposed to private school students. And since the vast majority of Jordanian university students come from public schools, university graduates in English language skills are in need of more support. In Tunisia, studies have revealed disparities between students in their ability to use foreign languages, depending on the social category and the specialisation. A study completed in 2013 found that students in the universities of Sfax and Sousse have good language skills or at least an above-average level.[10]

In Morocco, as is the case in Tunisia and the Maghreb countries in general, the French language is still the most widely

Table 5.12

Total Result for the Skill of Using Foreign Language

	Arithmetic Mean	Standard Deviation	Lowest Score	Highest Score
Jordan	4.07	5.11	0	20
UAE	11.58	4.20	0	20
Tunisia	4.09	5.15	0	20
Morocco	11.50	4.32	0	20
Total Sample	7.09	6.03	0	20

The scores of the skill of using foreign language range between 0 and 20.

used communicative means in the fields of economy, science and knowledge in general. Aside from the extent of appropriateness of this choice to the requirements of globalisation and the knowledge society, it is noted that the phenomenon of a "language collapse" in the proper use of French is no less dangerous than the expressive and communicative skills in the mother tongue, especially if we take into consideration the simplicity of the language in the exercise and the fact that it only required two skills: the general understanding of the text and writing a paragraph of a maximum of 100 words. This language decline can be attributed to the accumulation of linguistic weaknesses in earlier stages of education. For instance, a UNICEF study showed that the proportion of Moroccan students who got the required levels of mastering the French language did not actually exceed 2.2% despite the fact that the school materials are effectively taught in that language.[11]

This decline in the level of language skills among university students, in both Arabic and foreign languages, causes concern and even scepticism towards the achievability of the ambitions of the Arab countries with regards to the transfer and localisation of knowledge

This decline in the level of language skills among university students, in both Arabic and foreign languages, causes concern and even scepticism towards the achievability of the ambitions of the Arab countries with regards to the transfer and localisation of knowledge. To what extent can students properly comprehend the materials being taught, not to mention the ability to use foreign references or engage in scientific research almost entirely dominated by a different language? With which tool will this ambition be achieved? If university students, who are supposed to form this critical mass needed in the process of the production of knowledge, lack the ability to communicate in their mother tongue and are unable to understand the language of others and use it to communicate with other cultures and to get knowledge, how will knowledge be transferred and localised in their own countries?

In Morocco, for example, despite the attention given to the French language (followed by English), the assessment of academic achievement in Morocco for 2008 revealed a weak outcome, as the average academic achievement in the French language ranged between 28% and 35% in the primary and secondary stages.[12] In this regard, the Supreme Education Council in Morocco stressed during a conference organised in 2009 "that the problem of teaching and learning languages is considered one of the fundamental issues of the educational system with direct internal and external impacts". It added that the failure to acquire the basic language competencies and skills required in accordance with the objectives set was due to the confusion and the blurred long-term strategic vision, especially with regards to the teaching of languages in Morocco.[13] The report of the conference concluded that "the control of linguistic competencies and the quality of teaching them is central to achieve equal opportunities, access the knowledge society and technology, and achieve comprehensive development in its various dimensions and levels."[14]

In the Levant and the Arabian Gulf, the English language is of utmost importance and in some countries, this importance has even exceeded that of the Arabic language and is almost becoming the first language of communication. In contrast, studies and reports indicate a decline in the level of possession of the English language among young school and university students. In a seminar held in Saudi Arabia in 2011 (Seminar on Foreign Language Teaching and Cultural Globalisation) to discuss the issues of teaching foreign languages in the Kingdom, participants pointed out "the absence of a clear vision for teaching foreign languages in our countries, because choosing the foreign languages and identifying the

ways of teaching and learning them is still subject to random contributions, individual unregulated efforts, unplanned initiatives, as well as attempts that lack scientific rooting".[15]

Analysing the Differences between the Cognitive Skills

The study of the results recorded for the various targeted skills reveals the following:

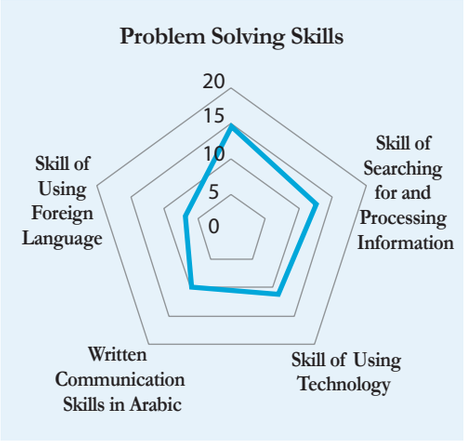
1. There are positive correlations between all targeted skills, which means that they serve each other. The highest correlation was between the use of technology skill and foreign language skill, which is a logical result in light of the English or French language dominance in technology.
2. There are statistically significant differences between all the skills. In descending order of skills most possessed: problem-solving, information processing, technology use, writing communication in Arabic, and foreign language (English or French).

However, these differences lose some of their meaning if we take into account the interactive nature of these skills. Despite their relative independence, these various skills do not operate in a separate linear manner but in an interactive circle manner, which means that the degree of possession of a certain skill will necessarily affect the extent of the possession of the other skills. Therefore, the weakness of communicative skills, in Arabic or in a foreign language – considered essential inputs to knowledge – can result in priority being given to the practical-applied skills at the expense of the theoretical-analytical skills that can only be achieved with a mastery of language.

In this context, the reports of the Organisation for Economic Cooperation

Figure 5.2

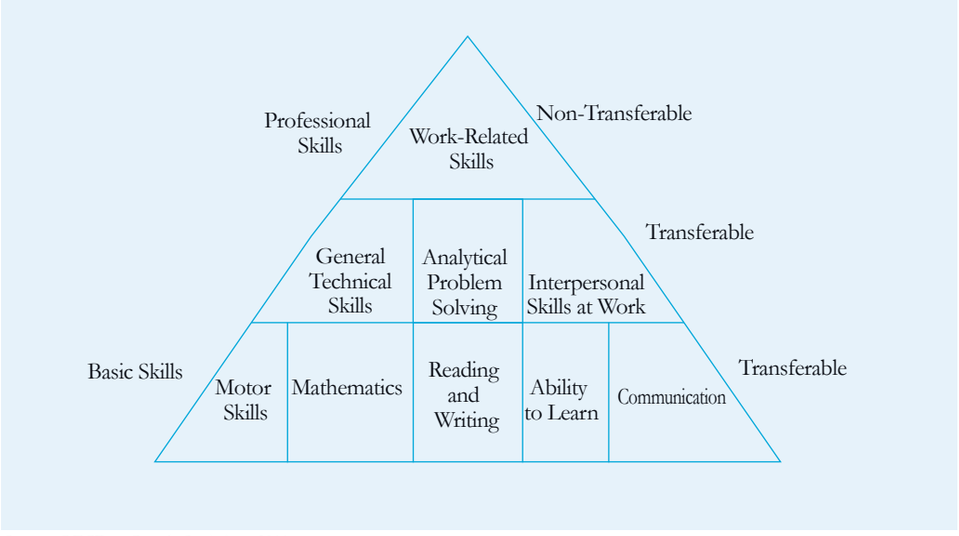
Students' Results for Cognitive Skills



Skills constantly need updating and developing in light of scientific and technological advancements and in accordance with the requirements imposed by the nature of each professional activity

Figure 5.3

Skills Pyramid



Source: OECD & Canada Statistique 2011.

and Development (OECD) note that the weakness of basic skills among the category of adults is usually paired with weaknesses on economic and social levels, as people who have a certain level of literacy, numeracy and problem-solving skills (at least the third level on the skills ladder, which consists of 5 points according to the OECD study) are more likely to get a stable full-time job and ensure respectable salaries, join social organisations and participate in social life.[16]

On the other hand, studies distinguish between three levels of skills, pending on their type and ability to be transferred:

- At the base, we find the "basic" skills that everyone is supposed to have, regardless of speciality and area of work. These skills are: communication, ability to learn, reading and writing, mathematics and motor skills.
- At the second level, we find the professional skills that can be transferred, namely: personal and inter-personal skills, analytical problem solving, and general technical skills.
- At the top of the pyramid, we find the professional skills that cannot be transferred because they are specific to certain work domains but not others.

It should be noted that the process of acquiring these skills does not end when the individual finishes educational and obtains a diploma. Skills constantly need updating and developing in light of scientific and technological advancements and in accordance with the requirements imposed by the nature of each professional activity. From here comes the importance of what can be considered the mother of all skills, "learning how to learn", as this is the only guarantee for the establishment of the rules of a "learning" society. As prospective studies have revealed with regards to a constant flow of new knowledge and the development of tools, formation and enabling will not be limited to a particular activity that could become valueless in the short term. The demand will rather be directed towards the need for continuous rehabilitation. The culture of updating will impose itself on scientific diplomas a deadline, after which they can become expired or void, in order to resist the rigidity of cognitive skills and respond to the continuous need for new skills.

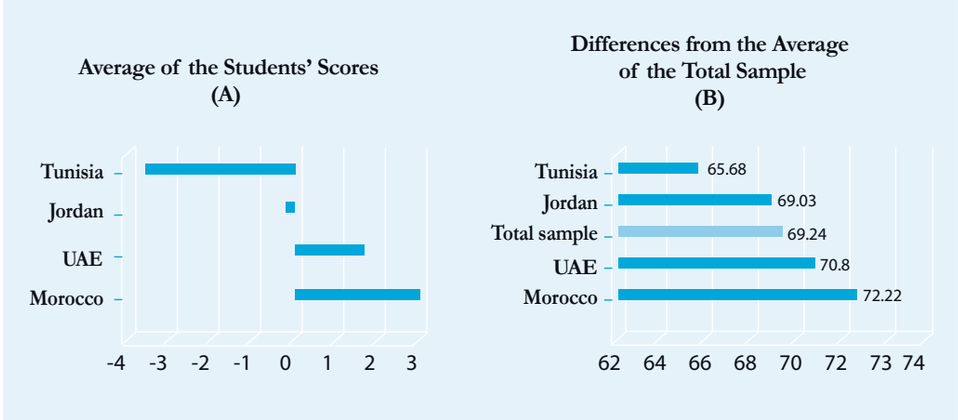
Whatever the image in the Arab countries is, no one can deny today the existence of deep humanitarian and social concerns with regards to values, amid the rampant phenomena of infighting, rejection, injustice, discrimination and other behaviours that attest to the disruption of the human values system

Values

The average score of the students on the scale of values was 69.24 out of 100. Nearly 92% of them got 50 and above, 46.3% of these got 75 and above. This indicates that the majority of the students demonstrated their possession of almost all the values studied. The value of the standard deviation indicates a variation estimated at 30% between the members of the sample. If we compare this result to that of the previous Knowledge Report, we find a remarkable

Figure 5.4

Results for Values by Country



similarity in terms of the higher scores in values compared to those in skills and in terms of the order of participating countries. Morocco maintained the lead, followed by UAE then Jordan.

However, it is important to look at these results in all countries with much caution, because we are talking here about what the students stated, and this may not necessarily match the values they really possess or practice, especially when viewed in light of studies that reveal a decline in human and moral values and the growing tendency towards violence, not only in the Arab region, but the entire world. For example, French researcher Daniel Martin issued in 2009 a study entitled "Distrust Society: How the French Model Society Is Destroying Itself". In the study, he highlighted through observation, numbers and evidence a decline in moral values in France, such as the loss of the meaning of individual commitment, the loss of the sense of duty, and other moral and social values.[17]

Whatever the image in the Arab countries is, no one can deny today the existence of deep humanitarian and social concerns with regards to values, amid the rampant phenomena of infighting, rejection, injustice, discrimination and other behaviours that attest to the disruption of the human values system. There are increasing calls for agreements, organising seminars and conferences, and issuing declarations calling for the promotion of dialogue, understanding, harmony and cooperation between nations, religions and cultures, as well as the protection of cultural diversity.[18] The aim is to build a new culture devoted to dialogue, citizenship, respect for difference, tolerance, justice and other supreme human values required to attain real peace between individuals, peoples, nations and civilisations.

In this regard, the responsibility of educational institutions will increase when it comes to building a value system for young people through school projects and education programmes. These are considered the most important vector of values; interaction and dialogue between various educational parties

Table 5.13

Total Results for Students in Terms of Values

	Arithmetic Mean	Standard Deviation	Lowest Score	Highest Score
Jordan	69.03	9.96	0	92.31
UAE	70.80	27.45	0	100
Tunisia	65.68	31.77	0	95.38
Morocco	72.22	7.81	30.77	92.31
Total Sample	69.24	20.50	0	100

The scores of the values range between 0 and 100.

and educational practices geared towards the introspection of human values rather than teaching by instruction based on guidance and preaching. In this case, values can become mere slogans recited when needed, without being translated into concrete behaviours that manifest themselves even in the absence of supervision and punishment.

Among the events that countries and institutions have organised to spread human values and standards, we recall, for example, a Saudi initiative to make "Curriculum Schools" adopt a project to build and enhance values as an important and essential principle to achieve its educational and teaching mission. Another example is the "local development management in Qatar charity" initiative, which focuses on teaching, spreading and qualifying individuals with supreme values, especially in the minds of the new generation. It is also worth mentioning the initiative of the Arab Thought Foundation, in conjunction with the UNESCO Regional Bureau for Education in the Arab States in Beirut, represented by "the dialogue and social cohesion project through the support of common human values" (murals), seeking to raise awareness about the role of the human values system in determining attitudes and behaviour at the regional, national and local levels.[19]

The responsibility of educational institutions will increase when it comes to building a value system for young people through school projects and education programmes

Effectiveness of the Youth

Before revealing the results, we point out that the meaning of "effectiveness" intended in this report is the actual and prolonged participation of respondents in one of the relevant investigated fields (cultural,

economic, social, political). This effectiveness is the outcome of interaction between opinion and behaviour, in the sense that effectiveness is a stance based on a voluntary behaviour that is thought about, and not a spontaneous or implicit behaviour. In this sense, cultural effectiveness has been measured through questions aimed at identifying the culture of the students, such as questions relating to historical events in their home countries and the region, the geographical nature and the titles of books they read, whether Arab or foreign, in addition to questions about the cultural activities practiced and their quality. Cultural effectiveness was measured based on the same concept, using questions similar to those asked regarding participation in volunteering and community activities and the types of activities. Economic effectiveness was measured with regards to participation and working for a fee or for any project.

For ease of comparison, the scores of the different types of effectiveness were unified. Types were measured on a scale ranging between 0 and 1; the closer the value was to 1, a stronger degree of effectiveness was indicated.

We note that the level of youth effectiveness varies from one field to another; it was the weakest in political participation and the highest in cultural effectiveness, except in the case of UAE which was best in economic effectiveness. This suggests that the sample of young people surveyed has an acceptable level of general culture, which means they know the properties related to their countries (historical and geographical properties and the literary and art figures), and their level is weaker in relation to their activities and social participation. It should be noted that there is a very large disparity between the respondents, as reflected in the value of the standard deviation that exceeded in some cases the value of the arithmetic average.

Although the cultural effectiveness index seemed relatively better than the rest of the efficiencies, this should not prevent us from noticing that the region (governments and peoples) has been witnessing a significant decline in the interest in cultural aspects, especially in the last years. There is no doubt that the situation in the region on political, economic, social and other levels within the framework of the so-called "Arab Spring" has played an important role in this decline, due to mounting security, economic and social stability concerns.

In relation to social effectiveness, studies generally agree on the reluctance of young people to do volunteer work, and on the immaturity of the volunteering culture partly due to social habits, coupled with the weakness of the culture of development and partnership concepts and of associations in community development in Arab societies. A field study conducted by the Arab NGO Network for Development (ANND) showed that the Arab youth aged 15 to 30 years were the least interested groups in volunteer work, compared with their counterparts in other countries (in Canada, for example, the proportion of active participation in volunteer work is 91% of the population aged over 15 years). A World Bank report released in 2012 also showed the weakness of direct participation of the Moroccan youth in public affairs.[20]

The weakness of political effectiveness – organised political participation regulated by various political parties and movements and with varying degrees of trust – seemed at odds with the degree of interest in political affairs, as reflected by the Arab movement, the so-called Arab Spring, in which young

We note that the level of youth effectiveness varies from one field to another; it was the weakest in political participation and the highest in cultural effectiveness, except in the case of UAE which was best in economic effectiveness

Table 5.14

Effectiveness Levels among Students

	Jordan	UAE	Tunisia	Morocco	Total Sample
Cultural Effectiveness*	0.65 (0.17)	0.58 (0.25)	0.60 (0.17)	0.54 (0.24)	0.60 (0.21)
Social Effectiveness	0.38 (0.31)	0.30 (0.32)	0.24 (0.31)	0.33 (0.32)	0.32 (0.32)
Economic Effectiveness	0.38 (0.48)	0.60 (0.48)	0.42 (0.49)	0.41 (0.49)	0.43 (0.49)

* The arithmetic mean from 1 is directly followed by the standard deviation in brackets.

people played a pivotal role, through demonstrations and marches and through the internet and social networking sites. However, the significant role of the youth in changing the stagnant political situation quickly retreated, as they found themselves playing marginal organisational roles that did not differ much from what was available to them before the "Arab Spring". In a few months, the "revolutionary youth" powers that were behind the events turned into an object of tug-of-war between major parties and groups of weak influence. The youth's powers were unable to produce basic documents that showed their position and priority choices, either during or after the outburst of the "Arab Spring".

With regards to economic effectiveness, the index calculated for this sample confirmed the weak involvement of university students in activities with a financial return. This is not surprising, in light of the worsening unemployment crisis among graduates in the Arab region as well as students who have not yet graduated. We have already shed light on this issue in its various manifestations, causes and repercussions in the previous chapters.

In general, it is necessary to emphasise that the effectiveness of students in any field depends – in its pace and forms – on the level of awareness and understanding available to them through the family or the society in its different institutions, such as schools, universities or media outlets. It should be noted here that the weakness of youth participation in public life in all its aspects does not diminish the importance of participation through irregular and unorganised political economy values. From this perspective, the effectiveness of virtual social networks is greater than classical social ties, as political and social efficiencies can be measured through indirect participation via forms of electronic mobilisation (Facebook, for example).

Citizenship and Belonging

The knowledge of the foundations of citizenship among young people included in the study seems limited, as the arithmetic mean was below 0.5, which is the minimum acceptable level. When we look at the two extreme ends of the scale, we notice that the percentage of those who got the lowest score (0) was 14.2%, while only 2.2% scored the highest (1).

Table 5.15

Scores of Students in Citizenship and Belonging

	Arithmetic Mean	Standard Deviation	Lowest Score	Highest Score
Jordan	0.43	0.24	0	1
UAE	0.53	0.28	0	1
Tunisia	0.42	0.30	0	1
Morocco	0.45	0.27	0	1
Total Sample	0.45	0.27	0	1

There is a link between the aspects of effectiveness we already discussed and the issue of citizenship. Citizenship has several integrated and interdependent dimensions, including the political (relating to rights and freedoms), economic (relating to the distribution of wealth and production), social (relating to social justice), and cultural dimensions (the protection of the language and cultural particularities of individuals and groups). While many studies have confirmed the importance of these dimensions, they give priority to the political dimension, stressing that the political realities of Arab countries do not serve the sense of citizenship.[21] If we accept the validity of the aforementioned, we understand the reason behind the weakness in the index of assimilation of the concept of citizenship among surveyed young people.

With regards to the sense of belonging, results revealed by current research indicate the same direction shown in other studies, such as the fifth edition of the annual survey by Asda'a Burson-Marsteller in the Arab world.[22] The survey noted that the region's youth were increasingly taking pride in their Arab national identity, in conjunction with their increasing adoption of contemporary values and ideas, especially since the events of 2011.[23]

The effectiveness of virtual social networks is greater than classical social ties, as political and social efficiencies can be measured through indirect participation via forms of electronic mobilisation (Facebook, for example)

Openness and International Intercommunication

Table 5.16

Scores of Students in Openness and International Intercommunication

	Arithmetic Mean	Standard Deviation	Lowest Score	Highest Score
Jordan	0.30	0.15	0	1
UAE	0.28	0.16	0	0.83
Tunisia	0.24	0.16	0	0.83
Morocco	0.26	0.15	0	0.92
Total Sample	0.27	0.16	0	0.92

It seems that the level of youth openness internationally is very weak, and the average degree of this variable did not exceed 0.30 out of 1, with 83.6% of the sample scoring below 0.5 out of 1

It seems that the level of youth openness internationally is very weak, and the average degree of this variable did not exceed 0.30 out of 1, with 83.6% of the sample scoring below 0.5 out of 1. This result indicates a significant shortfall among young respondents in their involvement in organisations and activities of regional or international nature, their engagement with people from outside their own country and their participation in scientific or cultural competitions with these people.

This situation is considered a "normal" result and outcome of the shortfall we already highlighted, especially with regards to the linguistic and technological competencies and skills necessary for openness and communication. Young people are increasingly attracted by social networking sites and this is largely due to the fact that they lift the language barrier and adopt symbols and other methods that are liberated from the shackles of languages. Social networking sites are dominated by the exclusive use of hybrid languages that mix and often use the Arabic and Latin alphabet, along with numbers and symbols that compensate for the absence of the vocal sounds exclusive to the Arabic language.

Among the factors that have contributed to low levels of openness among university students is the issue of academic mobility not getting the focus it deserves, by considering it an additional academic option for international and exchange students, especially if the quality requirements are available and the bureaucratic hurdles are reduced. From this standpoint, Arab universities remained almost isolated from the regional and international space and did not benefit from the academic mobility that has become, in the last two decades, a consistent and strong trend, and even an additional financial resource in the most popular universities. In fact, according to the UNESCO 2012 estimates, the proportion of foreign students enrolled in Arab countries is around 26% of the global number of students studying outside their home countries, and so is still low compared with Central and Eastern Europe (37%), for instance.[24] This is evidence of the weakness of university relations with the outside world, despite the introduction of new global programmes to educational levels, especially at the graduate level, in a number of Arab countries, including Jordan.

Box 5.1

Social Media and the Knowldge Society

During the Arab Strategy Forum (ASF) organised by the Mohammed bin Rashid Al Maktoum Foundation in Dubai in March 2013 under the title "Social Networks and Knowledge Society," participants stressed the importance of such networks and their effect on the youth, with calls to harness them for the service of the Arab youth, to employ them to move to knowledge societies, deepen the values and ideas of good citizenship and transfer the cultures of openness to the Western world. The ASF warned against these networks and the risks of their transition into channels to pass ideas that are destructive and damaging to young people and their countries.

Source: UNIM 2013.

In the absence of this academic mobility, modern means of communication remain important alternatives to communicate with the world. In this regard, the field research revealed that Facebook comes at the forefront of social networks used in Jordan, Tunisia and Morocco, while the use of Twitter takes the lead in UAE. The topics related to personal relationships were the most discussed by young people on these networks, while those related to knowledge came to 13.5%. This may be a sign of a weakness in focusing academic programmes on the issues of scientific and

cognitive communication with the outside world and with the latest items displayed or shared on social networks. This increasing use of social networking sites – compared to the regression recorded in the knowledge of modern technology and its use for research purposes – makes us question the efficacy of the policies governing the actual use of modern technologies in higher education and the extent of its readiness and ability to provide the conditions for the efficient integration of the youth in the transfer and localisation of knowledge.

Analysis of the Results According to the Gender and Specialisation Variables

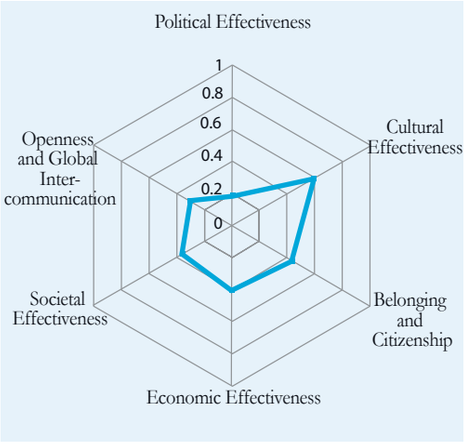
- With regards to gender, the significant differences between male and female students emerged in the following skills:
  - The writing communication skill in Arabic for the benefit of female students
  - The skills of technology use and the English language for the benefit of male students

These results reinforce the same trend that was revealed by the latest session of the PISA study in 2012. The study revealed a clear superiority of female students from the 15-year-old category in all fields, especially in Jordan and Qatar, and to a lesser extent in the UAE, and finally in Tunisia.[25]

With regards to the rest of the variables, female students scored better results in the variables of values and citizenship, while male students scored better in the variables of economic effectiveness, openness and political effectiveness. The trends of these results reflect the effect of the social and economic structure of the Arab society, especially when it comes to cultural, political and economic openness. The structure of the population characterised by its conservativeness and the traditional division of roles makes the contribution of the male youth category in the cultural, political and economic life greater than that of female students, as these activities are linked to efficiencies that go beyond the university community.

Figure 5.5

Comparison between the Various Components of Youth Effectiveness



- With regards to the specialisation, there are significant differences between the students, as follows:
  - In the problem-solving skill, there were statistically no significant differences;
  - In the communication skill in Arabic, the students majoring in management scored better than the students studying all other majors;
  - In the information processing skill, the students majoring in management scored better than the students studying all other majors;
  - In the use of technology skill, the students majoring in engineering scored better than the students studying all other majors. The students majoring in medicine scored better than students majoring in humanities, and so did the students majoring in management;
  - In the use of foreign language skill, the students majoring in engineering scored better than the students studying all other majors. The students majoring in medicine scored better than students majoring in humanities, and so did the students majoring in management.

Significant differences have emerged in the variable of values, in which engineering students scored better than management students; in the two variables of economic

Female students scored better results in the variables of values and citizenship, while male students scored better in the variables of economic effectiveness

and cultural effectiveness, in which management, engineering and humanities students scored better than medicine students; and in the variable of openness, in which engineering students scored better than management, medicine and humanities students. Meanwhile, there were no significant differences in the variables of political and social effectiveness.

When comparing between the various components of the youth effectiveness, we noted differences of varying importance, as shown in Figure 5.5:

Some of these results call for additional studies on the factors and reasons that lead to them, their significance and what education policymakers should do to address them.

The education process in most Arab universities depends on the requirements of the education system and books that teachers provide, does not encourage students to look for other references

Youth's Opinions on the Transfer and Localisation of Knowledge and the Necessary Enabling Environments

We notice from Table 5.17 that more than 60% of the student sample in the four countries concerned with the study (71% in Morocco) were not familiar with translated books and references related to their university subjects. This may be due to the fact that university libraries do not hold these books and references, or to the students' desire to check the original sources, although the level of their performance in the foreign language skill makes us question the extent of their ability to understand and assimilate the content in the original language. Moreover, the fact that the education process in most Arab universities depends on the requirements of the education system and books that teachers provide, does not encourage students to look for other references.

We can add to this the fact that the youth are unaware of the importance of the sciences and knowledge in written form and their lack of interest in getting to know the culture of other societies. Educational institutions are also somewhat not fulfilling their desired roles to encourage students to research, study, explore what is being written in these books and consider the familiarity with translated foreign books as part of the education process.

This finding is consistent with the study prepared by the Ministry of Culture, Youth and Community Development in Dubai[26] on the prevailing cognitive trends among young Emiratis in the age group between 18 to 23 years. The study demonstrated that young people are reluctant to go to public libraries and look for public knowledge.

In Tunisia, this situation seems linked to two issues: The first relates to the seriousness of available options relating to scientific translation, because production remains weak despite the work achieved by the National Foundation for Translation. The second issue relates to the extent students are seeking scientific gain outside the framework of formal courses, which are often in French, with the exception of courses in humanities and social sciences. However, all of these factors cannot make us ignore another problem that is no less important in driving us away from translated books; the "poor" translation or the different translations of terminologies – the absence of a uniform glossary for each speciality.

Table 5.17

Students' Familiarity with Translated Books That Are Relevant to Their Major

	Jordan	UAE	Tunisia	Morocco	Total Sample
Yes	39.3	28.1	31.1	28.7	32.8
No	59.2	65	56.9	71.3	62.6
No Answer	1.5	6.9	12	0	4.6

The difference in the usage of terminologies between the Maghreb and Mashreq countries is an issue that has been raised on more than one occasion, as it has had a great impact on the translation and transfer of Arabic content. The reasons behind the differences in terminology between the Maghreb and the Mashreq and the conflict arising in this aspect have also been discussed. Researchers have called for a policy for all Arab countries to codify

Table 5.18

Students' Opinions on the Usefulness of Translated Books for Them (%)

	Jordan	UAE	Tunisia	Morocco	Total Sample
Compensated for a Great Shortage in Arabic References	26.0	21	37.9	27.7	26.3
Added to Available Arabic References	44.3	55.9	44.9	44.1	45.7
Benefited Me but Were Not Necessary	26.8	19.6	25.2	23.1	24.7
Did Not Benefit Me	2.9	3.5	2	5.1	3.3

the language to keep up with international progress in science. As mentioned earlier, and as one scholar confirmed, "the Arabic language cannot have a strong base, unless it is a scientific language, in which the researcher and the learner find something to learn. In addition to the realisation of the other related supporting circumstances, this matter can only be mastered through focusing on the translation of science works, whether humanitarian or basic sciences. In fact, science works to bring back words that became confined to dictionaries and that no one remembers… this way Arabic words are brought back to their real status of usage and circulation".[27]

According to the results listed in Table 5.18, about 45% of the students considered translated books and references a mere aid to what they already gained from Arabic references. If we add to this proportion the students who said they found translated references useful but not necessary, we conclude that the vast majority were content with Arabic references. One of the following two hypotheses can explain this situation: the first is that these translated references are not as widely available as the Arabic references, urging students to depend more on the latter. The second hypothesis is that students are not comfortable using foreign languages, as we already mentioned. Moreover, benefiting from these books and references was linked to the language of teaching. There is no doubt that there are many good translated books and references, but students tend to be reluctant to check them because they require more effort in translating the content when preparing presentations, conducting research or answering in French or English during exams.

Whatever the reason is, the conclusion remains: students are not drawing knowledge from its sources and in its original language, and this is, in itself, considered an obstacle to the transfer and localisation of knowledge, especially in the absence of an organised and forethought translation project, within the framework of a vision for the localisation of knowledge. In this context, it is necessary to praise the role of a number of bodies concerned with translation issues, such as the pioneering and active Turjuman Series[28] in the Arab Centre for Research and Policy Studies; the National Council for Culture, Arts, and Letters in Kuwait, the National Centre for Translation in Egypt and the Arab Organisation for Translation in Lebanon. These centres have enriched Arab libraries with a great number of translated reference books in the fields of humanities and social studies in general, and in economic, social, political and cultural sciences in particular. There is still an urgent need for other similar initiatives that enrich the Arabic library with useful publications in the various fields of knowledge.

Students' Opinions of on Academic Research

Looking at the proportions of those who said they had conducted research or presentations since they started their university studies, as indicated in Table 5.19, we notice that they seem to constitute an acceptable proportion in general, with the highest being in UAE followed by Jordan. This proportion remained at around 50% in Morocco and Tunisia. However, we must not forget that more than 30% of the students answered "no" (i.e. they never conducted research), with the exception

It is unreasonable that a student finishes university education without conducting research work or getting trained in preparing presentations and delivering them in public

Table 5.19

Preparing Research or Presentations since Starting University Studies (%)

	Jordan	UAE	Tunisia	Morocco	Total Sample
Yes	65.5	79.3	52.3	54.5	61
No	33.0	14	35.6	45.5	34.4
No Answer	1.5	6.7	12.1	0	4.6

of the UAE students. This is surprising, because whatever the specialisation is, it is unreasonable that a student finishes university education without conducting research work or getting trained in preparing presentations and delivering them in public. Moreover, if these answers were true, they would show that university education is still book-based, relying on lectures and storing knowledge in a consumptive manner that does not contribute to the graduation of individuals who are able to think freely and search for information, criticise it and employ it to produce knowledge.

It should be noted that the preparation of research or presentations depends on the system in place at the university and on the nature of the major. In the early stages of university education, the work prepared is often closer in nature to reports and it does not reach the level of scientific research with a comprehensive scientific method, especially in majors that do not offer lessons about the types and methodologies of scientific research. The majority of the research is in the form of a collection of some previous research or studies, whether from books and magazines or through searching via technological means. The researcher's personality and point of view on the topic being discussed does not appear in the research or reports, so at the end of the day, the researcher does not acquire any significant additional knowledge.

As indicated in Table 5.20, it seems that the path of academic research is full of difficulties, according to the students, notably with regards to the weakness of the scientific training they receive, the scarcity of financial resources and the lack of references. This indicates that researches and presentations are often perceived as a mere target to fulfil university requirements rather than a way to build real knowledge. The answers of the students were interesting in that a large proportion confirmed the lack of references, which might not be true, at least not in the universities where the survey was conducted. Some of the faculties in UAE, for example, have special libraries, depending on the nature of the major. This provides students with the opportunity to borrow books and references or obtain them through library websites.

As indicated in Table 5.20, it seems that the path of academic research is full of difficulties, according to the students, notably with regards to the weakness of the scientific training they receive, the scarcity of financial resources and the lack of references

The answers of the students probably stem from the fact that they do not know what books and references are available in the libraries, or do not have the bibliographic research techniques. However, it must be recognised here that many university libraries have not yet acquired modern technologies and are still relying on manual search techniques in accumulated records, so it is not surprising to see students avoiding them, as they know that internet search engines can provide them with what they need with less effort and shorter time.

Table 5.20

Students' Opinions on the Type of Difficulties They Encountered in Research (%)

	Jordan	UAE	Tunisia	Morocco	Total Sample
Difficulties Related to the Weak Scientific Training we Receive	37.7	21.9	33.9	38.2	33.9
Difficulties Related to the Weak Orientation and Guidance by the Supervisor	24.9	20.9	24.2	37.0	31.6
Difficulties Related to the Scarcity of Material Resources	33.3	14.8	30.7	32.9	29
Difficulties Related to the Weak Infrastructure (Libraries, Laboratories…)	25.2	9.2	35.8	23.2	24
Difficulties Related to the Lack of References	24.6	43.9	37.9	35.0	33.7
Other Difficulties	8.2	8.3	9.1	7.5	8.2

Students' Opinions on Partnerships and Agreements between Universities and Other Institutions

As for student knowledge of partnerships and agreements between their universities and other institutions, we notice a split in the answers as demonstrated in Table 5.21. While around half of the students in Jordan and the UAE stated that they are aware of these partnerships, the majority in Morocco and Tunisia tended to deny that they were aware of such agreements.

Table 5.21

Students' Awareness of Partnerships and Agreements between Their University and Other Institutions (%)

	Jordan	UAE	Tunisia	Morocco	Total Sample
Yes	56.9	48	26.3	28.4	40
No	42.6	44.7	61	71.6	55.5
No Answer	0.5	7.3	12.7	0	4.5

In all cases, the percentage of students who were not aware of partnerships and agreements was worth taking into consideration, whether their unawareness stemmed from the absence of such partnerships and agreements or from the fact that this information was not shared with them. If we take Morocco for example, we find that 71.6% of the students claimed not to be aware of these partnerships, which goes against the 2003 university reform, that considered partnerships as an indication of the openness of the university on its economic and cultural surroundings, a criterion for its national and international classifications, as well as a key indicator to assess its level and effectiveness.[29] Thus, this rate reflects a weakness in universities' institutional communication, which may be due to the lack of continuous updating of websites. These results are interesting, because part of the scientific research and studies is funded by grants and partnerships with foreign universities, international organisations and contractors from the national and international private sector. Whatever the reason may be, it indicates a lack of comprehensive utilisation of the benefits that a university's openness to other institutions (academic, economic and other institutions) can bring, with regards to the formation of students and their preparation for active life.

Intercommunication between universities and institutions, notably industrial and financial ones, is indispensable for each country seeking to produce knowledge that will benefit the economy and society. This requires improving interaction between external institutions and researchers, boosting confidence in scientists and researchers and in the findings, creations and innovations that they come up with. It also requires issuing the necessary legislation to ensure the funding of university laboratories, applying a number of regulatory procedures, ensuring they are of a high degree of effectiveness, and motivating the capital owners to invest in the applied scientific research. Thus, the results of research, discoveries and scientific innovations turn into an important economic wealth.

Intercommunication between universities and institutions, notably industrial and financial ones, is indispensable for each country seeking to produce knowledge that will benefit the economy and society

We notice that student knowledge of partnerships and agreements was limited to two parties: first, foreign universities and second, research centres. Economic institutions follow in a relatively far third rank, while research laboratories abroad occupy the last rank. This is an actual reflection of reality; as at this stage of higher education, opportunities of openness to research laboratories, notably abroad, is not available due to the limited space allocated for research at this stage. As for the openness to economic institutions, it is often reserved for some majors and often takes the form of temporary training to complete an educational unit. It also misses in most cases the guidance and serious follow-up that ensure real benefit.

Partnerships and cooperation agreements between universities and other institutions and the establishment of companies and partnerships within the universities are the fundamental requirements for building the knowledge economy and sustainable development. In addition to their

Table 5.22

Students' Awareness of Institutions That Have Partnerships and Agreements with the University (%)

	Jordan	UAE	Tunisia	Morocco	Total Sample
Other Universities within the Country	49.5	41.4	33.5	39.5	43.5
Foreign Universities	59.6	55.8	66.2	64.3	61
Economic Institutions	20.3	41.4	15	16.5	22.1
Research Centres	55.9	48.6	41.7	41.6	49.5
Laboratories outside the Country	10.4	13.1	19.9	11.3	12.7
Other Institutions	5.4	6.8	3	2.7	4.7

Many specialised youth organisations and institutions concerned with youth affairs have emerged in many Arab countries

contribution with the government sector in funding university projects, the revenues of these partnerships and companies may constitute a financial and services pillar that contributes to solving a national problem or meeting basic community needs, as well as creating job opportunities. In this context, we mention the companies that were established within the universities and that launched products successfully internationally: Gatorade, Genentech, and RIM.

When it comes to student awareness of the existence of youth institutions concerned with the transfer and localisation of knowledge, the result looks interesting, as it indicates the seriousness of the implications of preparing the youth to contribute in the transfer and localisation of knowledge. In fact, more than 70% of young respondents denied knowing any youth institution concerned with the transfer and localisation of knowledge, and this confirms one of two following cases: either these institutions do not exist, or they are not effective in the required form in reality, or they do exist but young people are not aware of them. All these cases suggest a failure in the drafting or implementation of an effective policy to activate the role of the youth and their institutions in the transfer and localisation of knowledge. It is noticeable that the last two decades have witnessed a significant increase in youth institutions, especially following the events in the Arab countries in 2011. Many specialised youth organisations and institutions concerned with youth affairs have emerged in many Arab countries. However, those who follow this movement will notice that many youth institutions are still facing difficulties related to their establishment or to enhancing their independence, in addition to funding difficulties and the challenge of promoting the professionalism of the staff working in these organisations.

In relation to the type of services provided by the youth institutions in the four countries, the majority of the answers were distributed between training and guidance/consultative services in UAE, Jordan and Tunisia (with varying ratios) and between advisory and training services in Morocco. It is to be noted that the question was on the services provided by external institutions, and not those offered by universities to students enrolled in them, such as health-related services, transportation, housing and others.

Table 5.23

Students' Awareness of the Existence of Youth Institutions Concerned with the Transfer and Localisation of Knowledge (%)

	Jordan	UAE	Tunisia	Morocco	Total Sample
Yes	35.2	23.5	18.2	17.2	24.3
No	63.9	68.8	68.9	82.8	70.9
No Answer	0.9	7.7	12.9	0	4.8

As they are the assets of the future and in order for them to be a truly productive capacity and active contributors in the production of knowledge and the achievement of development, young people need good guidance that provides them with psychological, social and academic services and assistance that enables them to overcome difficulties and develop their potential to achieve compatibility in all its forms. That is why we see universities all around the world keen to establish centres for guidance and counselling in order to provide organised care, according to well-thought-out and rational principles and foundations. These efforts must be strengthened, in order to expand the circle of interest of these institutions and organisations to include services related to revealing creative capacities, providing necessary support for pioneer research projects and enabling outstanding students, which will help them achieve excellence and strengthen their competitiveness.

Box 5.2

The Arab Youth Observatory

Arab countries are witnessing the prevalence of many organisations and institutions targeting the youth, such as the Arab Youth Observatory, which was established under the umbrella of the Arab League, as part of the implementation of the decision of the Arab Kings and Presidents Summit in Khartoum in 2006 and the efforts to activate the strategic directions of the Arab Declaration that called for youth empowerment and strengthening their participation in development efforts. It is to be noted that many officials and representatives of national, regional and international governmental and private institutions and organisations working with the youth in the Arab region have contributed to preparing and approving this Arab Declaration. The declaration is intended to serve as a major guide and reference framework in the preparation of regional and national policies aimed at empowering young people. As stated in the declaration, the observatory aims to: (1) collect and disseminate reliable, modern and significant data concerned with the youth at the Arab regional level and establish a regional comprehensive and renewable database; (2) develop an Arab vision to empower the Arab youth and activate their participation in the development population strategies and policies; (3) support the capacities of the national youth institutions and organisations concerned with youth empowerment and the development of youth leadership capabilities; (4) and activate the dialogue between various concerned parties and gain the support of decision-makers and officials in favour of policies aimed at youth empowerment and their participation.

Source: League of Arab States 2012. (Reference in Arabic)

Table 5.24

Students' Awareness of Types of Services* Provided by Youth

	Jordan	UAE	Tunisia	Morocco	Total Sample
Financial	14.3	26.6	11.4	39.5	14.8
Advisory	29.5	40.3	29.2	64.3	30.4
Guidance	52.9	54	67.6	16.5	59.8
Training	66.3	72.6	38.9	41.6	56.2
Mediation to Immigrate	11.7	12.9	20.5	11.3	12.8
Other Services	2.6	1.6	3.8	2.7	2.8

*(Institutions may offer one or more services)

Students' Opinions on the Effectiveness of the Currently Prevailing Higher Education System with Regard to Their Contribution in the Qualification of Students to Transfer and Localise Knowledge

Students' Opinions on the Current Higher Education System

Table 5.25A

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	4.9	25.5	53.1	16.5
UAE	2.6	5.8	43.3	48.3
Tunisia	15.9	50.6	31.5	2
Morocco	19.9	41.7	29.2	9.2
Total Sample	11.5	33.4	40	15.1

Results of Table 5.25A show a variation in the level of satisfaction with the higher education system in its entirety from one country to another. In Tunisia and Morocco, the majority tended to say that the effectiveness of the system prevailing currently was weak, while Jordanian students considered it acceptable. Answers of the Emirati students were distributed among "high effectiveness" primarily and "acceptable effectiveness" secondly. The highest rates of dissatisfaction

In Tunisia and Morocco, the majority tended to say that the effectiveness of the system prevailing currently was weak, while Jordanian students considered it acceptable. Answers of the Emirati students were distributed among "high effectiveness" primarily and "acceptable effectiveness" secondly

(respondents who said the effectiveness is weak or inexistent) were in Tunisia (60.5%), followed by Morocco (61.6%), then Jordan (30.4%).

This question is related to the higher education system as a whole. However, many previous reports and studies confirm that the weakness does not exclude any component of the higher education system. The First Arab Report for Cultural Development, prepared by the Arab Thought Foundation in late 2008, points to the poor quality of higher education in the Arab region from an international perspective and the challenges facing the quality of education issues in the Arab world (see Chapter 4). As stated in an article by a specialist in charge of coordinating the interventions relating to higher education in the World Bank Group[30] as part of a lecture entitled "The Higher Education at a Crossroads", higher education in the whole world is currently facing a number of challenges, such as the link between higher education and student readiness for employment, quality assurance, finance, equal access to higher education and its completion, enterprise management, internationalisation, institutional diversification and the push and pull between research and education. The specialist called for "higher education [to] be able to better adapt faster and more efficiently in service of economic and social requirements".[31]

Overall, with the exception of Emirati students, the satisfaction with the teaching methods in universities seems limited, and this cannot be surprising to any follower of the situation of higher education or reports issued in this regard

Students' Opinions on the Academic Research System

Table 5.25B

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	5.4	29.1	48.2	17.3
UAE	2.6	9.9	46.8	40.7
Tunisia	16.5	36.2	36.4	10.9
Morocco	21.0	42.9	26.6	9.5
Total Sample	12.1	32.2	39	16.7

In relation to the degree of satisfaction with the effectiveness of the academic research system, the answers were mostly distributed between "weak effectiveness" and "acceptable effectiveness," with the exception of UAE, where answers tended towards "acceptable effectiveness" and "high effectiveness". This refers to a degree of dissatisfaction among students with regards to the academic research system. In fact, a lot of students perceive research as a mere procedure to complete an educational phase or to obtain a graduate degree. Moreover, misunderstanding still prevails between researchers and field practitioners; researchers accuse practitioners of not appreciating research, while practitioners accuse researchers of "staying in ivory towers" and seeking to satisfy their scientific curiosity, regardless of the usefulness of their research and the extent to which society benefits from it. This negative look at research will not change unless the academic system is improved and its relationship with each country's reality and development needs is strengthened.

Students' Opinions on the Teaching Methods in Universities

Table 5.25C

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	7.0	36.0	45.6	11.4
UAE	1.3	9.2	48.3	41.2
Tunisia	17.5	48	32.7	1.8
Morocco	47.6	19.5	16.9	16.0
Total Sample	20.4	30.5	34.7	14.4

We notice that the majority of the students oscillated between recognising the "acceptable" or "high" effectiveness of the teaching methods, as is the case in the UAE, in contrast to the majority of the students in Morocco which was distributed between the "no effectiveness" and the "weak effectiveness" answers. In Jordan and Tunisia, the majority remained distributed between the "acceptable effectiveness" and the "weak effectiveness" answers. Overall, with the exception of Emirati students, the satisfaction with the teaching methods in universities seems limited, and this cannot be surprising to any follower of the situation of higher education or reports issued in this regard. In fact, teaching methods in most

Arab universities are still tied to the old educational philosophy that perceives the mind of the student as a container to save and retrieve information. Teaching methods adopted by the majority of professors are still traditional, and of a vertical character, based on lessons and lectures given in accordance with the pattern of "from one person to a group", and this pattern is almost devoid of all forms of real pedagogical interaction. These lectures are supported by a series of publications or books that are considered the primary source of information with which the students charge their brains and download the information onto the exam paper, thus ending the relationship with the knowledge contained therein. The information provided in these lectures, notes or books are often unchangeable, as they are repeated without any development or update.

However, there are individual initiatives by some university professors who practice the method of dialogue and discussion and diversify the methods of student participation in the construction of lessons that contribute to the development of intellectual abilities and research skills and foster a culture of dialogue and discussion that helps develop the personalities of university students and reveal creative capacities. However, these professors constitute the lowest percentage among other educators and, therefore, their ability to make a true quantum leap in the university teaching methods remains limited. In the absence of qualitative development in the educational practices of Arab universities, the phenomena of academic laziness among university students, their reluctance to read and learn, their disinclination towards scientific research and discovery, and their disinterest in university libraries are expected to worsen. This is expected to lead to the spread of negative cognitive trends and behaviours, such as dependency, cheating during exams, opportunistic dealing with cognitive contents and lack of appreciation of science and knowledge value.

This paragraph discusses a very important issue, that of the evaluation of knowledge and skills and other gains that university students acquire, i.e. the issue of evaluation methods adopted in universities. In general, the majority swung between acknowledging that adopted evaluation methods were either "weak" or "acceptable". As is the case in the previous paragraph (relating to teaching methods in universities), the results separated Jordan and UAE on one hand (precedence of the "acceptable effectiveness" answer), and Tunisia and Morocco on the other hand (precedence of the "weak effectiveness" answer). This means that in all cases, a percentage of students, ranging between 19.3% and 69.7%, were not satisfied with the academic evaluation methods.

Students' Opinions on the Evaluation Methods in Universities

Table 5.25D

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	10.7	35.6	42.5	11.2
UAE	4.5	14.8	46.4	34.3
Tunisia	19.9	49.8	27.5	2.8
Morocco	24.4	32.2	25.1	18.3
Total Sample	15.9	35.1	34.6	14.4

In fact, the issue of academic evaluation is considered one of the most important dilemmas of the higher education system due to its direct link to the question of the quality of higher education outputs to the labour market and society as a whole. If the screening or selection system – supposed to be the passport to active life and ensure eligibility to participate actively in economic and social life – is dysfunctional or its credibility is uncertain (i.e. its ability to evaluate what should be evaluated), its effectiveness remains in doubt. This is probably one of the reasons behind the spread of dissatisfaction among business owners and employers with the preparation of graduates and the poor compatibility of their qualifications with the requirements of high productivity and global competitiveness.

The problem of evaluation is not separate from other difficulties of the higher education system in general, particularly the issue of university teaching practices.

In the absence of qualitative development in the educational practices of Arab universities, the phenomena of academic laziness among university students, their reluctance to read and learn, their disinclination towards scientific research and discovery, and their disinterest in university libraries are expected to worsen

Evaluation methods will continue to be limited to teachers' personal interpretations and opinions about what they think is the most important to teach and evaluate, as long as the goals of higher education and teaching practices are still focused on teaching knowledge and retrieving it, or on training of some primary skills that cannot be transferred or developed, without paying real attention to personal or behavioural dimensions. Evaluation methods will also continue to be limited as long as the goals cannot be revealed within an integrated vision about the characters needed for the graduates of higher education.

It should also be noted in this regard that the information available regarding evaluation in universities are incomplete and dispersed. This makes it impossible to diagnose weaknesses, due to the lack of studies on the subject (both nationally and internationally); especially since evaluation practices in universities are not explicit enough, according to a document issued by the Supreme Council for Evaluation in France on the evaluation of university students.[32] The document raised a number of problems that the university evaluation system suffers from, and these problems are fully applicable to what is happening in Arab universities. We particularly mention among these problems; the absence of a unified vision of the evaluation, its methods, standards and the forms to employ its results, even within the same major; the overlapping functions assigned to the evaluation; the absence of accurate knowledge of the students' perceptions of the evaluation and its impact on their relationship with knowledge; and the successive evaluation processes and the required time and energy for prior preparation, which reflects negatively on the learning process and the quality of the evaluation. The report concluded that these factors would put the concept of the "national diploma" in doubt in many countries of the world.

In this context, the idea of establishing a qualification system capable of determining the levels of effectiveness in all majors is seriously suggested. This shall ensure an impartial equivalence of diplomas and would enable the transfer and fruitful exchange of competencies on the internal and external levels.

Students' Opinions on the Books and References Available for Students

Table 5.25E

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	5.2	20.5	44.6	29.7
UAE	1.9	9.3	40	48.8
Tunisia	15.4	37.1	37.6	9.9
Morocco	24.8	25.9	24.5	24.8
Total Sample	12.7	24.5	36.6	26.2

As is well known, various references constitute an essential component of the formation of the student, whether these references are books that establish theoretical knowledge, or those that complement the practical aspects and support theoretical formation. These references are often imported or expensive and students cannot afford them. Therefore, universities are responsible for providing them through university libraries. However, students often complain that theses libraries do not provide the necessary references or do not provide them sufficiently, in a way to give everyone the chance to benefit from them in a timely manner. This perhaps explains the respondents' varying degrees of satisfaction with these books and references. With respect to the degree of satisfaction with the books and references available to students at universities, the highest satisfaction rate (acceptable and high effectiveness) was among Emirati students, followed by Jordanian students, then their colleagues in Morocco, and finally in Tunisia.

With respect to the degree of satisfaction with the books and references available to students at universities, the highest satisfaction rate (acceptable and high effectiveness) was among Emirati students, followed by Jordanian students, then their colleagues in Morocco, and finally in Tunisia

Whatever the factors behind the dissatisfaction of a considerable percentage of students with the books and references their universities are providing, university libraries need more care and their equipment needs to be updated. Moreover, libraries need to be enriched with the latest and good publications that are appropriate

to the needs of various majors. They should also make use of modern documentation software technologies to help students do their research and allow them to remotely view references through subscriptions in virtual libraries. This is without overlooking the need to encourage the movement of writing and production and stimulate the process of publishing good-quality literature, as the share of the Arab region in international publications remains the weakest.[33]

Students' Opinions on the Educational Equipment and Tools

Table 5.25F

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	8.5	37.5	40.8	13.2
UAE	1.3	3.6	28.5	66.5
Tunisia	23.3	48.2	25.2	3.3
Morocco	23.9	32.5	25.6	18.0
Total Sample	15.4	33.9	31.2	19.5

In relation to educational equipment and tools available in universities, UAE ranks first among countries participating in the survey with the highest rate of satisfaction among students (95% answered with "acceptable" and "high" effectiveness), as opposed to Tunisian students, 71.6% of whom stated that the effectiveness of the educational equipment and tools in their universities were either weak or absolutely non-existent. Jordan and Morocco rank between the two, with a satisfaction rate of 54% and 43.6% respectively.

There is no doubt that the provision of educational equipment and tools in academic institutions is linked to the local financial capabilities of each country and its ability to conclude agreements with donors and stakeholders. It worth noting here that due to the growing numbers of male and female students in universities, many academic institutions faced the urgent need to provide spaces necessary to secure the process of teaching and learning. In order to deal with this pressure, classrooms have been converted or established, many of which are lacking the most basic elements of an educational academic environment, which adversely affects the quality of acquired education and skills.

The effect of the absence or lack of equipment and tools on students varies from one major to another. Although these tools are required for all majors for further clarification and for the improvement of the learning and teaching process, the inadequate availability and quality may become a hindrance to majors that are of a practical or technical nature and those that require manual processing, experimentation, disassembly and installation. Today, this issue is becoming increasingly important, in light of the fundamental role that technological tools and means are playing to improve the educational process and provide it with more flexibility and effectiveness.

In relation to educational equipment and tools available in universities, UAE ranks first among countries participating in the survey

Students' Opinions on the Educational and Pedagogical Level of University Professors

Table 5.25G

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	5.0	19.7	50.9	24.4
UAE	1.8	6.4	41.6	50.2
Tunisia	9	22.6	53.8	14.6
Morocco	25.0	25.5	26.0	23.5
Total Sample	11.3	20.3	43.1	25.3

Based on the distribution of the percentages in the table (5.25G), we note that, with the exception of students in Morocco, about half of the respondents tend to acknowledge that the level of scientific and pedagogical ability of the teachers is of acceptable effectiveness (Jordan and Tunisia) or of high effectiveness (UAE). But this trend, albeit important, should not overlook another percentage of students – ranging between 7.1% (in UAE) and 50.4% (in Morocco) – that tended to question this effectiveness by stating it is weak or absolutely non-existent.

This question addresses a vital issue in the higher education system: the scientific and pedagogical effectiveness of the teaching staff in university, as they have a significant

impact on the quality of the outputs. The interest in the qualifications of university professors, particularly in relation to educational practices, has doubled in recent years, in the context of what is known as academic pedagogy. In fact, the selection of university teachers in most Arab countries is subject to a basic standard, which is obtaining a graduate certificate, a master's or doctoral degree, which attest to the ability to carry out academic research more than the ability to teach. Therefore, the issues relating to the selection of appropriate teaching methods and education administration methods and to the organisation and transfer of knowledge remain subject to personal interpretation. Add to this the high number of students and the consequent imbalance in the orientation proportions, as appears through the rising index of students per teacher, and the deficiencies in equipment, tools and laboratories, in addition to the lack of quality control on the work of teachers in universities. These and other factors do cast a shadow on teachers and affect their ability to carry out their work in the best possible ways.

With the exception of Emirati students, the majority in Jordan, Tunisia and Morocco expressed their dissatisfaction with the system of incentives offered to students

Students' Opinions on the System of Financial and Moral Incentives Offered to Students

Table 5.25H

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	35.2	36.9	20.9	7.0
UAE	9.7	19	36.4	34.9
Tunisia	47	39.5	11.2	2.3
Morocco	26.5	25.4	24.6	23.5
Total Sample	32.1	31.8	21.7	14.4

Studies show a decline in motivation among students, as many of them find themselves studying majors that they do not like or that do not match their abilities, because of the guidance and admission system

With the exception of Emirati students, the majority in Jordan, Tunisia and Morocco expressed their dissatisfaction with the system of incentives offered to students. Although the absence or weakness of financial incentives is justified, since they are linked to the funding issue in higher education and the limited budget allocated to it, especially in "poorer" countries, the absence or lack of moral incentives indicates a lack of awareness or interest in motivating students, pushing them forward and improving their relationship with knowledge. This happens amid a growing importance of this factor, given the decline in the value of education and knowledge in the perceptions of young people, due to the prevalence of unemployment among graduates or their inability to land a job compatible with their educational diploma.

In this context, studies show a decline in motivation among students, as many of them find themselves studying majors that they do not like or that do not match their abilities, because of the guidance and admission system. Moreover, many of them enrol in university without having a specific project of "life", so they spend their education years, without realising neither the value of the knowledge they receive nor its usefulness after graduation. Some researchers even believe that many students lose their motivation slowly.[34]

In order to maintain a high level of motivation for students, the pedagogical activities suggested to them must be able to influence their perception of the benefit of the knowledge provided and their perception of their skills and ability to control their course.[35] Therefore, and for the benefit of the students, it is necessary to give the incentive systems the importance they deserve, by organising awareness campaigns and a variety of activities within the faculties, universities and in their surroundings to engage students in the educational project and enable them to face it with a strong desire of achievement and excellence. Motivation becomes even more important to face the problem of some students' reluctance to join certain majors of importance to development, such as technical majors.

It is worth noting that the university is not responsible alone for motivating students, financially and morally, but rather all the institutions concerned with the outputs of the university and all civil society organisations, because this is a multidimensional issue that needs coordination and integration between the family, as well as learning and social environments.

Students' Opinions on the Practical Training System During Studies

Table 5.25I

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	20.2	37.6	29.8	12.4
UAE	5	17.9	42.2	34.9
Tunisia	32.7	42.6	20.6	4.1
Morocco	25.1	30.9	25.5	18.5
Total Sample	22.5	34.3	28.1	15.1

Based on the answers of the students regarding practical training during studies, it seems to be one of the weaknesses of the higher education system. According to students, practical training lacks effectiveness or is of weak effectiveness, at rates ranging between 56% in Morocco, 57.8% in Jordan and 75.3% in Tunisia, unlike the UAE where this rate was 22.9%. The majority's dissatisfaction can be explained by the scarcity of training opportunities offered to students by universities, due to the lack of cooperation agreements and formal partnerships between faculty departments and institutions (production and service institutions in the public and private sectors) concerned with majors they cover. Therefore, students are forced to confront this need alone, and search for institutions that will accept them. Moreover, benefiting from these trainings still depends on the seriousness of the institutions receiving students and their desire to provide them with an experience of real added value.

In prestigious universities – as the report discussed in Chapter 4 – practical training is considered an integral part of the formation of the student. Training is conducted in an orderly manner and in accordance with clear agreements with the concerned institutions. It is also subject to strict procedures, starting from choosing the institution, identifying the project that the student works on and defining the role of each party and the expected outcome, in addition to other details that could even reach the determination of the ownership of the product and the value of the reward.

It must be noted here that partnership and cooperation between universities and relevant external institutions depend on the extent to which university curricula and courses meet the urgent needs of these institutions or companies (from both the public and private sector) and on the trust in the possibility of achieving mutual benefit and ensuring the rights of all parties. In France, for example, there are clear legal provisions and terms in the Labour Charter that determine the conditions of practical training that benefit students. A "help desk on professional integration" is also available in every university, and it aims at determining the institutions that provide training for students and connecting the two parties in the framework of recognised agreements. The training must end with a report that the students prepare in which they determine what they have acquired and give their opinions on the quality of care the institution provided during training. Training is considered an essential part of the educational journey of the student.[36]

Students' Opinions on the Compatibility of the Knowledge Provided by the University with the Requirements of the Labour Market

Table 5.25J

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	16.5	40.7	34.0	8.8
UAE	4.5	14.3	46.4	34.8
Tunisia	30.5	43.4	22.4	3.7
Morocco	27.4	25.2	25.2	22.2
Total Sample	21.3	33.4	30.4	14.9

There is today what looks like a consensus on the existence of a large gap between the outputs of higher education, the requirements of the labour market and the needs of development. This gap takes two forms: on one hand, it floods the labour market with majors unrelated to society's need for highly qualified people, and on the other hand, it provides graduates in required fields, but lacking the minimum necessary skills of the major they are studying.[37] In this context, the answers of the students confirmed what Chapter 3 referred to with

There is today what looks like a consensus on the existence of a large gap between the outputs of higher education, the requirements of the labour market and the needs of development

regards to an imbalance in the proportions of the distribution of students between applied and literary majors, and the weak compatibility between the knowledge offered by universities and the requirements of the labour market. The proportions of respondents who acknowledged the weakness or lack of the effectiveness of this compatibility in Jordan, Tunisia and Morocco were 57.2%, 74%, and 52.6% respectively. The answers of the Emirati students were more positive, as only 18.8% were dissatisfied with this compatibility.

Students' Opinions on the Current System of University Admission

Students need real empowerment to gain abilities that go beyond mere preparation for a profession and equip them for life

Table 5.25K

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	15.5	35.8	38.6	10.1
UAE	3.8	10.7	48.5	37
Tunisia	19.6	38.3	37.7	4.4
Morocco	27.6	25.9	24.9	21.6
Total Sample	18.4	30.3	35.7	15.6

With the exception of Emirati students who were almost unanimous in their answers on the effectiveness of the adopted system of university admission, the students from the remaining three countries split into two categories: one moved towards denying the effectiveness and the other moved towards supporting it, with a slight precedence of the first category. This in itself is a natural reflection of the reality produced by this system (satisfaction among those whom the system has helped join the major that matches their desires and capabilities, versus dissatisfaction among those whom this system prevented from achieving their goals).

There is no doubt that academic orientation is one of the thorny issues about which the graduates of secondary school complain. In most Arab countries (Egypt, Sudan, Syria, Jordan, Iraq, Oman, Tunisia and Algeria), students are directed and admitted in various universities and majors in a centralised manner, electronically. However, the admission is decentralised by higher education institutions in Qatar, Bahrain and Lebanon. Other countries have also other admission requirements. For example, Saudi Arabia conducts additional tests for applicants who wish to enrol at universities at the country level, through the National Centre for Assessment in Higher Education. Some public faculties in Lebanon also have additional requirements, such as competition entries and tests of mastery of a foreign language.[38] This is what is required in public universities, while private universities are obliged to reject those who do not get their certificate of completion of secondary school studies. Aside from that, private universities enjoy more freedom and flexibility to determine their own admission conditions. Since admission is mostly based on the results of the final exam in secondary studies and the student's desire, if the grades match, taking into account the absorptive capacity of the university faculties and institutes, this system can lead to various forms of waste and exclusion, despite the fact that it has some pros.[38]

Students' Opinions on the Activities Organised by Their Faculty or University

Table 5.25L

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	14.7	33.0	39.6	12.7
UAE	2.8	14.1	40.6	42.5
Tunisia	41.1	33.9	20.3	4.7
Morocco	27.0	25.0	25.0	23.0
Total Sample	22.9	28.4	31	17.7

It is known today that the formation of a student's character is not exclusively done within university halls or through lessons, lectures and classroom activities alone. Students need real empowerment to gain abilities that go beyond mere preparation for a profession and equip them for life. Therefore, in addition to educational and academic activities, we find that advanced systems give great importance to extra-curricular activities and events. This is contrary to the situation in many Arab universities, which look more like an institution that provides theoretical lessons and whose role ends with the end of

lectures. Arab universities have few spaces allocated to cultural activities and sports and lack well-studied programmes that achieve integration between academic activities and various parallel activities. This perhaps explains the dissatisfaction dominating the answers of the students, especially Tunisian students, and to a lesser extent Moroccans and Jordanians. On the contrary, the answers of Emirati students stated in their majority that the activities organised by universities in parallel with the teaching activities are efficient (83.1% answered with "acceptable" and "high" effectiveness).

Students' Opinions on Internet Availability

Table 5.25M

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	6.9	15.6	40.2	37.3
UAE	0.9	4.1	20.1	74.9
Tunisia	42	26.1	23.6	8.3
Morocco	29.7	27.8	20.2	22.3
Total Sample	20.9	20	28	31.1

Answers reveal a noticeable discrepancy between the countries concerned with study in terms of available opportunities for using the internet. Emirati students ranked first with a rate of almost 95%, followed by Jordanian students with 77.5%, then the Moroccans with 42.5%, and finally Tunisians with 31.9%. Whatever the proportion of internet availability for students, the most important question remains: why and how do they use the internet? And what is the share of the cognitive aspects in this usage?

The results of the field research, which was completed in the context of preparing this report, showed that knowledge-related topics did not exceed 19.4% of discussed topics on social networks, while social topics rank first with 29.4%, personal relationships second with 26.3%, while political topics rank fifth with 6.3%. In the UAE, a 2012 study on the reality of internet use among young Emiratis for cognitive formation, conducted by the Ministry of Culture, Youth and Community Development and the Decision-Making Support Centre of Dubai Police, showed that only 1% of the time young people spent on the internet was devoted to searching for information and exploring its sources.

In Tunisia, reports indicated that the growing reliance on the internet had contributed to the improvement of research methods via electronic references and sources, notably the most widely used search engines. However, this reliance does not live up to the level of mastery of specialised electronic resources, such as databases and virtual libraries, despite the important role some of these play in universities.

Students' Opinions on the Interactive Electronic Means That Allow Remote Educational Communication between Students and Teachers

Table 5.25N

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	22.9	34.9	28.1	14.1
UAE	2.6	6.4	32.2	58.8
Tunisia	42.3	31	20.3	6.4
Morocco	23.1	28.4	26.9	21.6
Total Sample	24.8	28.4	26.5	20.3

Despite the widespread use of information and communication technologies and the increasing emphasis on the importance of their integration in the teaching and learning process, we note that this trend is still struggling in many Arab countries. This was revealed in the student answers with regards to interactive electronic means that allow them to communicate remotely with their professors. Although the level of satisfaction with these means reached 91% in the UAE between "acceptable" and "high effectiveness", it did not exceed 26.7% in Tunisia, 42.3% in Jordan, and 48.5% in Morocco.

The e-learning system is considered one of the most promising educational and technological trends, and it is expected that a great revolution will occur in educational concepts, teaching aids and the relationship between students and education service

Despite the widespread use of information and communication technologies and the increasing emphasis on the importance of their integration in the teaching and learning process, we note that this trend is still struggling in many Arab countries

providers, pushing major countries to compete to possess and take advantage of these means, allocating huge budgets to them. Statistics indicate that the global volume of the e-learning market is estimated at more than $11 billion annually, 60 to 70% of which is concentrated in the United States. Statistics also indicate that 30% of vocational education and training in Europe is generally done electronically. While this percentage in some European countries reaches 10-15%, it increases to 50% in Scandinavian countries. Finland, Germany, Spain and France are at the forefront of European countries that get a significant proportion of revenue from e-learning. In the Arab world, the UAE spearheads the Arab countries that are pioneers in this area, in terms of size and investment, which is expected to reach $24 million in this field over the next few years.

There is no doubt that the provision of resources remains one of the biggest problems facing higher education in low-income countries

The First International Conference on e-Learning that was held in June 2013 in Cairo under the title "e-learning in the Arab world: challenges and prospects of development," gave great importance to addressing the problems faced by e-learning in the Arab world, the challenges it faces in the knowledge society and its role in achieving the principle of continuing education. The diagnostic process revealed the need to link the reality of e-learning in the Arab world with telecommunications services in the region and the infrastructure, networks, services and devices associated with them, since these factors play an important role in the prevalence and potential growth of e-learning. Studies on the status of telecom sectors in Arab countries in general also showed that most of these sectors had been controlled by the public or government sector for many years. This had resulted in additional challenges reflected by a governmental entity's monopoly of the telecommunications sector and a weak telecommunications infrastructure, due to the lack of competition and the spread of bureaucracy in the public sector in Arab countries in general. Monopoly has also led to an absence of competitiveness in this sector, resulting in infrastructure and services that do not live up to required levels.

Students' Opinions on the Financial Resources to Support University Research Projects Carried out by Students

Table 5.25O

	No Effectiveness	Weak Effectiveness	Acceptable Effectiveness	High Effectiveness
Jordan	29.2	41.6	20.7	8.5
UAE	7.2	17.1	37	38.7
Tunisia	59.2	28.2	6.5	6.1
Morocco	26.5	22.5	24.1	26.9
Total Sample	30.6	29.9	20.4	17.1

Field survey results vary considerably in the views of students in terms of effectiveness of resources allocated to university student research projects, where the proportion of those who viewed that it was effective (acceptable effectiveness and high effectiveness) reached 75.7% in the UAE compared to 12.6% in Tunisia, with Jordan (29.2%) and Morocco (51%) in between. There is no doubt that the provision of resources remains one of the biggest problems facing higher education in low-income countries. This is especially applicable in centralised systems where a supervisory authority allocates a determined budget and sets the terms for its spending, and where the educational institution does not have any other funding sources in the form of grants or cooperation agreements and partnerships.

The financial support that a student might need to complete research varies from one discipline to another, and increases the more the discipline is related to the fields of applied sciences and technologies. Hence, it is necessary to find channels for additional resources to be devoted to enhance research efforts and improve research quality.

For instance, Abu Dhabi University granted research scholarships to undergraduate students and funded a number of selected research projects, in a step aimed at promoting scientific research among students during the academic year 2009-2010. On another level, the Sultan Qaboos University in Oman in 2011 started applying a programme to support student research, targeting

undergraduate students studying in Oman's higher education institutions, colleges and universities, in order to offer them the opportunity of carrying out research projects in their fields of interest, either in their own institutions or in cooperation with other institutions inside the Sultanate.

Students' Perceptions of the Effectiveness of Certain Enabling Environments in Knowledge Transfer and Localisation

This part will discuss student perceptions of certain aspects of enabling environments, or rather student perceptions of youth integration in the transfer and localisation of knowledge processes. These include the contribution of certain bodies and organisations in this regard, the status of freedoms and rights, as well as the role and contributions of the private sector, institutions and economic and governmental patterns. This also covers student perceptions of other issues related to knowledge transfer and localisation, as well as motivating and impeding factors.

Sense of Trust in the Ability of Organisations to Contribute to the Youth's Integration into the Processes of Knowledge Transfer and Localisation

The statistical tables in the annex[39] reporting the students' trust in the ability of organisations to contribute to youth integration into the transfer and localisation of knowledge processes reveal different levels of trust expressed by students. These levels varied from one country to another and from one authority to another.[40] In general, there was a similarity between UAE and Jordan, and between Tunisia and Morocco. The majority of Jordan and UAE students showed a (acceptable or deeper) trust in the ability of civil society organisations, media, trade unions and professional organisations to contribute to knowledge transfer and localisation. However, this was not the case for Tunisian and Moroccan students, the majority of whom seemed to be sceptical about these bodies (weak or zero trust). As for political movements and parties, Jordanian, Tunisian and Moroccan students all showed weak or no trust in them at 66.8%, 87%, and 91.9% respectively.

Students expressed positive attitudes when it came to certain social conditions, such as gender equality and social justice

Students' Opinions on the Status of Freedoms and Rights

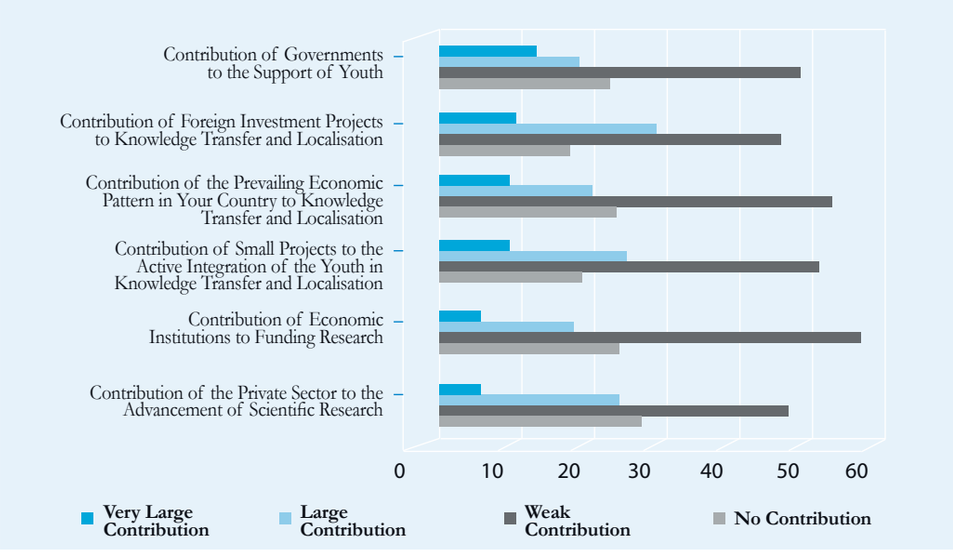
Generally speaking, student respondents showed positive attitudes towards the status of freedoms in their respective countries. The majority answered with "excellent status" or "good status" with a certain disparity in percentages. The highest percentages were scored by Emirati students and the lowest by Tunisian students. Tunisia's percentages seem interesting in particular, because anyone following Tunisian news after the so-called Arab Spring Revolution would notice the considerable expansion of freedom at

Figure 5.6

Level of Students' Trust in the Ability of Bodies and Organisations to Contribute to the Youth's Integration into the Transfer and Localisation of Knowledge Processes

Figure 5.7

Students' Perceptions of the Role and Contribution of the Private Sector, Institutions, and Economic and Governmental Patterns



Students in all four countries also seemed to disagree that the process of transfer and localisation contributed to more dependency on developed countries, and they agreed that the process was not part of their current concerns

all levels and among all categories. That is why Tunisia's fourth ranking in terms of student perception of the status of freedoms makes us wonder: Is the status of freedoms in Tunisia really the worst? Or did the post-revolution situation make the Tunisian youth expand their demands beyond what their peers were asking for in other countries?

Students expressed positive attitudes when it came to certain social conditions, such as gender equality and social justice. With respect to public affairs and political activity, negative attitudes prevailed in Jordan, Morocco and Tunisia (with the majority choosing "bad" and "very bad" status). This was especially clear in terms of youth integration in political life, with the negative majority reaching as high as 53.1% in Jordan, 63.1% in Tunisia and 72% in Morocco. Negativity also prevailed in terms of the fight against corruption and accountability possibilities, which are considered among the fundamentals of good governance.

Students' Opinions on the Role and Contribution of the Private Sector, Institutions and Economic and Governmental Patterns

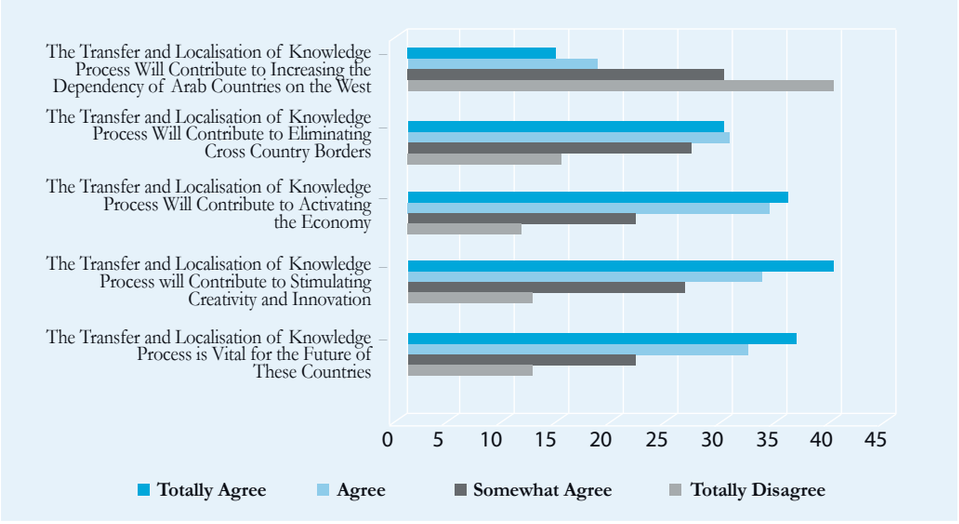
Based on tables included in the annex[41] and Figure 5.7, unlike Emirati students who confirmed the positive contribution of numerous players and factors when it came to the youth and the development of knowledge, respondents in Jordan, Tunisia and Morocco had a negative opinion, expressing the poor contribution of these players and factors, at percentages as high as 90% in a number of topics. According to respondents in these countries, all the components of the economic scene (economic institutions, private sector, economic pattern and investment projects) seemed to lag behind, in terms of performing their role, which includes funding scientific research and transferring and localising knowledge. They also viewed governments as delinquent in terms of offering support to young people.

Students' Opinions on the Topics of Knowledge Transfer and Localisation

Figures 5.8 and 5.9 and the table included in the annex[42] illustrate student answers on knowledge transfer and localisation topics. A similarity was clear in their perception of many issues related to knowledge transfer and localisation, such as its contribution in limiting unemployment, stimulating creativity, removing borders between countries, fostering competition and reducing social inequalities. Students in all

Figure 5.8

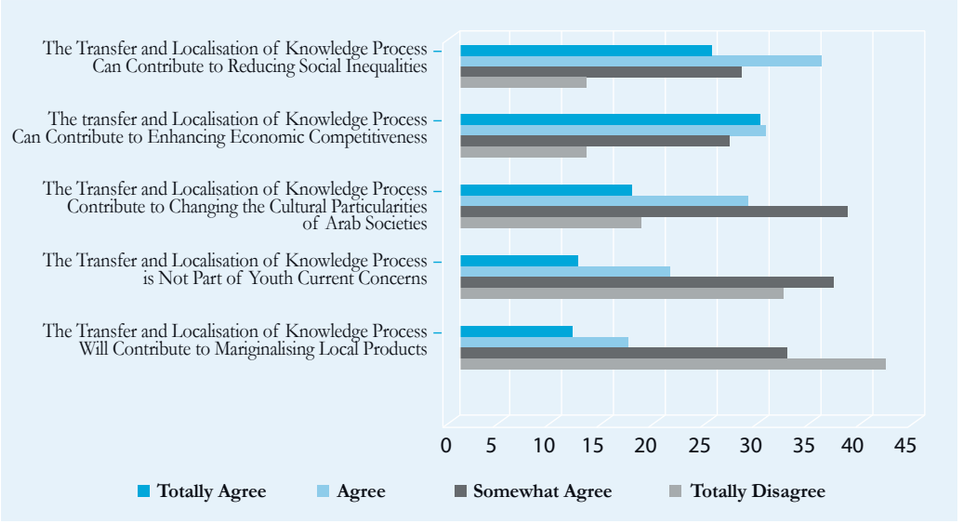
Students' Perceptions on Knowledge Transfer and Localisation Topics (a)



The employment issue seemed to be a common area of interest for the students of Jordan, Tunisia and Morocco

Figure 5.9

Students' Perceptions on Knowledge Transfer and Localisation Topics (b)



four countries also seemed to disagree that the process of transfer and localisation contributed to more dependency on developed countries, and they agreed that the process was not part of their current concerns. On the other hand, discrepancies appeared in student perceptions of the following issues:

- "Contribution of knowledge transfer and localisation to changing cultural particularities of Arab countries": While Jordanian and Emirati students expressed their agreement with this idea, their Tunisian and Moroccan peers tended to oppose it.
- "Contribution of the transfer and localisation of knowledge to marginalising local products": This idea received rejection from the majority of students in Jordan, UAE and Tunisia, while it was met with the approval by the majority of Moroccan students.
- "Contribution of the transfer

and localisation of knowledge to activating the economy" and the consideration of "knowledge transfer and localisation vital for the future of Arab countries": This idea was met with the approval of the majority of students in Jordan, UAE and Tunisia, but not those of Morocco.

Motivating and Impeding Factors in the Integration of Youth in Knowledge Transfer and Localisation

Figures 5.10 and 5.11 and the tables in the annex[43] show an agreement among the majority of students in all four countries that all the factors (included in the question

An interesting result was the percentage of students who stated that "gender equality is unavailable" (regardless of whether it is necessary or unnecessary). Unavailability of gender equality scored 18.8% in UAE, compared to 44% in Tunisia, 50.4% in Morocco, and 50.9% in Jordan

Figure 5.10

Students' Perceptions on Motivating and Impeding Factors in Youth Integration in Knowledge Transfer and Localisation (a)

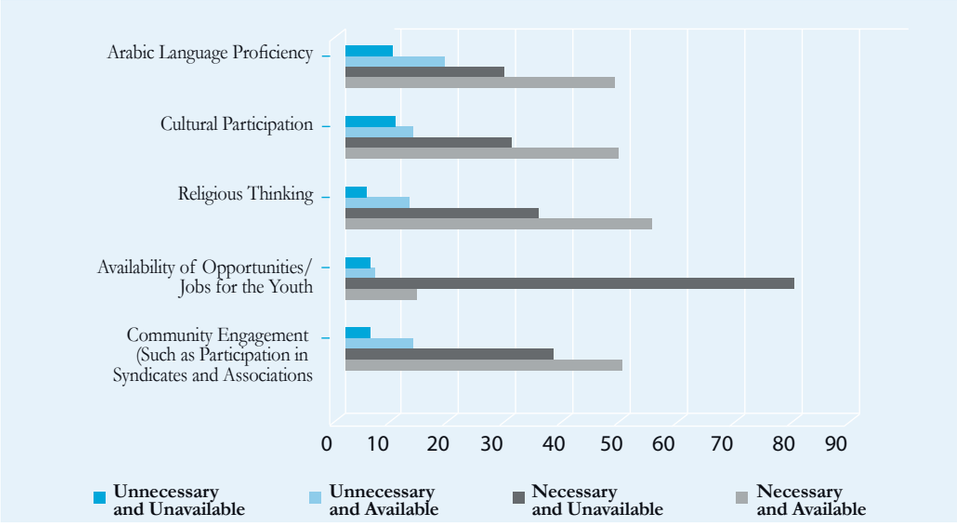
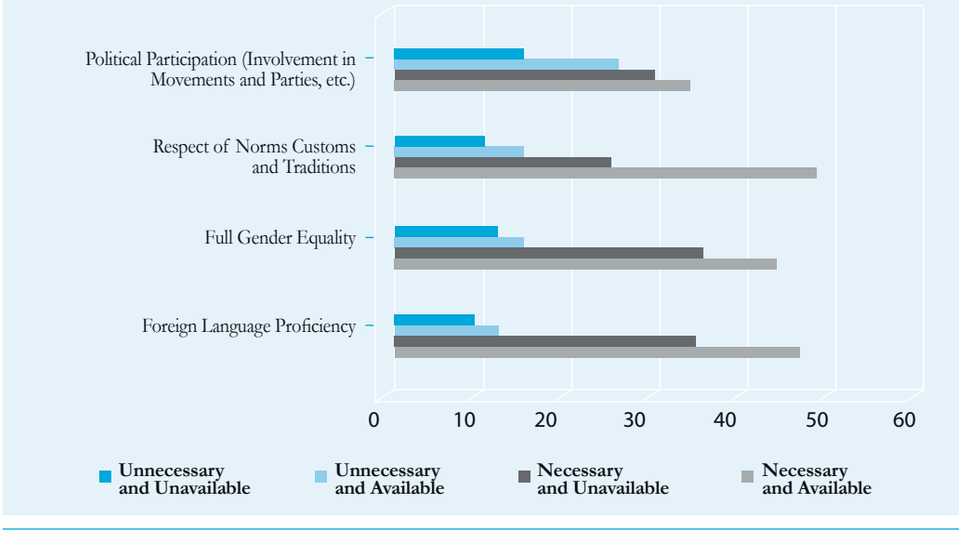


Figure 5.11

Students' Perceptions on Motivating and Impeding Factors in Youth Integration in Knowledge Transfer and Localisation (b)



on acceptable and unacceptable motivating factors) are necessary to facilitate youth integration in the transfer and localisation of knowledge, at rates that exceeded 80% in most cases. Only three factors were considered unnecessary by the majority of Moroccan students, including "cultural engagement", "full gender equality", and "respect of customs and traditions". However, percentages varied from one country to another in terms of the availability of these "necessary" factors, whereby it scored at least 60% in the UAE but did not exceed 28% in Morocco.

The employment issue seemed to be a common area of interest for the students of Jordan, Tunisia and Morocco. Students in all three countries admitted its necessity and yet its unavailability at high rates that reached 78.7%, 84.9%, and 89.8% respectively. It is only natural for employment to score such a high and distinct percentage compared to other required but unavailable motivating factors, since unemployment and the extent of compatibility between university qualification and the labour market are among the key challenges and concerns faced by the youth and society today. An interesting result was that nearly 50% of Moroccan students regarded religious thinking as necessary but unavailable. This issue is particularly striking, especially amid the spread of Islamic movements among students, and requires more in-depth study to understand how these students perceive religious thinking as a contributor to the transfer and localisation of knowledge, as well as the type of knowledge required in this context.

Another interesting result was the percentage of students who stated that "gender equality is unavailable" (regardless of whether it is necessary or unnecessary). Unavailability of gender equality scored 18.8% in UAE, compared to 44% in Tunisia, 50.4% in Morocco, and 50.9% in Jordan. It is worth exploring this issue to look into the reasons that would drive around half of the respondents in three countries to deny the presence of equality, despite the procedures and legislation of varying degrees of importance adopted in these countries in order to reduce gender discrimination.

Summary of Research and Findings

The results of field research allowed us to draw a clear picture of the situation from a sample of male and female university students of various disciplines from four Arab countries: UAE, Jordan, Tunisia and Morocco. The results of this study were highly consistent with what was mentioned in associated analytical studies and literature presented in this report, throughout its chapters. Data was collected through a cognitive skills test, as well as a questionnaire on values, effectiveness and enabling environments. This data revealed the following:

Cognitive skills: There is a major discrepancy in the levels of possession of cognitive skills. Particular weakness appeared in written communication skills, in both Arabic and foreign languages. Even the relative progress made in problem-solving skills still needs to be further proven using more complex situations, given the ease of the proposed scenario. As for the skill of technology use for research and knowledge purposes, it scored average rates. These results all seem to be taking the same trend as revealed in previous studies, both regionally and internationally (despite the variation in their areas of focus and methodologies). These results are worrisome, especially when viewed from the perspective of capacity building for knowledge transfer and localisation. They provide proof once again of the poor knowledge readiness of the youth to actively participate in efforts towards mastering knowledge and developing it in their own countries, as a result of not having the necessary tools, particularly technological and linguistic skills.

These skills constitute the fundamental basis for managing the affairs of everyday life and meeting the requirements of an active professional career. The inadequate

The so-called Arab Spring societies that are stumbling in their democratic transitions are perhaps only proof of the lack of a culture of active participation in public life and of the immaturity of relevant practices

possession of these skills among university students nearing graduation will widen the gap separating Arab countries from developed countries and question their ability to transform into educated societies capable of competing at the global level in knowledge transfer and localisation.

Value system: The values test among young people appeared to be much better than their knowledge status. Results revealed positive attitudes towards a set of knowledge values (such as appreciation of education, academic integrity and studiousness), social values (modesty and cooperation) and universal values (respect of freedoms and religious tolerance). This attachment to high values, if it is really derived from strong convictions and reflected in behaviours in daily life, is a positive indicator that should be developed and strengthened to further spread an enlightened culture and noble human values capable of creating a deterrent force against ignorance, dependency, violence and exclusion.

Efforts to transfer and localise knowledge must necessarily pass through openness of the actors which produce this knowledge and know its secrets and mechanisms.

Effectiveness: Except for cultural effectiveness, students expressed a weakness in all aspects of effectiveness, with a certain variation from one aspect to another. The lowest rates of effectiveness were scored by the political and social aspects. This is an interesting result given the negative impact that this weakness can have on building social capital. Participation in public affairs, in its various manifestations (volunteering activities, political participation and involvement in associations), is one of the fundamentals of establishing democratic societies. The so-called Arab Spring societies that are stumbling in their democratic transitions are perhaps only proof of the lack of a culture of active participation in public life and of the immaturity of relevant practices.

The values test among young people appeared to be much better than their knowledge status

Citizenship: Results showed that the notion of citizenship was still not mature, expect in UAE which scored a relatively higher rate of maturity. However, answers were dispersed in general. While some students associated the notion of citizenship to the location, others associated it with history or belief.

This dispersion causes concern over the necessity to fixate this concept in the minds of young people, in order to integrate them into the process of the transfer and localisation of knowledge. This emphasises the urgent need to raise awareness to correct these notions first, and to translate them later into actual attitudes and actions.

Global openness: Efforts to transfer and localise knowledge must necessarily pass through openness of the actors which produce this knowledge and know its secrets and mechanisms. This is why the ability to intercommunicate and open up to other people and cultures is among the key features that students need to interact positively with knowledge outcomes, in order to benefit from them and contribute to their development. However, the research revealed a low degree of openness among student responders. This can be attributed to several reasons that have been already identified.

In order to achieve the desired benefit, efforts must be expanded and strengthened towards developing openness among the youth in the framework of a well-informed policy, based on clear objectives and accurate criteria for the selection of openness destinations (including universities, academic laboratories, training centres, research institutions, clubs and scientific associations), that will broaden the experience of students and enhance their competitiveness.

Enabling environments: Students generally expressed varying degrees of satisfaction with the enabling environments available to them. A significant satisfaction with all aspects discussed in the questionnaire seemed clear among Emirati students, followed by Jordanian students. Answers of Tunisian and Moroccan students tended to show "dissatisfaction", as they mostly expressed varying degrees of criticism that reached the peak in matters related to the government's contribution to youth

support and the contribution of the private sector and economic institutions in funding and advancing scientific research. A high percentage of student responders also expressed their total dissatisfaction with the higher education system, namely teaching methods, and the academic research system, whether in terms of funding, availability of appropriate references and framing, or instructional equipment and tools. There is no doubt that there are several factors that have led to this negative attitude, including: Student overcrowding, which creates its own dynamic affecting the inputs and outputs of the education system as a whole, whether in terms of efficiency or quality. This forces professors to dictate their lectures or print them, and substantively eliminates any possibility of engaging and interacting with students and following up on their research. Another factor is the total absence of any training or preparation for higher education professors, in terms of pedagogy of university teaching (university teaching methods).

These results are extremely important, because they represent a sample of the obstacles facing the transfer and localisation of knowledge and the youth's ability to contribute in the process. These results should be presented to academic authorities, followed by political authorities, in order to delve into the readiness of existing university systems to face two main challenges: The first is a direct and short-term challenge related to the system's ability to provide high-quality outcomes that meet the labour market requirements. The second challenge is strategic and long-term and relates to the capability of the university, as the main incubator of research and innovation, to provide the conditions necessary to achieve an added value that reinforces the mechanisms of knowledge transfer and localisation and allows the youth to engage in the process effectively.

Quality: This issue is closely related to the shortcomings mentioned already. Many efforts were made for the development of an institutional framework in many Arab countries in order to ensure quality. Moreover, national committees and bodies were established to monitor quality and a number of Arab universities obtained institutional or programme accreditation from competent international agencies.[44] However, the key performance indicators are still below international levels, especially in terms of student-to-faculty ratio, quality of the educational process, quality of research laboratories equipment and facilities and compatibility of outputs with the requirements of employing entities. Moreover, there are no well-informed incentives or accountability systems to encourage the players to improve their performance and enhance the internal and external effectiveness of the higher education system.

In this context, this report confirms that the Arab region should make more efforts to collect information on performance indicators, such as student learning outcomes, developed skills, research capabilities and capacity to enter the labour market. The Arab region should also take the important step of linking its governance models to performance indicators to be able to build its policies on accurate information.

Knowledge transfer and localisation and student perceptions of this issue: The youth perceptions of the transfer and localisation of knowledge seemed positive in general. Respondents expressed their interest in the matter and admitted its positive impact on economy and society. They also admitted its positive impact on creativity stimulation, reduction of social inequalities, elimination of borders and reduction of unemployment. At the same time, the majority also admitted the ability of knowledge transfer and localisation to change the cultural particularities of Arab countries and to marginalise local products. In terms of the knowledge transfer and localisation process contributing to dependency on the West, attitudes varied.

These trends reflect a willingness among the youth to deal with the issue of knowledge transfer and localisation and to

The youth perceptions of the transfer and localisation of knowledge seemed positive in general

participate in it. However, this willingness, even though important, will be of no avail if not backed up by the acquisition of productive knowledge and technological skills that develop among young people a culture of hard work and self-reliance and a philosophy of creativity and innovation.

> Arabs are facing an opportunity and a challenge at the same time. And the result depends on what we do now and in the future. The future is not a destination, but a choice we make ourselves, depending on how we invest our energies and how capable we are of capitalising on them and on the experiences of the others.

Source: Abdullah Al Turkmani 2009. (Reference in Arabic)

ENDNOTES

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6 Abdel Salam Al Mosdi 2011. (Reference in Arabic)
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13 Abdel Majid Al Tajdadi 2012. (Reference in Arabic)
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26 Ministry of Culture, Youth and Community Development, UAE 2009. (Reference in Arabic)
27 Haytham Ghalib Al-Nahi 2013. (Reference in Arabic)
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36 Ministere de l'Education Nationale en France 2014. (Reference in Arabic)
37 World Bank 2008.
38 Arab League Educational, Cultural and Scientific Organisation (ALECSO) 2012. (Reference in Arabic)
39 Annex 3, Table A 3-1.
40 For more info, see Annex 3, Table A 3-1.
41 Annex 3, Table A 3-2.
42 Annex 3, Table A 3-3.
43 Annex 3.
44 Adnan El Amin 2008. (Reference in Arabic)

CHAPTER SIX:

MOVING TOWARDS INTEGRATING THE YOUTH IN THE TRANSFER AND LOCALISATION OF KNOWLEDGE AND BUILDING THE KNOWLEDGE SOCIETY IN THE ARAB REGION

Introduction

Previous chapters have addressed and clarified the status of the Arab youth in terms of their cognitive, cultural, economic and social effectiveness. The enabling environments of the Arab youth were also investigated along with the problems and challenges of capitalising on the Arab youth bulge to make it a source of wealth for achieving comprehensive development. Furthermore, the previous chapter presented the results of field studies regarding the status and problems of development, knowledge and youth in the Arab region. This final chapter addresses the following questions: "what is the Arab situation?"; "what's next?" and "what should be done?" The analysis in this chapter extends to identify the most important themes and mechanisms of future movement to address this pivotal issue. It concludes by exemplifying a proposed vision for an action plan required for integrating the youth into the transfer and localisation of knowledge in the Arab region. It also presents a figurative model highlighting the components of such a plan and its various interactions.

In line with the Arab Knowledge Reports' governing principle, the proposition of these scenarios does not, in any case, suggest that they are complete or that they answer all questions. After posing all the topics and problems, these scenarios offer a framework for a proposed vision of future action for both the decision-maker and the Arab citizen. And just as we have repeatedly emphasised, the Arab Knowledge Reports intend to create a status of societal dialogue over the topics presented towards achieving an Arab vision agreed upon by concerned parties. Such a vision would later be translated into the adoption of policies and the creation of programmes and projects. Such programmes would also help accomplish the goal of effective integration of the Arab youth into the processes of the transfer and localisation of knowledge, within the ultimate goal of achieving sustainable human development in the Arab region.

Human Development and Building the Knowledge Society in the Arab Region

In addressing the effective integration of the youth in the localisation of knowledge, the third Arab Knowledge Report 2014 is built on a clear critical understanding that defines the concepts of the complex problematic relationship between the triad of knowledge, youth, and sustainable development. It is also built on an accumulation of knowledge, derived from a series of relevant international reports and literature, as well as on the results of the previous AKRs that have determined a comprehensive and critical vision of the meaning of "knowledge", "knowledge society" and "comprehensive development" in the Arab society, while also providing suggested approaches for achieving each of these priorities.

This report reached important conclusions stating that human development and the building of the knowledge society in the Arab region are facing many challenges; the most important of which is the knowledge gap. The second challenge is the "youth bulge" and associated concerns in relation to job opportunities, unemployment and capacity building. The third challenge is the reform of the supporting enabling environments, including learning and training systems. Challenges also include freedoms in their broader sense, and the systems and regulations that protect and govern the effective integration of the Arab youth in the processes of the transfer and localisation of knowledge. Despite accomplishments in certain countries, the knowledge gap in the Arab region indicates the absence of the main driver required to access the knowledge economy and the knowledge society to achieve genuine development. Knowledge is linked to development through an organic and dynamic relation; it is a tool for development and a result of it. The internal growth that is expected over the long-term is linked to knowledge elements including the efficiency of Research and Development (R&D) activities as well as the growth

Despite accomplishments in certain countries, the knowledge gap in the Arab region indicates the absence of the main driver required to access the knowledge economy and the knowledge society to achieve genuine development

of human capital which is considered to be the fundamental pillar and pivot in knowledge-based economies and societies. The transfer and production of knowledge in all its forms and manifestations including those related to technology, science, culture and human sciences, as well as the ability to use and employ this knowledge, have become strategic and decisive factors in the economic growth and advancement of the Arab region. This is especially true with ever-increasing globalisation and economic competition.

Most of the indicators and reports, however, record minor improvement in the status of knowledge in the region as they note a continued and widening gap between the Arab counties and the world and highlight the discrepancies among Arab countries themselves. This report also highlights the size of this gap, indicating its importance and severity in relation to sustainable development, by using analyses based on various international and regional indicators. As previously indicated, and according to the latest available data, the World Bank indices, including the Knowledge Index and the Knowledge Economy Index (with its four pillars represented by four sub-indices: Economic Incentive and Institutional Regime, Education and Training, Innovation, and Technology, and ICT infrastructure) indicate the decline of the Arab world's ranking on these scales. In fact, the Arab region only precedes South Asia (rank 7) and Africa (rank 8). According to the Knowledge Economy Index, the Arab world attained 4.21, a score below the global average (5.12).[1] In this same direction, the Arab World Competitiveness Report 2012 highlighted that Arab countries, when compared to a group of corresponding developing countries (13 countries), have a gap of 30% in the latent competitiveness field (innovative energy, localisation of knowledge, human capital and technology).[2] Each of these indicators emphasises the limited ability to produce, diffuse, and adapt knowledge in the fields of human development. This requires the adoption of optimal strategies for supporting the advancement of knowledge in the Arab region.

The main challenges facing the fostering environments in Arab countries in general are the weakness of the human-capital forming institutions, especially the teaching, training and scientific research institutions

The knowledge gap challenge coincides with a "youth bulge", which is considered a key feature of the phase the Arab region is currently witnessing. Statistics indicate[3] that the proportion of the age group of less than 15 years in the Arab region is expected to reach 32% by 2015,[4] and that 1 in 5 people in the Arab region falls in the age group 15-24 years.[5] This suggests that the demographic status of the Arab countries raises one of the most complex problems. A large segment of the population is made up of the steadily growing youth, who are supposed to form a real chance of progress using their energy and capabilities. However, the countries are incapable of transforming this youth segment into productive human capital. Add to this the marginalisation and exclusion that the youth is subjected to, and the subsequent turmoil and oscillations that were witnessed in several Arab societies over the last three years, the outcome of which can not yet be predicted. Addressing this critical problem is linked to the challenges of creating the supporting and fostering enabling environments when seeking to move towards the knowledge societies and economies. The challenges of such fostering environments vary, whether in their kind, volume or severity, from one Arab country to another. However, the main challenges facing the fostering environments in Arab countries in general are the weakness of the human-capital forming institutions, especially the teaching, training and scientific research institutions, and the growth of the public sector in the non-productive, wasteful employment of young people's energies. Other challenges include the state's capabilities that are based on rentier orientations adopted in most of the Arab countries and the negative effects on the development process this entails; coupled with the weakness of the private sector which is reflected in the weakness of the manufacturing industries, the entrepreneurship sector; youth unemployment as well as youth migration, or what is known as the Arab brain drain. And, finally, the gap of freedom, in its broad sense, which includes the weakness of accountability and transparency as well as the weakness of institutions' governance.

Variables and Problematics in Youth Integration and Knowledge in the Arab Region

Within this general framework and comprehensive vision of the topics related to establishing the knowledge societies and economies, it has become clear that the relationship involved in "integrating the Arab youth in the transfer and localisation of knowledge" is not a basic linear one. It is rather a complex dialectical relationship involving profound problems and a set of interactive variables, the most important of which are: knowledge, globalisation, youth and development.

With regard to its transfer and localisation, together with its surrounding global and local settings, knowledge is in itself also problematic. Knowledge economies enjoy various attributes and characteristics that need to be emphasised. These include the intensity of knowledge in terms of production and availability, the intensity of the use of ICT and the emergence of knowledge as an economic product. This comes in line with the growth of knowledge trade due to intellectual property rights, the increase of knowledge workers, the increase of the impact of knowledge through economic sectors, the emergence of knowledge management as increasingly important systems and practices, the emergence of innovation and creativity systems, and the capability of knowledge to be transferred and developed.

The analyses of this report, including the field studies, have asserted that the youth are not a single bloc, but one with different social, economic and cultural components that vary from one Arab country to another, and even within the same country. Despite these differences, there are certain values; elements and traits that are common among all the youth in the Arab world, the most important of which is probably the ability to update and innovate.

As for globalisation, and regardless of the nature of any dispute over its identification or specification, it remains the core of the civilisation we are living in today and the one we have to handle. Among the paradoxes of globalisation is that some of its positive elements constitute the pillars of the desired knowledge society. Some analysts also praise the competitiveness that has been enhanced by globalisation, whether at the state level or among corporations, thus enhancing creativity, innovation and progress. In parallel, another view deems globalisation to be in the lead in enhancing the control of some states, instead of others, in terms of worldwide knowledge foundations. This is manifested in many facts, but most importantly in the dominance of the Global North over the knowledge production sectors and the international communication networks. Meanwhile, many warn about the risks of knowledge-based economies under globalisation, as they are, just like any other capitalist economy, governed by profit supremacy and self-interest without necessarily paying the needed attention to issues of social justice, which, in many cases, leads to the widening of poverty gaps.

Globalisation has had the greatest impact on forming the identity and awareness of the Arab youth as it has shaped various globalised standards including media materials as well as food, drinks and clothing. These manifestations and the nature of the changes they engender happen to clash in many situations with the social, economic and value-based dimensions of the Arab youth and resulted in many cases in what is known as "the hybrid culture". The negative and positive effects of globalisation encompass the main mechanism that forms awareness, skills and values of the Arab youth, represented by education and formation systems, especially in universities and secondary education. In the framework of the skills and knowledge globalisation, international programmes and standards, as well as the internationalisation of education were established. Education itself has become a platform for launching the globalisation force in the country. It also strongly imposed on the youth the need to master foreign languages, particularly English. The globalisation movement also requires the youth to be able to understand

Globalisation has had the greatest impact on forming the identity and awareness of the Arab youth as it has shaped various globalised standards including media materials as well as food, drinks and clothing

Knowledge is a concept and a product that comprises all sorts of sciences, culture and arts in all disciplines. Whether implicit or explicit or whether manifested in technologies or coded in programmes, knowledge can be transferred by various means to be used and employed. Knowledge is also a "process" that can be transferred and localised. It is based on the research system in education, universities, research centres, development and innovation centres in institutions, and in ICT, which constitutes the pillar of development, connection and effective work, as well as the support for the development in science and production in this age. The connection between the production institutions and the centres for knowledge production within communication technology networks is also a necessity to ensure the continuation of the transfer and localisation of knowledge, not only as a product, but as a process that guarantees employment and production. As for globalisation, it is in mutual interaction with the progress in knowledge as a product and a process, and in what it achieves in terms of economic growth that expands the opportunities for building an economy based on knowledge.

The Arab countries have to deal with all the knowledge pillars, as they provide and create job opportunities and ensure the active integration of the youth. The required reforms for institutions of production, building policies and developing culture, all play a major role as enabling incubating environments for all these variables. The knowledge revolution we are witnessing highlights the importance of the tetrad of knowledge, youth, development and globalisation. The localisation and use of knowledge, as well as the integration of the youth to ensure the positive effectiveness of the connecting relations between the parties of this tetrad, all require policies and strategies for knowledge management and institution management, as well as establishing good governance and social justice systems. The success in building the knowledge society in the Arab region lies in the capability of the countries striving to achieve this goal in building regulations, mechanisms and networks for sustaining the implicit and explicit knowledge diffusion, building networks and providing advanced economic models.

what goes on around them in the world and therefore requires Arab countries to handle an extensive translation and diffusion movement in order for them to master ever evolving sciences in the world. This also requires focusing on the Arabic language as an incubator for the cultural development process, which in turn represents one of the conditions of success in the processes of the transfer and localisation of knowledge.

Nevertheless, the Arab development structure and its environment define the interaction between the youth and the transfer and localisation of knowledge processes, through their social, cultural and political contexts, and by relying on the extent of what this reality offers in terms of abilities and choices, and of what it involves in terms of opportunities and threats. In this framework, the importance of social justice in knowledge-based development is confirmed. It refers to the close link between the request to transfer and localise knowledge and that of public and societal freedoms. Furthermore, considering development as a means to extend the choices of the youth, in addition to developing their capabilities, makes the relationship between the development environment, the youth and knowledge localisation a mutual and close one. Youth are the knowledge carriers and development makers. At the same time, the development structures and environments provide more opportunities to prepare the youth to achieve sustainable development and enable them to access the knowledge society.

The analyses of this report showed inconsistencies in the performance of the Arab countries in terms of the effective integration of the Arab youth in the processes of establishing a knowledge society

Discrepancies in the Performance of Arab Countries in Integrating the Youth in Knowledge Transfer and Localisation

The analyses of this report showed inconsistencies in the performance of the Arab countries in terms of the effective integration of the Arab youth in the processes of establishing a knowledge society. This was brought up during the survey of Arab youth effectiveness in four major axes: cognitive effectiveness, cultural effectiveness, economic effectiveness, as well as openness and intercommunication.

Cognitive effectiveness means empowering the youth while equipping them with skills and knowledge qualifications that enable them to assimilate, transfer, employ and localise technology. They also allow them to acquire Arabic and foreign languages skills, which help them communicate effectively

on both local and international levels. There are four basic levels in defining the cognitive effectiveness of the Arab youth to create an effective human capital in terms of capabilities; one that enjoys competence and justice in transferring and localising knowledge. The first level is related to acquiring knowledge, training and forming the basic knowledge capital required for the transfer and diffusion of knowledge, the extent of achieving fair distribution of knowledge opportunities among the youth, and the extent of the ability of the education and training systems to achieve this mission. The analysis showed that the majority of Arab countries were still unable to transform their youth population wealth into knowledge wealth that would bridge the knowledge gap and move into the establishment of knowledge-based economies and societies. The 2014 UNESCO data have indicated the existence of about 7 million illiterate young people, and around 51.8 million illiterate adults (15 years and above) in the region.[6] These illiterates are not only excluded from the calculations of the knowledge economy but are also excluded from the minimum levels of human life, i.e. a life lived with dignity and social justice. Even though the Arab countries have accomplished adequate quantitative achievements in primary education enrolment rates, data show a failure to provide education opportunities that offer the minimum level of knowledge to move towards establishing the knowledge society. For instance, the gross enrolment rate in secondary education was 74.2% in 2012. Despite being close to the global average (73%), these rates remain below those of East Asia and the Pacific (84.5%), Central and Eastern Europe (93%), and Central Asia (98.6%).[7] The same applies for the Arab youth higher and university education, where the gross enrolment rate reached 26% in 2012. These rates fall below the global average in higher education (32.01%), setting aside the average in Central and Eastern Europe (70.94%), North America and Western Europe (78.95%), Korea (98.37%) and Japan (61.46%).[8]

The second level in youth effectiveness is related to the extent of achieving an advanced quality of knowledge acquired from education and training, and the extent of its success in improving cognitive effectiveness among the youth. Despite the progress achieved in many Arab states, particularly in the Gulf, most studies find that the quality of outputs, especially in the pre-university education cycle, still falls below the sought level. As for the outputs of higher education, the absence of scientific studies and evaluations restricts the judgement of their quality to the extent of employer satisfaction with the skills of university graduates. This was refuted by the findings of the studies regarding this subject, which indicated a decline in the quality of outputs and highlighted their incompatibility to the needs of the labour market. The third level is related to the development of self-capacities in the field of information and communication that aim to examine the Arab youth's capabilities and their extent in using information technology, as it constitutes a pillar for progress in the transfer and localisation of knowledge. Various data indicate an uneven spread of ICT, along with a progress in the possession of technological skills among the youth, as well as an expansion of technology use in the Arab region. Nonetheless, there is still a relative gap between the youth in the Arab region and their peers in developed countries while the employment of ICT for the purpose of obtaining knowledge is still limited. Reservations can still be observed regarding the quality of technology employment and the extent of the youth's success in integrating it as an essential mechanism in research, development and innovation, and in dealing with it as an essential structure in the scientific research system. The fourth level is associated with the active participation of the youth in scientific research activities and innovation, and highlights the determinants and obstacles standing in the way of the youth's effectiveness in diffusing and localising knowledge. In this context, and despite the difficulty of accurately defining the youth's net contribution in the research products; innovation and development, the general status of research activities and innovation in the Arab states indicates that the region

Despite the progress achieved in many Arab states, particularly in the Gulf, most studies find that the quality of outputs, especially in the pre-university education cycle, still falls below the sought level

in general is still excluded from the global competition. This comes despite some successes and the existence of inconsistent steps towards anchoring a research and innovation supporting environment. The average production of scientific research articles in the Arab region for every one million people is merely 41 research papers; in comparison with a global average of 147.[9] The Arab countries spent in 2012 between 0.03% and 0.7% of their GDP on R&D, which is less than the global average, i.e. 2.13%.[10] Similarly, innovation patents in Arab countries are negligible compared to international standards. If Arab countries want to move towards knowledge-based economy systems and knowledge-intensive production, then scientific research and innovation would require special attention and targeted policies that would make them development priorities.

The conflict between the currents pushing towards modernity and others towards tradition – that mostly drift towards the past – has led to the formation of a "hybrid culture" and diverse intellectual currents among the youth

When addressing effectiveness related to the issues of culture, identity, values, knowledge and citizenship, which are overlapping and interactive conceptual concerns, we discern many dilemmas and complex issues. Examining them in the Arab region remains imprecise most of the time and in many fundamental structural subjects. A collective awareness must be built regarding their disparities and interactions, including the problems of dealing with several dualities such as modernity and authenticity, openness and preservation of tradition, all the way to the establishment and adoption of general convictions to determine tendencies and foundations required to deal with contemporary issues. And at the forefront of these issues in the Arab region are building knowledge-based societies and economies and the effective integration of the youth in these processes.

Analyses have demonstrated that the political and cultural history of the Arab region, including the Ottoman legacy, the various Arab independence movements, the emergence of conservative intellectual and religious streams and the rise of globalisation, have played a key role as a cultural force in the formation of the Arab mind and the youth in particular. The conflict between the currents pushing towards modernity and others towards tradition – that mostly drift towards the past – has led to the formation of a "hybrid culture" and diverse intellectual currents among the youth. The data also revealed the absence of comprehensive policies to develop culture in the Arab countries, in order to build new cultural structures that are aligned with the transfer and localisation of knowledge, similar to what has been achieved in developed and developing countries such as Japan, South Korea, Malaysia and Singapore. These countries have actually succeeded in establishing new cultural structures that support scientific, technological and social development, and were thus able to achieve comprehensive development in their cultural and developmental status.

Every country in the Arab region faces the necessity of enlightened cultural development that supports modernity, scientific and critical thinking methods and creativity, as well as building social and political rules that enable the youth to expand their opportunities and choices to integrate into the global competitive economy. This would complement the renaissance project without which it would be hard to build the knowledge society, and make the processes of transfer and localisation of knowledge succeed.

As for the economic effectiveness of the youth, it has been noted that young Arab people remain far from employing knowledge in the activities of the economic field, and from appropriately participating in production and development. Several studies attribute the weakness of economic

Box 6.1

Globalisation and the Arab Cultural Identity

While discussing globalisation and knowledge societies and their impacts on the Arab cultural identity issue, many neglect the fact that the knowledge-based society, first and foremost, requires rationality in economic management, and is based on a social structure framed in a contemporary culture and great capabilities to communicate. Modern culture has created the economic institutions and has developed the information technologies for more connected and more productive societies.

Source: Kamal Abdul-Latif, background paper for the report.

effectiveness among the youth to several factors, including a decline in the quality of education, the discrepancy between educational outputs and the labour market requirements, as well as the unfavourable structure and conditions of macroeconomics which hinder investment in fixed capital and productivity growth. This coincided with a cultural pattern unfavourable for work values, in addition to social bias against women. Women do not properly participate in the labour market and economic, political and social life, despite achievements made in bridging the gender gap, especially in education. Also, economic effectiveness is related to the Arab youth in many important issues, on top of which lies poverty, with its various dimensions. By linking poor income with other dimensions such as food safety, education and health, we find that the Arab region has failed to build effective mechanisms and policies that achieve social protection coupled with social justice foundations. This is clearly reflected when examining the equality and income distribution issue that is, in turn, linked to the distribution of knowledge, skills and education opportunities.

Openness and intercommunication form a major requirement and regulating line in the overall activities aimed at the effective integration of the youth in the transfer and localisation of knowledge processes. Openness and communication among the youth are centred on several factors, including cultural openness to contemporary data in terms of knowledge, culture, sciences and arts, acceptance of diversity, active contribution to the production of the global culture, as well as the Arab youth's capability to use modern technology to communicate with what they witness in terms of cultural interactions in the surrounding world. Add to that the factor of freedom of immigration and of internal and external mobility. In this setting, the available data revealed an expansion in the circle of openness and communication among the youth in the form of travel for the purpose of tourism, or in the context of regional or international exchange. This would contribute to the expansion of the experiences of the youth, and give them the opportunity to benefit, in addition to the explicit knowledge, from the implicit knowledge enjoyed by others in developed countries. This, in turn, contributes to the transfer and localisation of knowledge in their original countries.

Box 6.2

Youth Immigration: From 'Brain Drain' to 'Brain Gain'

Serious efforts and strategies in India, China and the Philippines have succeeded in benefitting from their immigrant citizens abroad. At first, they succeeded in building internal scientific and dynamic groups that attract their citizens, either to return, or to participate in research, projects and programmes. Second, they prospered in creating networks and connections between the local scientific groups and the ones abroad, and connecting all of this to international research centres and scientific groups in developed countries. Third, they succeeded in increasing the scientific effectiveness in the nation through continuous education and training, and improving the learning environment in universities and institutes. Fourth, they have succeeded in retaining the new generations through continuous motivation and support. Fifth, they succeeded in focusing on the foreign languages, especially English.

Source: Report Team.

The basic enabling environments are the major pillars for integrating the youth into the transfer and localisation of knowledge. These enabling environments include the higher education system, the scientific research system and the overall development environment, including the infrastructure, business climate, investment projects and the laws and legislations. The analyses revealed a number of obstacles; some are related to the underdevelopment of the education and training systems (enrolment systems, teaching methods, scarcity of the research activities and student density), and others are associated to the weakness of the scientific research system (the weak research budget, lack of motivation and lack of cooperation and partnership networks with the institutions of the public and private sectors). These are, in fact, obstacles related to the stumbling of the development system as a whole in many Arab countries. In this respect, the various development indicators

Openness and intercommunication form a major requirement and regulating line in the overall activities aimed at the effective integration of the youth in the transfer and localisation of knowledge processes

confirm the progress of oil-based economies represented by the GCC countries, in comparison with the lowest-income Arab countries that occupy low ranks on Arab and international levels. This indicates the existence of an Arab-international gap, in addition to the presence of another equally important gap, i.e. the Arab-Arab gap, on many levels. These factors have contributed to the aggravation of the labour emigration phenomenon, notably in highly-skilled labour, that has affected national production, despite the financial returns.

Results of Field Studies Strongly Suggest the Need to Act...

Concerning the student perceptions of the transfer and localisation of knowledge, the answers were mostly positive

The image on the status of the Arab youth and their relationship with the process of transfer and localisation of knowledge is complemented by what the field surveys provided in terms of data retrieved from the youth themselves. In preparing this report, the field surveys conducted within four Arab states (namely Jordan, UAE, Tunisia and Morocco), have pointed out a major inconsistency in the possession of cognitive skills among the Arab youth in the final stages of university, with the emergence of a specific weakness in written communication skills in both Arabic and foreign languages. Despite the differences between one country and another, these findings are analogous to those of previous studies on both regional and international levels. This is a cause for concern especially if we look at it from the perspective of building capacities for the transfer and localisation of knowledge.

However, the status of the youth with regard to the value aspect seemed to be much better than their knowledge status. Their answers revealed positive tendencies towards a set of cognitive, social, universal and personal values. This is contrary to effectiveness, where the students in the study showed a general weakness in the various arenas of effectiveness (especially political and social effectiveness), with the exception of cultural effectiveness. The outcomes also showed that the citizenship concept was scattered between those linking it to a place and those linking it to history or belief, which indicates that this concept remains underdeveloped for the majority of these students.

The pursuit of the transfer and localisation of knowledge requires openness to the parties that produce this knowledge and possess its secrets and mechanisms. This would occur in the context of a fostering enabling environment that offers the youth opportunities to develop their competences. However, the findings of the current research have revealed a decline in the degree of openness among the sample students. A large percentage were unsatisfied with the university education system, most importantly the teaching methods and the academic research system. Concerning the student perceptions of the transfer and localisation of knowledge, the answers were mostly positive. The participating youth expressed their interest in this issue, and acknowledged its positive impact on the economy and society, as well as its role in stimulating the creativity, reducing social differences and unemployment. At the same time, the majority acknowledged the possible influence of the knowledge transfer and localisation on changing the cultural characteristics of the Arab countries and the marginalisation of local products. Opinions, however, were divided concerning the process of transfer and localisation as a consecration of subordination to the West.

Based on the results previously outlined, we confirm that promoting youth effectiveness and value systems is a collective responsibility, in which the family, school, university and society play a critical role. Also, and not to be neglected here, is the contribution of civil society institutions through the value-based dimensions they consolidate in their activities and the various initiatives they take. These develop the youth skills and their capability to employ knowledge to serve their country's economy and to promote their societies. This should take place in the context of a civic life based on values and principles of tolerant religions, the culture of human rights, ideals and morality based on moderation, mutual respect and the acceptance of diversity and difference.

A major role in the formation of political awareness and its consequences in terms of positive tendencies regarding democratic practices remain ruled by several factors, at the top of which is the education system. With its various human contents, democracy cannot be separated from people's awareness and recognition, and must be realised through education, prior to being manifested in reality. Therefore, education needs greater attention. This heightens the responsibility of governments to provide education for all and the responsibility of the school and curricula to develop positive tendencies towards volunteering activities and establish social networks, as well as anchoring a citizenship spirit and supporting it with a solid base of social standards.

In the process of renewing the cultural structures of the Arab society, citizenship imposes itself as one of the pillars of identity formation, and as an essential introduction to the democratic practice. Citizenship is based on equality in rights and obligations, social justice, the rule of law and other values that respect humans and guarantee their rights to a decent living and effective participation in building human civilisation. This can only be achieved through the diffusion of the culture of positive citizenship starting at childhood, and offering the opportunity, through curricular and extracurricular activities in all education cycles, to practice the various dimensions of this citizenship and absorb them in such a way that they become a part of the person's conscience in the individual, social and global self.

In this context, university systems should bear the responsibility of acquiring the cognitive effectiveness and forming the youth to enrol effectively in the labour market and public life. The responsibility of govermental and non-govermental organisations and youth institutions, is as important considering they are among the pillars that enhance the role of education and training systems. Communication with other young people, either on-line or face-to-face, and opening up to other cultures can enhance the acquisition of life skills. And for that to be achieved, countries must make efforts to develop the openness horizon among the youth within the framework of a well-planned policy and in accordance with clear objectives and accurate standards. This would help in directing openness efforts appropriately be it in order to select the parties whom openness efforts should be directed (to universities, academic laboratories, training centres, research institutions and scientific clubs and organisations), with the perspective of enhancing the student experience and empowering their competitive capacities.

Future Action: Towards Effective Enabling of the Arab Youth in the Transfer and Localisation of Knowledge

Box 6.3

Bright Spots in Scientific Research

Studies show that there are solid factors that can be built upon. They are manifested, firstly, by the presence of universities, institutions and research centres comprising active scientific cadres. Even if they do not constitute the required critical mass yet, they are however, active participants. There are also some highlights in many fields. In the research field, for example and not exclusively, Morocco has taken the lead in neurosciences, Tunisia in communication sciences and Egypt in agriculture and biotechnology sciences. Egypt and Jordan have taken the lead in the pharmacy and pharmaceutical industry sciences. The GCC countries were ahead in medicine and pharmacy. Obviously, these bright examples are still in a development phase compared to the global levels. However, they can be built upon while seriously addressing the weaknesses of the research field, especially when it comes to developing corporate governance, building motivation systems, devising comprehensive strategies for research and linking the latter to development in the region.[11]

Source: Report Team.

The region is currently witnessing a historical shift in which it enjoys the youth wealth alongside financial wealth. It is a shift also characterised by the rise of knowledge and technology wealth in which the developed world around us is surging, and which is available due to the globalised nature of accessible knowledge, if the true political and societal will is available; and due to the nature of the

Citizenship is based on equality in rights and obligations, social justice, the rule of law and other values that respect humans and guarantee their rights to a decent living and effective participation in building human civilisation

liberal reality prevalent in the world despite many constraints and obstacles. The triad of financial wealth, human-youth wealth and the global knowledge revolution means that the opportunity of the Arab world to make its breakthrough is presented, even strongly required. It is an opportunity for the countries of the region to move from a traditional rentier economy to knowledge-based economies, and from a youth bulge to a demographic treasure characterised by the economically and socially active youth with what they own in terms of knowledge equipment and effectiveness based on principles of knowledge, skills and values, in order to build a new Arab in a new world- one that enjoys freedom, dignity and well-being.

Scientific studies have confirmed the positive relationship between student achievements in science and maths and the economic progress of society

Box 6.4

A New Education for Building New Cadres

The job map and its management have altered. In fact, new jobs need people who enjoy various experiences and know how to smoothly deal with the diverging and complex technical issues, in addition to those related to management. For example, an IT operator has to be someone mastering technology and protecting it, and must also be an expert in business management. Scientific studies have confirmed the positive relationship between student achievements in science and maths and the economic progress of society. In countries in which achievements in science and maths has increased, and that have moved towards teaching methods based on critical analysis and instilled cooperative education, the production efficiency has also increased alongside an increase in national income. Their economies have also prospered. This is attributed to the formation and enabling of their labour forces.

Source: Sherif Kandil, background paper for the report.

Axes and Mechanisms of Action

The field studies and analyses presented in previous chapters of this report, which revealed the existence of problems and dilemmas that are hindering progress, place enormous responsibility on policy and strategy-makers to act before these challenges get worse and start to threaten stability and growth.

In order for the youth to become an active, knowledge-based economic and social force in building a development renaissance based on knowledge and education, a social cohesion must be built on strong foundations of social justice; enlightened cultural development that changes the social perception of the human being; knowledge; the fair distribution of skills, knowledge and capabilities; handling ICT; enhancing the will of active participation; and updating the innovation systems and promoting them among the youth. Social cohesion imposes social justice as a compulsory condition for the progress of the nations, puts an end to marginalisation and exclusion and integrates youth as an active energy in the transfer and localisation of knowledge, as well as the progress of the nations.

These facts highlight the need to act along clear axes to induce deep changes that are translated into accomplished policies and strategies that can comprise the following:

Building National Institutions for the Integration of the Youth

The youth integration process in the field of knowledge production and diffusion necessarily requires, in addition to training and formation institutions, the establishment of developmental institutions aligned with the production and governmental services sectors, as well as the private sector in various areas (health, education, food, work, employment, technology, arts, environment and science). These institutions must grant the youth the opportunities to deal with an informal education and training system, enabling them to obtain degrees and experiences that the government and the private sector acknowledge. These would act as systems that motivate integration and positive participation, and turn the school-to-work period for the youth and public life from an invalid state, destructive to the acquired skills, to a stage of investment and testing of these skills in reality; which contributes to exploiting and enhancing them. The absence of these institutions in particular, and the absence of mechanisms of integration of the youth in society in

general, in the Arab region, are probably among the most important reasons for the length of the periods during which the youth wait, after graduation, to enter public life.

Arab countries should also work on equipping and building national services programmes for the youth, which would enable them to start their own local projects and programmes that address the development of entrepreneurship and respond to the local needs of the youth. Such programmes would grant the youth formal and informal training opportunities allowing them to gain experiences, knowledge and useful expertise and skills. Add to that other programmes that provide information about the labour market, guidelines for career paths, knowledge of available job opportunities, especially in the private sector, as well as the requirements for obtaining these opportunities. As for communication and marketing skills, they are among the essential skills for the youth. They promote confidence in themselves and in their society, and deepen their belonging and motivation towards the future.

This report also addresses the social responsibility of corporate capital in offering continuous training programmes that prepare for work on one hand, and a continuous reform of the education systems on the other. Continuous education and training must become a permanent philosophy regulated by policies that strive for the knowledge society.

Reforming University

Most Arab universities have numerous problems. At the top of these lies the issue of student density that does not match the absorption capacities of universities and the weak available resources and scientific facilities and the issue related to the status of the teaching staff and their development opportunities. Furthermore to be noted are the lack of traditions rooted in scientific research and the absence of research plans; which have produced a quality of outputs that is below standards.

Box 6.5

India's Experience in Building Democratic Institutions and Organisations for Enabling the Youth

In the institutions established by India during the rule of Nehru, the youth learn, train and work in planning, devising strategies and implementation in the fields of health, food, education, training, labour, employment, culture, arts, behaviour, life values, citizenship and participation and effective handling of the problems of environment, technology and entrepreneurship. They learn through direct work and training as well as the collective practice of knowledge. They act as informal education institutions, working in parallel with the formal education system, as well as with universities and secondary education. While the State defines the public policies, priorities, needs and vision of these institutions, the youth tend, through these institutions, to conduct the operations of planning, implementation, work, learning, training and connection to the labour market. The State and the private sector acknowledge the outputs of learning, in accordance with rules that inspire motivation and mutual trust. These institutions have aimed at: first, enabling the youth through work, participation, education, training, culture, knowledge and development of capabilities; second, achieving equality, addressing gender-based discrimination, supporting women in terms of health, education, work and social protection,; third, finding institutional connections and strong ties between the development sectors in society, such as education, health, work, training and other sectors; fourth, building technology networks and research and development systems in the field of youth development and capacity-building; and fifth, creating an effective climate of entrepreneurship connected to knowledge, technology and knowledge economies.

Source: Kumar 2009.

The Arab countries ought to respond to international development resulting from the globalisation phenomenon and associated intensification of competition over higher education markets and the increase of investment costs. It has become imperative to take measures to reform higher- education systems, so that they can keep up with international standards and guarantee high-quality conditions, as well as measures of accreditation in order to improve the quality of the human capital and its competitive capabilities, in addition to focusing on the philosophy and systems of continuous learning. Throughout its

The Arab countries ought to respond to international development resulting from the globalisation phenomenon and associated intensification of competition over higher education markets and the increase of investment costs

Box 6.6

The Institutional Accreditation for Higher Education Institutions as a Mechanism

Obtaining institutional accreditation for higher education institutions can be considered the minimum required to ensure the quality of many elements related to the formation of students for the transfer and localisation of knowledge, and for their acquisition of the knowledge skills required for this process.

According to the Saudi National Organisation for Assessment and Accreditation "I'timad" (www.ncaaa.org.sa), the quality insurance and accreditation standards for higher education institutions comprise 11 standards that include the institutional context, learning and teaching quality, the support for educating students, infrastructure, and societal contributions.

It is certain that meeting these standards and obtaining institutional accreditation by the Arab universities would effectively contribute to insuring the quality of higher education and the quality of the final product, as well as forming it to be able to contribute to the transfer and localisation of knowledge.

Source: Walid Zibari, member of the report's Reading Committee.

The accelerated and significant change happening worldwide in technology, labour, competitiveness and globalisation has imposed an accompanying adjustment in the environment of international institutions and organisations working in the transfer and production of knowledge

limited years, higher education cannot fulfil the requirements of professional life, as well as those of providing ever-changing economic and social environments and international markets driven by steadily developing technologies. This can only occur if graduates are capable of following the changes and updating themselves independently after graduation.[12]

Facing these challenges requires an increase in budgets allocated to higher education and research, devising strategic objectives and action plans that can be implemented, creating accurate and credible databases as well as high-capacity networks, in addition to encouraging the private sector to contribute to research and university education.

Restructuring and Activating the Research System

The emergence of the government sector in conjunction with the strong role of the state in managing research activities in the region, and the ties of these activities with public universities in most Arab countries, allowed for the domination of bureaucracy, the centralisation of management and the hierarchal organisational structure of research institutions. This, however, does not match the requirements of building a society, and hinders the proper management of knowledge, in a way that allows communication with the world. It is also incompatible with drafting cooperation frameworks with universities and advanced international research centres. Efficient knowledge management necessarily requires shifting from a bureaucratic and hierarchical structure to governance based on intensive knowledge. In fact, research institutions, as well as R&D and creativity and innovation centres should operate in a "Flat World" and have live interaction that is based on scientific ethics and standards. Knowledge systems should also be connected with national development programmes and plans.

The accelerated and significant change happening worldwide in technology, labour, competitiveness and globalisation has imposed an accompanying adjustment in the environment of international institutions and organisations working in the transfer and production of knowledge. This necessarily requires a new pattern of leadership that enjoys new capabilities and mental models. The Arab region in its management of scientific institutions (universities, research centres and creation and innovation centres), is in need of a new leadership, with specific intellectual characteristics, communication skills and cooperation with the Flat World, in addition to personal capabilities in knowledge management. This aims at building an integrated system of R&D that forms an integral whole for comprehensive relations with economic, political and cultural structures and legislation, as well as information and knowledge bases in their mutual interactions with the R&D system in institutions locally, regionally and globally. Successful knowledge management expresses knowledge connections in its links to effective relations in society.

It is also necessary to establish authorities that are responsible for the collection of data and information on scientific research

Box 6.7

Technology Parks and Business Incubators: Towards Establishing Supportive Environments and Technology for the Localisation of Knowledge

Since the 1950s, so-called technological parks or gardens have emerged, based on the concentration of industries and research institutions in the same space, in order to establish the tie between research and production systems. Drawing on these experiences, a limited interest appeared at the beginning of the 21st Century among some Arab countries to launch such initiatives in the vicinity of universities and industrial areas, and examples of this abound; the El Ghazala Technological Park in Tunisia, specialises in the production of communication applications. This park includes a research centre, an educational institution, a business incubator and start-ups operating within partnerships with foreign institutions from India, the United States and other countries. In Egypt, a city for scientific research and technological applications was established in the area of New Borg El Arab and Alexandria. It is a research body that aims at linking industrial entreprises with scientific research institutions by focusing on technology incubators for small and medium industries. The Arab Science and Technology Foundation was established in the UAE and is based in Sharjah. It aims at strengthening the link between the world of production, universities and research centres inside and outside the Arab world by encouraging companies to provide the funds necessary to employ research in priority areas of economic development.

On another level, business incubators were centred within universities or in technological cities. Business incubators are an intermediate environment between the educational institution and the independent work field. The passage of university graduates through business incubators represents a transitional stage limited in time between the study period and the stage of entering the world of production. Many countries such as China and Malaysia have betted on these structures to support research and development activities and generate technology through the creation of a fabric of innovative institutions in various specialisations.

Incubators adopt and host young entrepreneurs who have graduated from academic institutions, providing them with a space for a specific period with the minimum services to help them transform their ideas and creativity to a marketable product. The incubation period usually lasts three years and ends with a final project and then new innovators and projects are welcomed.

Information about success stories achieved by these incubators in the Arab world is still scarce because the production of accurate statistical information is still not part of their institutional practices. Therefore, we do not have sufficient data on the number of job opportunities created every year by business incubators in Arab countries, nor do we have information about entities that were successful after being hosted by, and graduated from, such incubators.

Noureddin al-Diqqi, member of the report's Reading Committee.

In conclusion, there is an urgent need to build supportive and motivating policies and strategies to engage the government and the private sector in developing the scientific research system, including the reform of university, pre-university education and higher education

activities, institutions, policies, cost and its expenditures. One of the results of the absence of this type of institution is that research efforts have become unplanned and not related to the immediate and future needs of the region. We cite for instance the insufficient research in energy, desalination and environment preservation. The absence of such institutions shall hinder the training efforts, result in the absence of agreed scientific standards and delay their localisation through scientific means and methods.

In conclusion, there is an urgent need to build supportive and motivating policies and strategies to engage the government and the private sector in developing the scientific research system, including the reform of university, pre-university education and higher education. This also entails building creativity and innovation systems in institutions and at the national level, supporting the technology infrastructure in training and research, as well as enhancing the effectiveness of production entities in developing training and establishing motivation systems for the youth in R&D.

Encouraging and Supporting Foreign Investment

Studies have confirmed the importance of Foreign Direct Investment (FDI) in the transfer and localisation of knowledge. There are lessons to be learned from the experiences of those countries which have made progress towards building knowledge economies and dealt with FDI by reducing its disadvantages and maximising its advantages and by establishing conscious standards for integration and cooperation between this investment and the local efforts made in development, the establishment of advanced

technological industries that encourage youth employment and the dissemination of the technology of innovation, scientific research and development. In order for the countries of the region to advance towards modernity and the establishment of the knowledge society, such as the corresponding countries in East Asia and Central and Eastern Europe that have achieved progress in this regard, they have to take into account that FDI is a major indispensable component in the process of the transfer and localisation of knowledge, the transition to modernity, the restructuring and modernisation of institutions, and the establishment of the knowledge economy and the knowledge society.

Continuous education and lifelong training should be a social motto adopted by the society as a whole

Encouraging and Supporting the Private Sector

The private sector should support development activities that are based on knowledge, technology and the integration of the economy

It is necessary to encourage the private sector, support it and stimulate it to create job opportunities for the youth, transfer and employ knowledge and gradually shift from the policy of government employment to develop the personal capabilities of the youth, encourage entrepreneurship and build mechanisms that integrate young people into the labour market. This requires countries in the region to improve the work environment and ensure the proper governance of the public sector, in addition to reducing the size of the public sector and encourage the private sector role in the production and development of the economy. This must happen together with the establishment of links between the youth and the labour market and education through National Qualification Frameworks that also need to be established. These efforts should be made along with the establishment of institutions to support young people in taking advantage of the formal and informal systems of continuous learning that are closely linked to the private sector and its evolving needs.

As already established, it is essential to encourage and support the private sector, but this does not eliminate the role of the State in drafting policies that ensure protection of social justice and citizenship rights. The private sector should support development activities that are based on knowledge, technology and the integration of the economy. This support should be based on the pillars of social cohesion, without marginalisation or exclusion. These development means should also support the participation and freedom of women and expand opportunities available to them, in particular, in the trasfer and employment of knowledge.

Supporting Training Programmes and Capacity Building

It is also necessary to support the public and private sectors along with the civil society organisations in order to enable them to contribute to the establishment of training and capacity building programmes, in light of successful experiences in other countries such as India and Singapore. Continuous education and lifelong training should be a social motto adopted by the society as a whole. Such programmes should ensure the continuity of re-qualification and capacity building for the individuals to enable them to cope with the rapidly evolving job market whose changes are accelerated by the knowledge and technological revolution.

In order to provide high-quality education and training in addition to the qualification of the youth to join the labour market, there must be a high-level commitment from employers; one based on advanced legal and institutional frameworks. In fact, training in work institutions is a process that should be regulated by law and carried out within the framework of government policies and institutions enjoying enlightened governance. There is also a need to make training a part of the formal agreements between companies and universities, along with orientation centres for students in each university to facilitate their enrolment in training in the companies that have signed the agreements, noting that the training certificates should be recognised from the private sector, the government sector and the university.

Training and qualification should focus on providing young people with transferable

general skills, such as problem solving, critical creative and contemplative thinking, logical thinking, having a broad imagination, taking the initiative, flexibility and the analysis of the issues from different perspectives. These skills include trying innovative and creative ideas and making decisions on the basis of experience, empirical evidence and the use of Arabic and foreign languages to stress the value of intercommunication and openness.

The consideration of training leads us to the issue of secondary technical education in the Arab region. It is noted that this education is either exaggerated, as is the case in Egypt, or less available than needed, in varying degrees, in terms of both quantity and quality. It is in both cases an education similar to secondary education but does not lead to university. Hence, it turns into a second-class education socially and outside the scope of the new requirements of the labour markets that should advance on the basis of knowledge and modern technology. In its 2012 Education for All report, UNESCO considered that the separation between the general and technical path in secondary education compounded the issue of inequality in opportunities, increased academic leakage and harmed the professional potential of the youth. Secondary education must be dealt with – for both the technical and general path – on the basis of the availability of a wide cognitive and skill base that prepares young people from either entering the labour market or continuing their education at universities. This way, secondary education becomes a good source to provide universities with young people who enjoy the general skills that help in gaining more specialised skills. Good planning can only be built on a broad base of general knowledge and skills. This is the essential mission of secondary education, and this perspective could provide the means for adopting the philosophy of continuous learning for everybody for life.

Building education and training systems, producing knowledge and encouraging the private sector are not enough, as governments in the Arab region are still responsible for preparing the general environment for the transition to a productive economy based on knowledge and scientific research. The elements of knowledge, economy and the youth would then merge to achieve economic growth and build a knowledge society and economy.

Building Arab Qualification Frameworks

The UN message entitled "Youth as a Smart Investment" indicates that investment in the youth and families in the Arab region is mainly focused on education and training. However, the majority of young people cannot benefit from these investments or even use their skills, due to the low value of the acquired skills that are not compatible with the requirements of the labour market, in addition to not giving great importance to the factor of merit in getting a job. From here comes the need to adopt qualification systems for young people to get education and jobs, in addition to making available the various education fields and the second-chance options as essential elements in the development of the productive workforce. A society that is based on merit reflects in a clearer way the needs of the market for education and training systems. It thus directs the demand for "appropriate" skills in the "appropriate" areas and bridges the gap between the needs of the market and

A society that is based on merit reflects in a clearer way the needs of the market for education and training systems

Good planning can only be built on a broad base of general knowledge and skills

The majority of studies agree on the need for state intervention with effective mechanisms to support the private sector and civil society organisations to integrate young people into the labour market. This is done through providing the sector with knowledge, skills and technical training and making it acquire life and social communication skills and standardising this relationship in light of new "National Qualification Frameworks" linking the levels of skills and knowledge and the levels of the labour market. This can also be achieved by building institutions to support young people after graduation – or even during their studies – and linking between the general and technical secondary education and the university. All of these are important mechanisms, but their activation requires institutionalising them in the form of constitutional, legislative and legal rights to protect young people and motivate the private sector. The mechanisms should also be enabled to function on the basis of good governance.

the outputs of the education and training system.

The experience of the European Union countries since the 1990s and the current experience of East Asian countries emphasise the importance and necessity to establish a National Qualification Framework to integrate labour, especially young people, in the knowledge economy. The Arab world should also use the National Qualification Framework as a way to join the global competitive markets. The National Qualification Framework is the mechanism that links the knowledge and skills provided by the various education stages, levels and programmes on the one hand, and the knowledge and skills required in the labour market in production and services on the other hand. It should therefore be an important element in the recruitment process due to its inclusive standards that regulate the skills and knowledge needed for the job market at various levels and also its ability to contribute to the development of education, training and assessment tools. This is in addition to their motivating role in activating production in the private sector and encouraging confidence in young people and the abilities, knowledge and skills they provide.

The Arab states are required to adopt the developmental state model, based on the foundations and pillars of building a knowledge society

Transition to Knowledge-Based Development

The current global changes dictate considering and addressing the impact of many variables on the status of economic, social and cultural structures in the Arab region. We must interact with these variables, benefit from the opportunities they provide and avoid the risks involved. The most important impact of international changes on the economy is the underlying shifts in the labour market and the economy structure manifested in arbitrary changes in the behaviour and structure of the institutional organisation of the labour market. Production and services enterprises in the labour market are seeking to achieve highly-efficient institutional performance and highly-flexible institutional systems that focus on achieving quality with distinct standards, diversifying economic structures, raising productivity, encouraging the behaviour of initiative-taking, creativity and problem solving, as well as building the systems of scientific research, development, innovation and creativity. In the context of globalisation and the knowledge and technology revolution, these new systems were based on a network for communication and information exchange directly between all employees. They produced new patterns of social and cultural relations, relying on directness, access to information, transparency, expansion of the base of participation, accountability and the rule of law. These conditions also allowed the internationalisation of knowledge and skills and the movement of capital. If the Arab region aspires to advance, it will not be in isolation from these changes, and it should build the policies and strategies to achieve socio-economic, cultural and historical progress that links it to global civilisation and makes it a competitive partner.

The Arab states are required to adopt the developmental state model, based on the foundations and pillars of building a knowledge society. They also need to exclude the model of the rentier economy-based state, so that it enjoys the capacity of turning the remarkable capabilities and human

Box 6.8

The Experience of Singapore

The experience of Singapore emphasises important pillars, including the dependence on high-skilled human capital that has intense knowledge, the attraction of FDI and maintaining stable and peaceful relations with neighbours (China and Malaysia, mainly), while improving the business environment, finance and fighting corruption. This is accompanied by the interest in R&D, establishing the national qualification degree (the framework of national qualifications) to provide the needs of the industry with the required standards, and engaging it into continuous training programmes. All of this sits in the shadow of the social justice principle, not "social welfare", starting from providing shelter to every citizen, building an education system that offers high-quality education to society, and providing governmental support to education and health.

Source: Ahmed Kawaz 2011.

resources in the region into a base that develops social cohesion and integration, and works on the transfer and localisation of knowledge. The localisation of knowledge is among the major levers in economic growth. It guarantees the rights and welfare of the Arab human being. Likewise, it also reduces poverty, creates decent job opportunities and regards social spending as a true investment for the future and an enforcement of the citizens' right to education, health and work. The state should be supportive of effective institutions and good governance, more submissive to accountability and strict in enforcing the rule of law, supportive of the individual's participation, and assertive of positive citizenship. Development, in this sense, achieves effective competitiveness and positive integration in the global civilisation, in its present global sense.

Social Justice, Citizenship and Preserving Social Cohesion

The concept of social justice is an essential axis in development that strives to build a knowledge society. However, building this society is not limited to establishing the knowledge economy, despite its importance. The knowledge economy, by nature, is concerned essentially with economic growth and is more interested, as any other capitalist economy, in profit than in the cause of equality and citizenship. Hence, the focus is on the element of social justice and on transcending the knowledge economy in its narrow sense, and seeking to establish the knowledge society which is an integrated "state" of progress and human welfare. This is why we emphasise the tetrad of knowledge, social justice-based development, globalisation and youth, as four dimensions that ought to be integrated in order to ensure success of the transfer and localisation of knowledge and to establish a knowledge-based progressive society. We also underline the issue of citizenship for the equality, active participation and enabling of women in the Arab region; these are indicators of social justice which is a pillar for development that achieves the integration of the youth and asserts their effectiveness as well as the development of their cognitive and economic capabilities.

The knowledge-based development that seeks the establishment of the knowledge society based on social justice will face no contradictions between the freedom of the market and the state. The market and the state are integrated in achieving development in this sense. The state is also responsible for supporting and developing the private sector so that it assumes its role in achieving a comprehensive and non-exclusionary development that encourages everyone, and assumes its social responsibility, provides decent job opportunities, and encourages participation among all citizens without any discrimination or exclusion. The state is also responsible for providing protection policies and legislations that ensure the enforcement of rights and provide the fundamental structure for technology and the transfer and localisation of knowledge. In the context of market freedom and state support, the private sector enhances competitiveness by investing in the human capital and in localising and producing knowledge and human welfare.

Administration and Good Governance of Institutions

It is essential to discuss the reform of institutions based on good governance and the development of a flexible structure that promotes expertise, individual capabilities and plurality. One of the obstacles to progressing in the transfer and localisation of knowledge and the integration of young people to move forward towards modernity in the Arab region lies in the relationship between the traditional cultural structures and the rentier economic structures. This backward cultural and economic mixt excludes the youth instead of integrating them, supports disintegration instead of achieving cohesion and imposes cognitive structures that impede the path of modern institutions – such as universities, research centres and others – in their progress towards the transfer and localisation of knowledge; thus preventing the region from completing the modernisation and growth project and from establishing the knowledge society. The changes in the revolution of knowledge, technology and globalisation impose institutional reforms based on scientific research, development, creativity and innovation, in addition to transparency,

The knowledge economy, by nature, is concerned essentially with economic growth and is more interested, as any other capitalist economies, in profit than in the cause of equality and citizenship. Hence, the focus is on the element of social justice and on transcending the knowledge economy in its narrow sense, and seeking to establish the knowledge society which is an integrated "state" of progress and human welfare

the fight against corruption, knowledge management and openness to the world on the basis of mutual dependence. The efficiency of these institutions is asserted through increased productivity and through the cultural, scientific and economic openness to the world.

Supporting Arabic Language Reform Programmes and Advancing it Towards the Knowledge Society

We must look at reforming the use of the language and its role in the knowledge society as an opportunity for the prosperity of another aspect of regional collaboration and integration and for strengthening cooperation between the involved institutions at various levels, and through the engagement of all expertise within and among the Arab countries. The translation and language reform also constitutes an area of partnership outside the Arab region, since the publication, translation and distribution partnerships might be an opportunity to revive the translation movement from the perspective of the transfer and localisation of knowledge and the perspective of global cooperation, as well as in terms of supporting the areas of publishing and culture in the Arab region.

ICT applications are expected to have deep and widespread effects. However, the nature and extent of these effects depend on what the relevant parties do to build and strengthen the different categories and patterns of the Arabic content

ICT applications are expected to have deep and widespread effects. However, the nature and extent of these effects depend on what the relevant parties do to build and strengthen the different categories and patterns of the Arabic content. If the governments and other parties concerned fail in generating and disseminating the cognitive content that is closely related to social and economic conditions, cultural structures and citizens' aspirations, it is likely that most of these effects will have negative consequences. In fact, the opportunities that new technologies offer are accompanied by significant risks and they require informed approaches that keep up with rapid technological development and employ it in the pursuit of sustainable, balanced and comprehensive socio-economic development. The Arab countries can then look forward to a better future, in which new technologies play a supportive role in responding to the chronic crises in the region, both on the cognitive and developmental levels.

Box 6.9

Efforts by the League of Arab States to Develop the Arabic Language

The League of Arab States has always advocated for a more focused approach to the Arabic language in schools and universities, as well as in the street, in homes and in the printed and audio-visual media outlets, both to learn and teach it. The League highlights the need to pay special attention to the Arabic language curricula in order to improve the quality of its teaching and provide skills as the historical, social, cultural and scientific communication tool. For example, the conference of the Arabic Language in Education Between Identity and Creativity called for the need to emphasise the cultural distinguishing character; develop the teachers' pride in the Arab and Islamic identity; support their confidence in the Arabic language and its ability to assimilate modern sciences; meet the communication needs in life without confining them to specific purposes; support efforts aimed at the use of modern technologies; and take advantage of these technologies in the areas of language teaching. It also recommended to call on the Arab League Educational, Cultural and Scientific Organisation (ALECSO) to establish a centre to address the development of the Arabic language in terms of learning and teaching, as well as the study of its current status and the development of relevant curricula and teaching methods, while taking care of the qualification of its teachers.

Source: Ahmed Kanaan 2004.

Box 6.10

Promoting and Developing the Language

It is not enough to call for the promotion and development of language learning. We must build the foundations of clear initiatives on regional, national and institutional bases. The objectives should include the reform of the language itself. Without such initiatives, the language speakers will not succeed in investing in the capabilities offered by the current and future internet technologies.

Omar al-Bazri, member of the report's Reading Committee.

Learning Foreign Languages as a Gateway for the Constructive Interaction with the World

The emphasis on the Arabic language stems from its link to the issue of identity and

social cohesion and the enabling of people to achieve progress and master the link to modern technology and digital culture. However, this assertion brings us necessarily to the importance of the youth's acquisition of foreign language skills in reading, writing and understanding – notably the English language, which has become the first language of communication in the scientific, commercial and internet sectors – so it becomes a lever and a tool to achieve direct communication with the world.

No one can deny the extreme importance of foreign language education in this age, for learning these languages provides knowledge of sciences and communication with them. It also achieves communication and acculturation with the world. This does not only apply in Arab countries, but also to all the countries of the world. Although English ranks first among the languages of the world in the percentage of people who learn it, reports indicate a growing demand for other languages such as German, French, Chinese, Japanese, Russian and Spanish, as well as Arabic. Developed countries such as the United States and Britain have encouraged the teaching of foreign languages in general and higher education, as politicians and businessmen believe that remaining a key player in global competition, both politically and economically, requires the prevalence of bilingualism and multilingualism among peoples, as one of the requirements for global competitiveness.[13]

However, the fate of teaching and learning languages in Arab countries depends, from our point of view, on two facts:

- The first is internal, represented in the fears many specialists expressed claiming that teaching foreign languages might lead to the marginalisation of the Arabic language, thus harming the unity of cultural fabric and social cohesion among Arab peoples;

- The second is objective, represented in providing a strategic vision for language teaching and in securing the means necessary to achieve this goal. These means are many and some of them – or perhaps the most important – include the good formation of teachers and professors and the building of the necessary infrastructure, such as educational tools and language laboratories.

Successful experiences in East Asia in the transition to knowledge societies and knowledge economies inform us that the attention these countries geared towards the English language was one of the factors that contributed to, and supported, their succes as was the case in Malaysia, India and China. It should be noted in this regard that learning languages within the regular classroom is no longer sufficient to achieve high levels of language proficiency that enables using it correctly. It rather requires the provision of opportunities for using it in different situations of everyday life. There are some promising global initiatives in this field, such as the experience of Singapore. In the context of its continuing efforts to encourage the correct use of the English language, fearing that weak language skills might affect its reputation as a centre for business, Singapore launched a campaign called "Speak Good English" to push the level of the language forward. For this purpose, it hired the most famous comedian who imitates women in Singapore; Kumar who impersonated the role of "Queen of Grammar" in a series of videos, in which the Queen taunts the citizens because of the way they use the English language.[14]

No one can deny the extreme importance of foreign language education in this age, for learning these languages provides knowledge of sciences and communication with them

Cultural Development

Taking care of the youth, equipping them with knowledge and skills, and forming them as a knowledge capital constitute the decisive factor in enabling developing countries, including Arab ones, to bridge the knowledge gap and move forward towards the establishment of knowledge economies and societies. Due to the link between cognitive efficiency and the systems of social and cultural upbringing, studying the latter is one of the most pressing topics to help us understand the organisational

context of formative scientific operations to which the Arab youth are exposed, and their responsiveness to the requirements of involvement in the dissemination and production of knowledge and the shift towards a knowledge-based economy.

Therefore, countries should emphasise the need to bring about an enlightened cultural development that supports critical scientific thinking, a spirit of scientific research of innovation and creativity and the values of diligence, proficiency and excellence. This cultural development should also support the setting up of social and political norms that enable young people to expand their choices and their integration into the global competitive economy, for the purpose of completing the scheme of modernity, without which it would be hard to ensure the success of processes of the transfer and localisation of knowledge or to build a knowledge society. In addition, establishing the culture of positive citizenship in the Arab countries does not abbreviate the concept to the mere belonging to a geographical spot; to the formal possession of an identity card or national passport; or the mere feeling of links shared with members of the community, such as blood, neighbourliness, habitat and way of life. The establishment of the culture of positive citizenship expands to include granting the citizen rights and duties. This cultural system will be a framework to regulate the relations between the citizens themselves and between them and the state, as well as to support moral values. The need to stimulate active participation in the areas of public life should also be encouraged.

The factors of integration between the countries of the region are still represented in language and religion, as well as in history and geography, which together represent the attributes of a common identity

Box 6.11

Cultural Development is a Condition for Sustainable Development in the Arab Region

Decision-makers may not be surprised that the most important determining factors of development are mainly uneconomic, such as the rule of customs and traditions, the loss of constitutional life despite the existence of a constitution, (how can the rule of constitutional institutions and the loss of constitutional life be present at the same time?), the absence of a growth project in general, and the lack of an upscale educational system that serves the growth project in particular. The economic solution in developing countries often depends on other variables, including cultural, social and political ones. These conditions are necessary for growth and development, and if they remain absent, it would be difficult to talk about stages of transition, and they will be unsustainable if they actually happen.

Source: Ahmed Kawaz 2011.

Achieving Economic Integration in the Arab Region

The achievement of regional economic integration has become imperative for the development of the countries of the Arab region, and this calls for accelerating efforts and optimising them in this direction. The factors of integration between the countries of the region are still represented in language and religion, as well as in history and geography, which together represent the attributes of a common identity. However, this identity has not yet achieved an integration based on institutional factors, development programmes, or a conditioned futuristic vision in integrated plans, as has happened in the countries of the European Union, for example. The transition to a diversified economy is based on knowledge as an unlimited source, on dealing with the requirements of globalisation and the blocs it imposes, and on a fierce competitive environment that imposes regional blocs and integration in the Arab region, along the lines of international economic blocs. Therefore, achieving economic integration in the Arab region requires the establishment of comprehensive strategies and policies, supported by an infrastructure, a road network, plans for civil protection to link the region's countries to each other and to other blocs, such as Europe, and the drafting of plans that support small businesses and youth entrepreneurship. This integration is also based on a collective interest to achieve peace in the region, consolidate the factors of stability, prosperity and human rights and manage migration and labour mobility between countries. It also

necessitates the evaluation of work projects and organisations throughout the Arab region, according to the training systems and advanced technological research they provide.

This integration is capable of ensuring Arab countries sustainable development based on economic diversity, varied growth sources and the establishment of knowledge-based economies. This shall open the door to modernity, the establishment of the knowledge society and the realisation of a comprehensive growth that provides people with well-being and dignity throughout the Arab region.

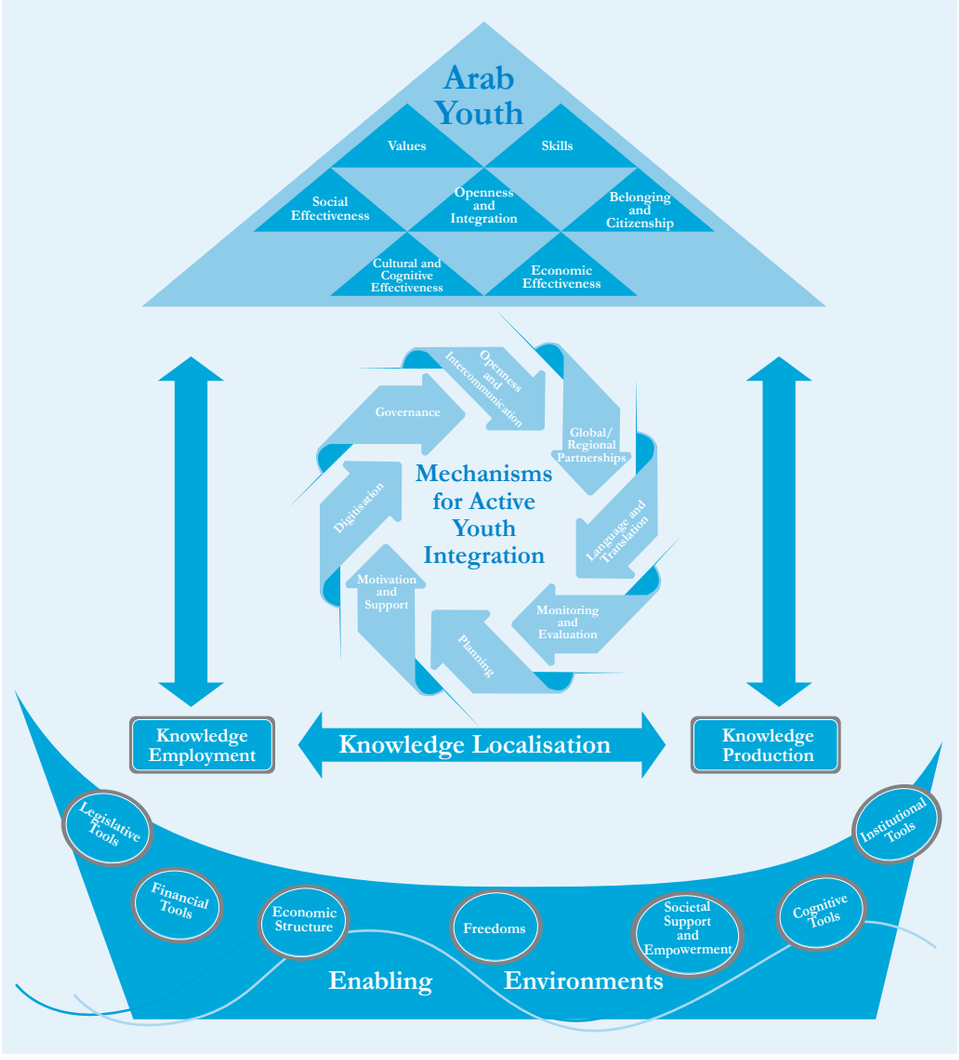
A Metaphorical Model to Move for Future Action

Future action towards efficient youth integration in the transfer and localisation of knowledge depends on the availability of the four major elements previously mentioned; first, enhancing the enabling systems of the Arab youth; second, strengthening the systems of the localisation of knowledge, including the operations of its transfer, production and effective employment in order to promote human development; third, providing the fostering and supportive environments for the first two elements; and fourth, the mechanisms required in

The positive critical vision adopted in this Third Arab Knowledge Report is an urgent call to seize the opportunity to integrate knowledge, innovation and technological progress - as it constitutes a leverage for development - while focusing on youth and future generations

Figure 6.1

Moving towards the Active Youth Integration in the Process of Knowledge Transfer and Localisation



the field to achieve a positive interaction between the three aforementioned systems, in order to achieve an influential and active movement of the Arab youth to transfer, localise and employ knowledge, leading to the ultimate goal, i.e. the establishment of knowledge societies and economies and the achievement of comprehensive and sustainable development throughout the Arab region.

There is a strong opportunity to prepare young people, provide them with formation, enable them and actively integrate them into the processes of localisation of knowledge and contribute to construction and progress

Figure 6.1 represents a ship sailing through the seas of knowledge with its strong structure, solid base, regularly-operating engines and a sail that takes it to the shores of progress and growth. We use this figure as a metaphor that portrays the march of Arab communities in the middle of local, regional and global challenges. The structure of the ship represents the strong enabling environments that foster and support all the growth aspects we desire. The base of the ship symbolises the system of structures, processes and basic institutions for the transfer, localisation and employment of knowledge. A sail representing the youth is fixed to the base of the ship, and correspondingly, young people serve as the captain in this figurative perception. The ship's engines are the mechanisms that enable young people to access the skills, knowledge and abilities that qualify them in this cognitive process. The youth are the sail in the ship of the Arab societies, and the mechanisms are the engines that ensure harmony, provide youth efficiency and facilitate their integration into the processes of transfer and localisation of knowledge. Hence, the ship of the Arab societies enjoys competitive advantages thanks to the work of its youth. It is a ship capable of sailing, facing the cultural, economic, social and political encounters, breaking the waves through knowledge and capabilities, and safely heading forward with sound visions, policies and strategies thanks to the capabilities and skills of its young people. The ship has a strong body, sail and base of science, knowledge, research and development systems. It provides people in the Arab region with prosperity, on the foundations of knowledge and social justice.

Conclusion

The positive critical vision adopted in this Third Arab Knowledge Report is an urgent call to seize the opportunity to integrate knowledge, innovation and technological progress - as it constitutes a lever for development - while focusing on youth and future generations. Despite the impact of recent events and fluctuations in some Arab countries, and the relative political and economic instability that was coupled with the youth-led political and social movements; those events have opened up real opportunities to achieve the aspired reform and establish a more transparent and efficient governance. There are also opportunities to build more efficient institutions to unleash the economic potential of the Arab countries and mobilise the potential of the youth to transform the current youth bulge from an enlarged human mass threatening to explode, into a human capital and real wealth that acts as a lever for moving towards the transfer and localisation of knowledge; and for establishing a knowledge economy and knowledge society within the overall perspective of achieving sustainable development. The reform that the people of the Arab region seek cannot meet the demands of the young people unless it is allied to better life standards and positive youth citizenship. This is the gateway to achieving comprehensive reform, which turns the Arab rentier economy, based on natural resources and the traditional factors of production, into a knowledge-based economy in the systemic sense that we have already presented. This requires providing the conditions and requirements of success, most importantly the establishment of an enlightened rational culture and enabling environments that foster and support progress in education and scientific research, as well as the incorporation of solid standards of social justice and reform. In all cases, there is a strong opportunity to prepare young people, provide them with formation, enable them and actively integrate them into the processes of the localisation of knowledge and contribute to construction and progress. Knowledge is the lever in

building a new society that contributes to the world's progress in the new context of globalisation. Young people's possession of knowledge, skills, and values within an Arab vision to access the knowledge society, is the right way to realise the objectives of the integration of the youth in the process of transfer and localisation. This will help the Arab countries establish foundations of sustainable human development based on positive citizenship and social justice.

ENDNOTES

1 Report team calculations based World Bank Data KAM; World Bank 2012a.
2 Arab Planning Institute 2012. (Reference in Arabic) For more details, refer to Chapter 1.
3 For more details, refer to Chapter 1.
4 Report Team calculations based on the US. Census Bureau Data 2014. Refer to the Annex number 4, table A 4-1.
5 UNPY & ESCWA 2011.
6 For more details, refer to Chapter 4 and Annex 4, table A 4-5, UNESCO 2014a.
7 For more details, refer to Chapter 3 and Annex 4, table A 4-7, UNESCO 2014a.
8 For more details, refer to the Annex 4, table A 4-7, UNESCO 2014a.
9 UNESCO 2010b.
10 Refer to Chapter 4, figure 4.3.
11 For more details, refer to Chapter 4.
12 Ibn Abdel Aziz El-Akl 1432 AH. (Reference in Arabic)
13 Tawasul 2011. (Reference in Arabic)
14 Reuters 2014. (Reference in Arabic)

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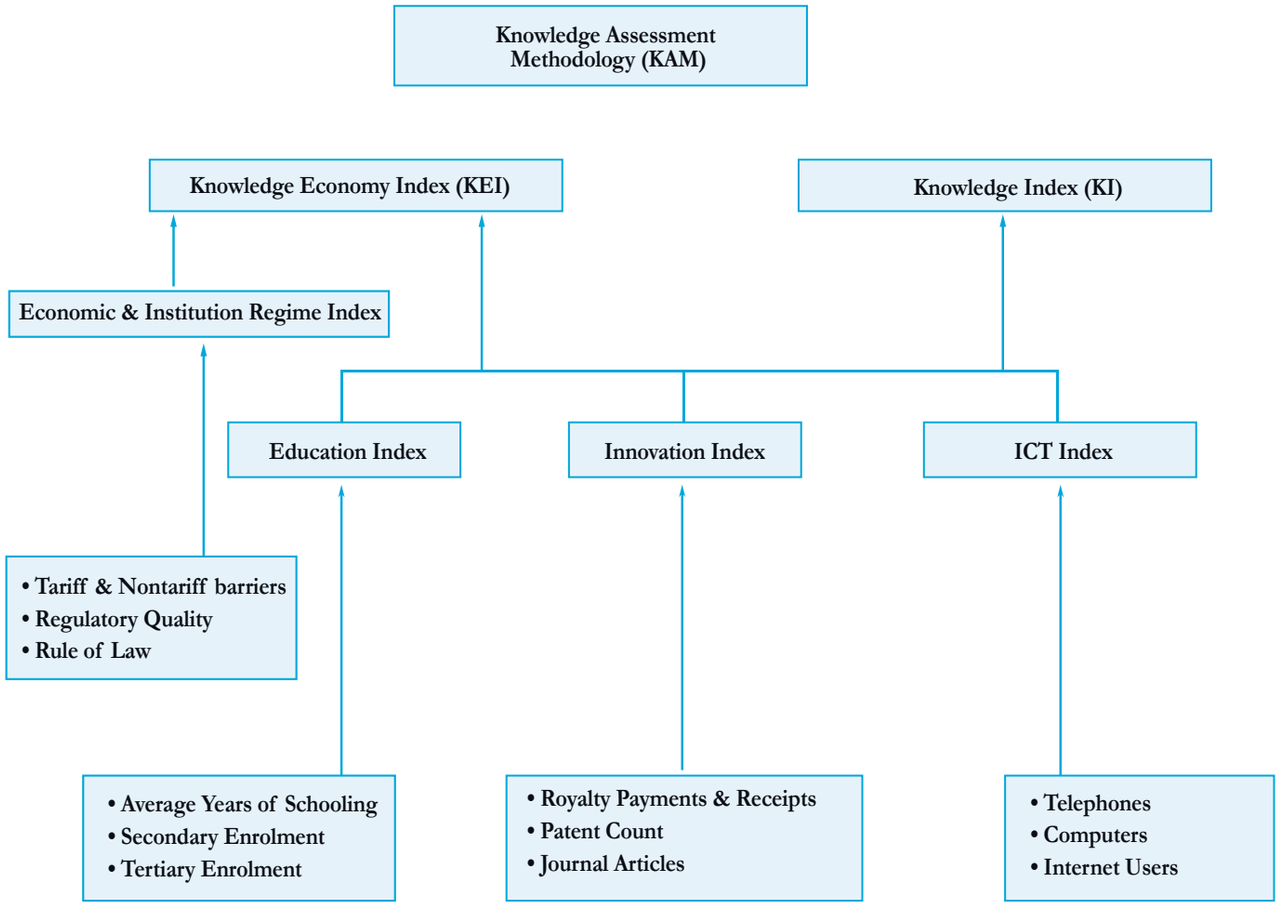
ANNEXES

Annex 1: Methodologies for Measuring Knowledge

Figure A 1-1

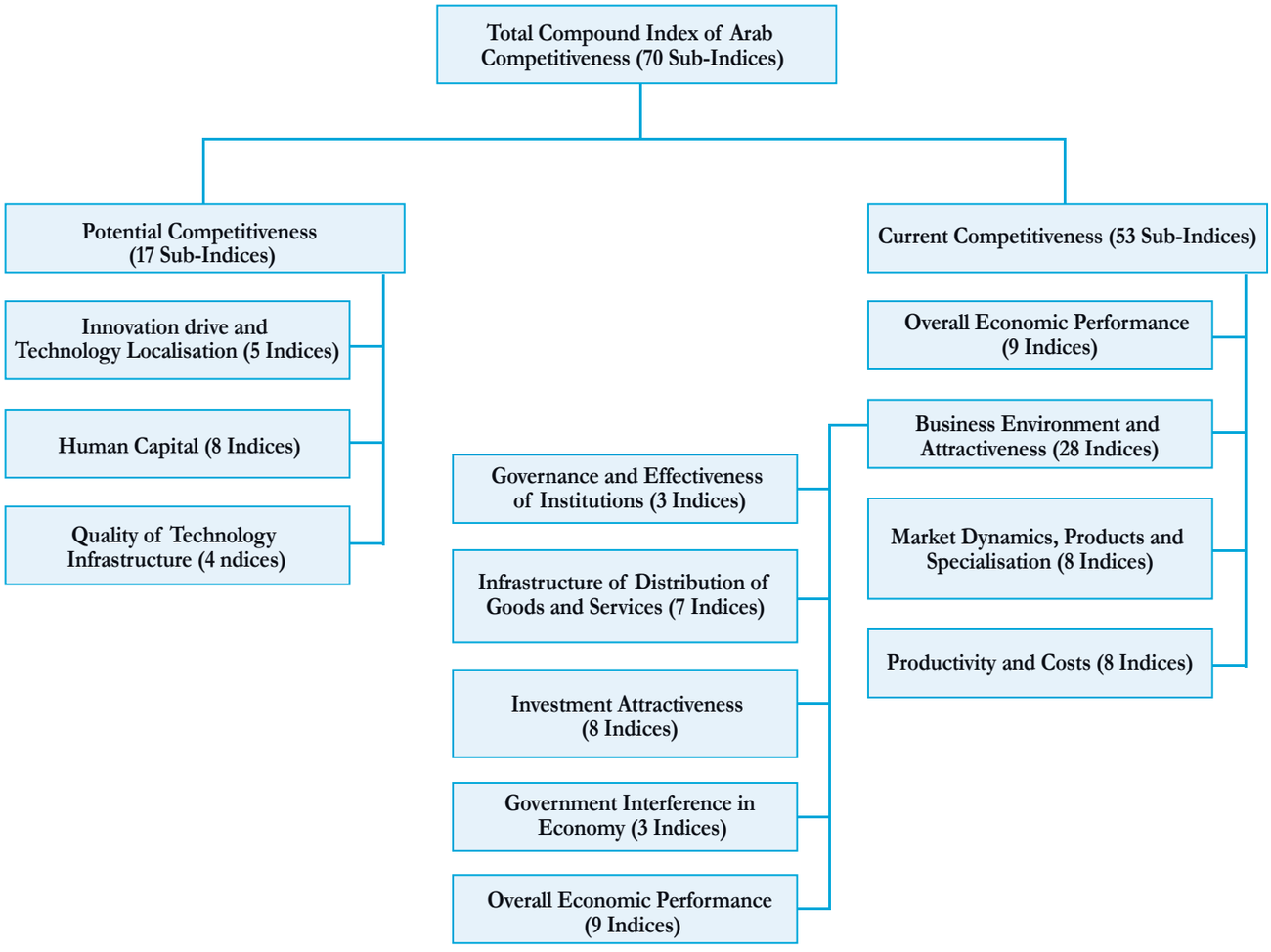
The World Bank Knowledge Assessment Methodology



Source: World Bank. (2012). Knowledge Assessment. Methodology 2012 (KAM).

Figure A 1-2

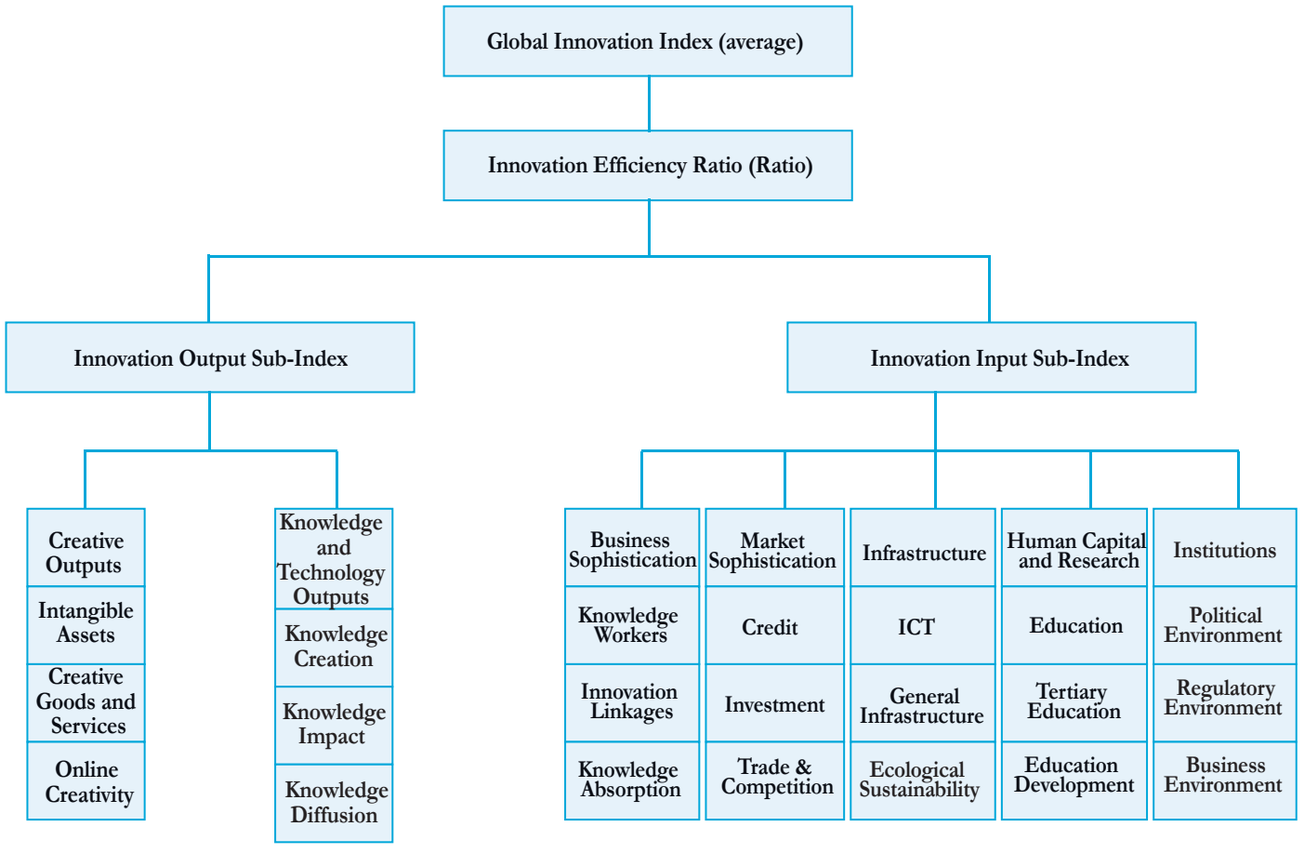
The General Structure of the Arab Competitiveness Index



Source: Arab Planning Institute. (2012). The Arab Competitiveness Report. (Reference in Arabic)

Figure A 1-3

The General Structure of the Global Competitiveness Index

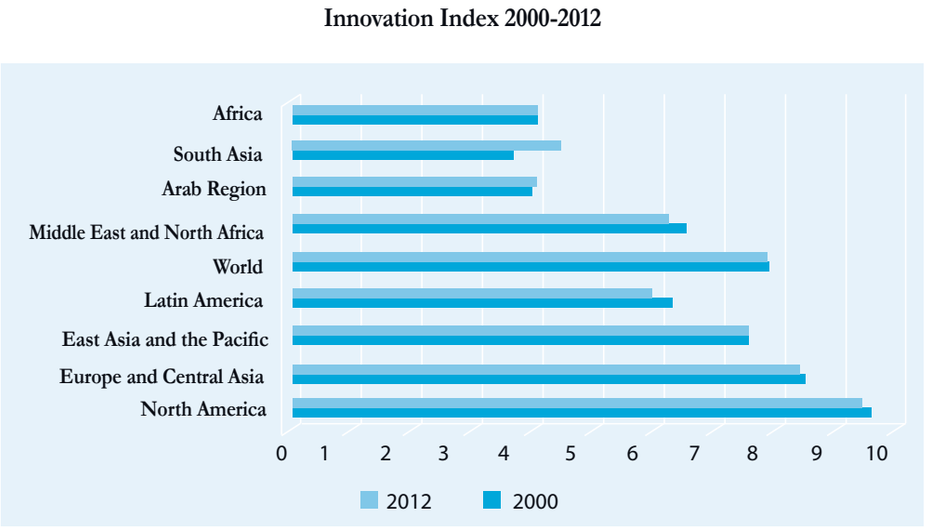


Source: Cornell, INSEAD & WIPO (2014). The Global Innovation Index 2014. The Human Factor in Innovation, Fountainebleu, Ithaca, and Geneva.

Annex 2: Development of the Situation of Knowledge in the Arab Region and Selected Regions.

Figure A 2-1

Development of the KI and KEI Sub-Indices in the Arab Region and the Regions of the World between the Years 2000-2012



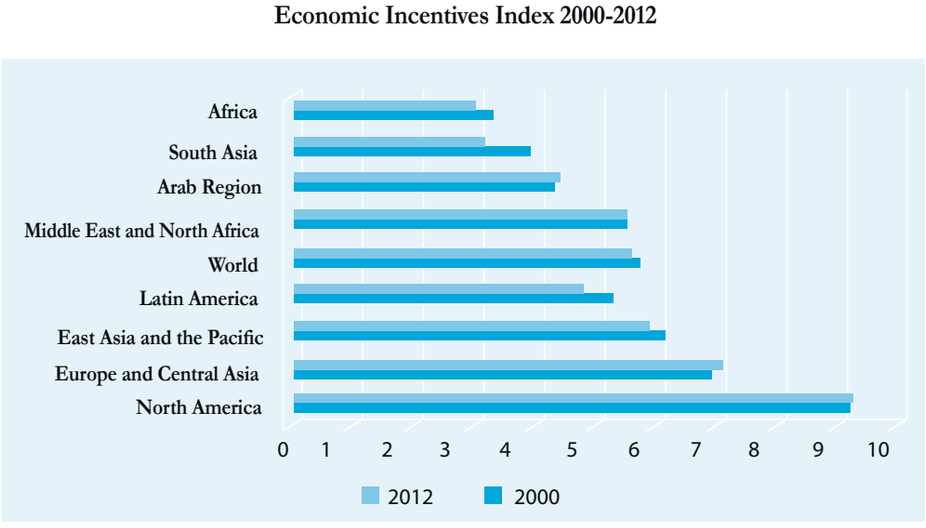
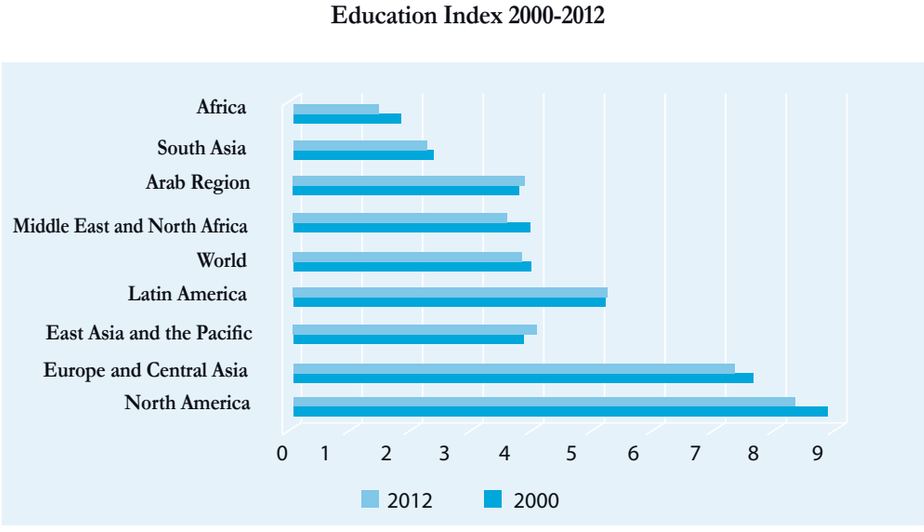
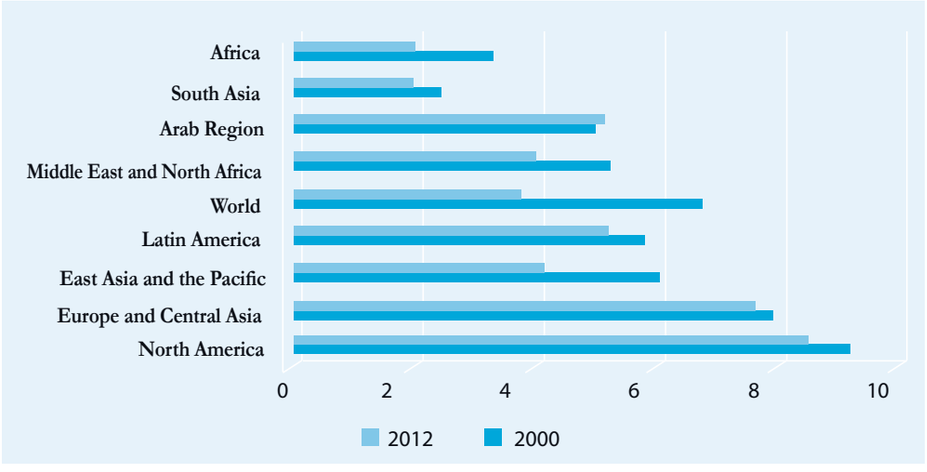


Figure A 2-1(Continued)

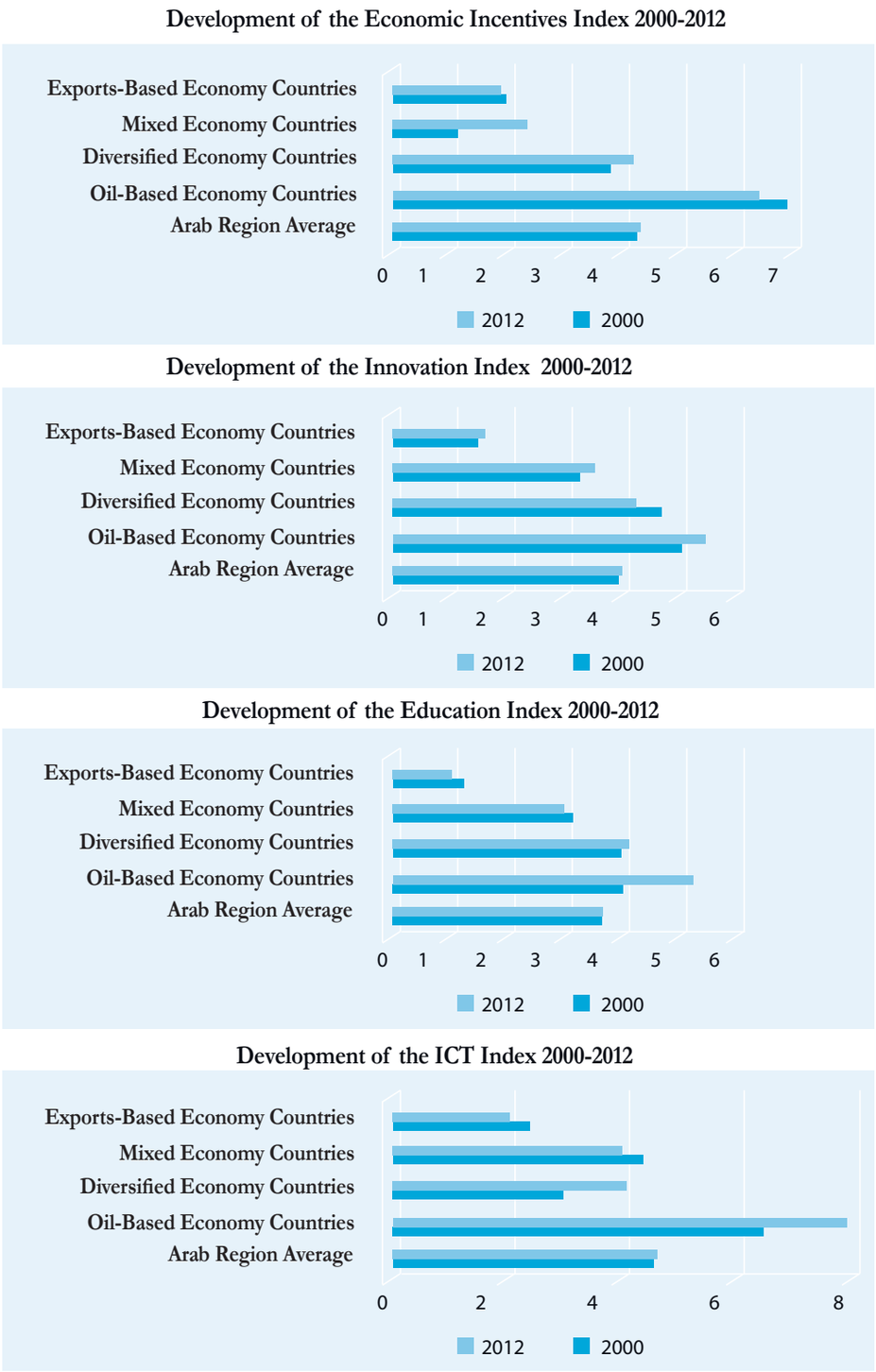




Source: World Bank. (2012). Knowledge Assessment Methodology 2012 (KAM). Retrieved August 1, 2014 from: worldbank.org/ kam
Note: The statistics of the Arab region were calculated according to the data of the Arab states, available at the World Bank database (Samia Al Satti Nour,background paper for the report).

Figure A 2-2

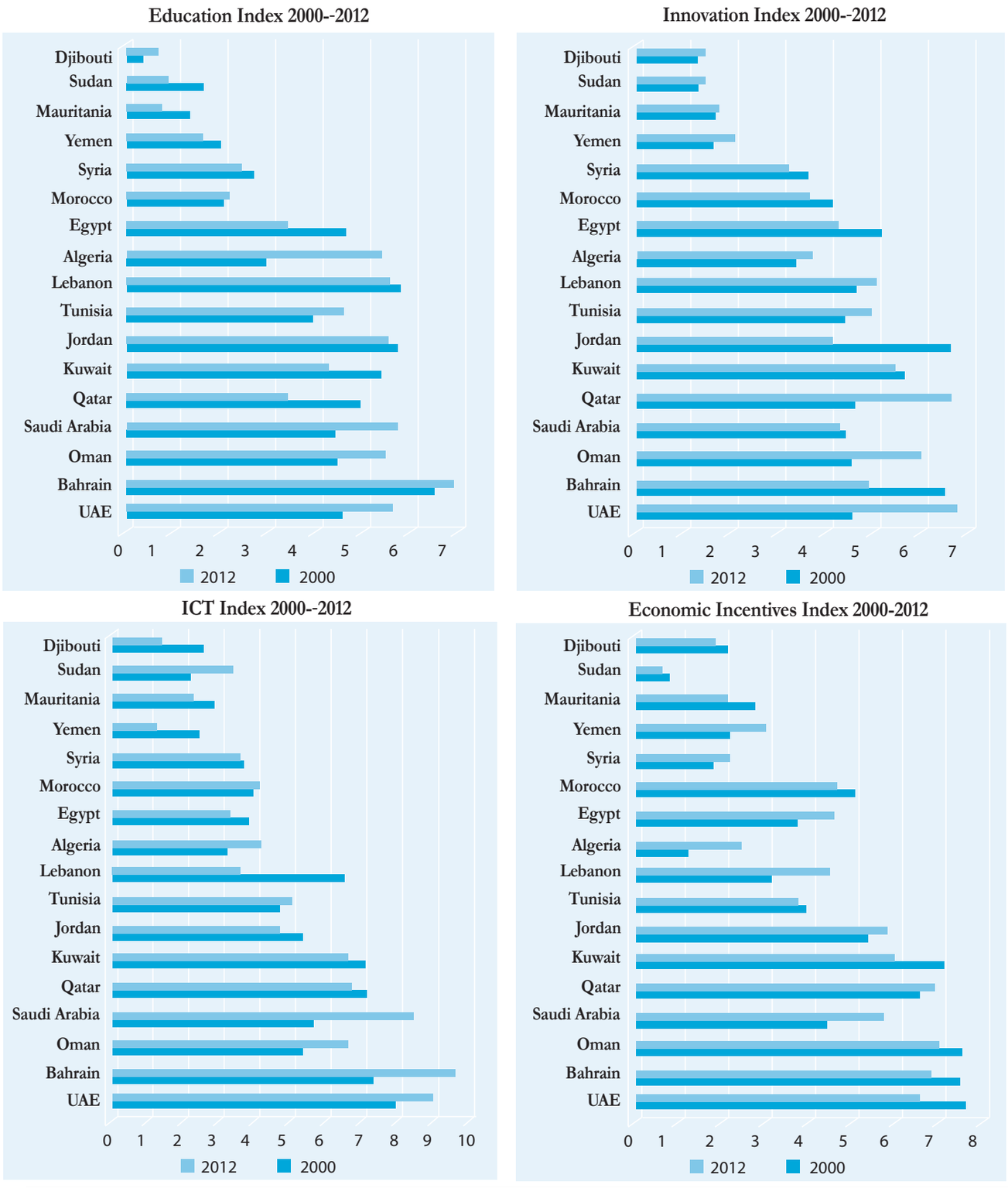
Development of the KI and KEI Sub-Indices in the Arab Region by Types of Economic Systems for the Years 2000-2012



Source: World Bank. (2012). Knowledge Assessment Methodology 2012 (KAM). Retrieved August 1, 2014 from: worldbank.org/kam
Note: The statistics of the Arab region were calculated according to the data of the Arab states, available at the World Bank database (Al-Sati, Samia, background paper for the report).

Figure A 2-3

Development of the KI and KEI Sub-Indices in Selected Arab States for the Years 2000-2012



Source: World Bank. (2012). Knowledge Assessment Methodology 2012 (KAM). Retrieved August 1, 2014, from: worldbank.org/ kam .

Annex 3: Field Study Annex

Table A 3-1

The Views of Students in Terms of Their level of Confidence in the Ability of the Following Bodies to Contribute to Integrating the Youth in the Processes of Knowledge Transfer and Localisation (%)

Country	Civil Society Organizations				Media (Traditional and New Media…)			
	Lack of Confidence	Weak Confidence	Acceptable Confidence	Full Confidence	Lack of Confidence	Weak Confidence	Acceptable Confidence	Full Confidence
Jordan	8.4	34.6	50.0	7.0	6.7	26.8	47.9	18.6
UAE	3.3	9.4	55.1	32.2	3.1	11.8	43.3	41.8
Tunisia	20.9	42.1	33.1	3.9	25.7	34.9	33.2	6.2
Morocco	26.8	35.2	29.9	8.0	31.6	31.1	31.1	6.2
Total Sample	15.9	33.3	41	9.8	17.8	28	39.1	15.2

Country	Unions or Vocational Organizations				Political Parties and Movements			
	Lack of Confidence	Weak Confidence	Acceptable Confidence	Full Confidence	Lack of Confidence	Weak Confidence	Acceptable Confidence	Full Confidence
Jordan	7.8	31.9	48.7	11.5	25.8	41.0	26.6	6.7
UAE	3.7	10.7	57.2	28.3	-	-	-	-
Tunisia	25.4	38.9	30.7	5	59.5	27.5	10.3	2.7
Morocco	27.4	35.6	22.3	14.7	55.1	36.8	5.7	2.4
Total Sample	17	31.9	38	13.1	44.4	36	15.3	4.2

Table A 3-2

The Views of Students over the Role and Contributions of the Private Sectors and Institutions and the Economic and Governmental Patterns (%)

Country	Contribution of the Private Sector to the Advancement of Scientific Research				Contribution of Economic Institutions to the Funding of Scientific Research				Contribution of the Small Projects to the Effective Integration of the Youth in the Transfer and Localisation of Knowledge			
	Lack of Confidence	Weak Confidence	Big Contribution	Very Big Contribution	Lack of Confidence	Weak Confidence	Big Contribution	Very Big Contribution	Lack of Confidence	Weak Confidence	Big Contribution	Very Big Contribution
Jordan	15.0	51.0	30.5	3.6	14.4	62.2	21.3	2.1	11.4	52.2	32.7	3.8
UAE	9.6	31.1	44.2	15.1	5.9	26	47.6	20.5	2.4	18.2	48.1	31.3
Tunisia	36.4	49.1	12.8	1.6	36.4	49.1	12.8	1.6	22.2	58.4	16.7	2.7
Morocco	40.5	44.7	11.9	2.8	31.4	60.7	5.8	2.2	26.2	56.8	14.8	2.3
Total Sample	26.6	46.2	22.8	4.4	23.2	55.7	16.8	4.3	17	50.5	25.8	6.7

Country	Contribution of the Economic Pattern that is Dominant in Your Country to the Transfer and Localisation of Knowledge				Contribution of the Foreign Investment Projects to the Transfer and Localisation of Knowledge				Contribution of the Governments to Supporting the Youth			
	Lack of Confidence	Weak Confidence	Big Contribution	Very Big Contribution	Lack of Confidence	Weak Confidence	Big Contribution	Very Big Contribution	Lack of Confidence	Weak Confidence	Big Contribution	Very Big Contribution
Jordan	16.3	55.7	24.1	3.9	11.0	44.0	37.5	7.5	15.6	49.5	28.3	6.6
UAE	3.1	12.4	50	34.5	4.6	19.9	46.4	29.1	2.6	9.3	34.5	53.6
Tunisia	31.7	56.9	10.3	1.1	21	51.3	23.5	4.2	36.4	52.5	8.5	2.6
Morocco	26.6	61.0	9.7	2.7	25.6	52.0	18.2	4.2	25.1	61.1	9.5	4.3
Total Sample	21.1	51.9	20.2	6.9	16.7	44.8	29.8	8.6	21.4	48.3	19.2	11.1

Table A 3-3

The Views of Students on Topics of the Transfer and Localisation of Knowledge (%)

Country	The Transfer and Localisation of Knowledge in the Arab Countries is a Vital Matter for the Future of These Countries				The Process of Knowledge Transfer and Localisation Will Contribute to the Reduction of Unemployment				The Process of Knowledge Transfer and Localisation Will Contribute to the Stimulation of the Creativity and Innovation Movement			
	Do Not Agree at All	Agree Partially	Agree	Totally Agree	Do Not Agree at All	Agree Partially	Agree	Totally Agree	Do Not Agree at All	Agree Partially	Agree	Totally Agree
Jordan	6.6	20.3	31.4	41.7	4.6	24.3	34.4	36.7	4.3	14.0	33.4	48.3
UAE	3.6	24.4	36	36	3.4	22.1	37.4	37.2	2.7	16	34.3	47
Tunisia	6.9	16.8	36.6	39.7	12.1	29.4	35	23.5	4.4	19.1	38.1	38.4
Morocco	26.1	25.8	24.0	24.1	23.8	26.1	24.3	25.8	24.0	22.7	26.7	26.6
Total Sample	12	21.7	31	35.4	11.7	25.7	32	30.6	9.9	18	32.6	39.6

Country	The Process of Knowledge Transfer and Localisation Will Contribute to the Revitalisation of the Economy				The Process of Knowledge Transfer and Localisation Will Contribute to the Elimination of Borders between the Countries of the World				The Process of Knowledge Transfer and Localisation Will Contribute to the Promotion of Further Subordination of the Arab Countries to the West			
	Do Not Agree at All	Agree Partially	Agree	Totally Agree	Do Not Agree at all	Agree Partially	Agree	Totally Agree	Do Not Agree at All	Agree Partially	Agree	Totally Agree
Jordan	4.4	17.6	34.8	43.1	9.4	26.2	29.9	34.6	45.4	33.7	14.0	6.9
UAE	2.9	16.6	34.6	45.8	6.2	25,3	36.5	32	24	31.5	25.8	18.7
Tunisia	4.1	27.1	37.1	31.8	13.2	27.9	31.8	27.1	52.1	26.1	11.3	10.5
Morocco	26.1	24.0	27.4	22.5	25.1	24.6	25.9	24.4	27.2	26.1	23.7	23.0
Total Sample	10.5	21.5	33.1	34.9	14.5	26	30	29.6	38.9	29.5	17.7	13.9

Country	The Process of Knowledge Transfer and Localisation Will Contribute to the Marginalisation of Local Products				The Issue of Knowledge Transfer and Localisation of Does Not Fall under the Current Concerns of the Youth				The Process of Knowledge Transfer and Localisation Will Contribute to Changing the Cultural Specificities of the Arab Societies			
	Do Not Agree at All	Agree Partially	Agree	Totally Agree	Do Not Agree at All	Agree Partially	Agree	Totally Agree	Do Not Agree at All	Agree Partially	Agree	Totally Agree
Jordan	47.0	36.7	12.5	3.8	29.8	44.8	18.6	6.8	12.6	42.4	32.5	12.4
UAE	33.4	29.8	24.6	12.2	25.2	38.6	25.4	10.9	8.2	36.6	35.9	19.3
Tunisia	60.2	30.9	5.6	3.3	45.9	33.9	13.5	6.6	20.9	43.8	24.6	10.7
Morocco	21.3	27.9	25.5	25.2	25.3	27.7	25.5	21.4	25.5	26.6	23.0	24.9
Total Sample	40.7	32	16.3	11	31.5	36.5	20.4	11.6	17.7	37.3	28.4	16.6

Country	The Process of Knowledge Transfer and Localisation Can Contribute to the Enhancement of Economic Competitiveness				The Process of Knowledge Transfer and Localisation Can Contribute to Reducing Disparities between Societies			
	Do Not Agree at All	Agree Partially	Agree	Totally Agree	Do Not Agree at All	Agree Partially	Agree	Totally Agree
Jordan	6.8	27.3	43.5	22.4	7.5	30.4	39.3	22.8
UAE	2.2	25.4	39.6	32.8	5.2	24.3	40.9	29.7
Tunisia	7.5	31.2	42.4	18.9	12	28.1	38.1	21.8
Morocco	26.2	23.1	27.3	23.4	24.8	24.2	26.1	25.0
Total Sample	12.1	26.7	38	23.2	12.3	27.3	35.4	24.1

Table A 3-4

The Views of Students on the Factors that Some of Them Regard as Stimulating While the Others Regard as Impeding to the Integration of the Youth in the Processes of Transfer and Localisation (%)

Country	Community Involvement (Such as Participating in Unions and Organisations...)				Providing/ Creating Opportunities/ Sources of Jobs for the Youth				Religious Thinking			
	Needed and Available	Needed but Unavailable	Not Needed but Available	Not Needed and Unavailable	Needed and Available	Needed but Unavailable	Not Needed but Available	Not Needed and Unavailable	Needed and Available	Needed but Unavailable	Not Needed but Available	Not Needed and Unavailable
Jordan	52.3	35.4	10.7	1.6	14.8	78.7	4.6	1.9	60.5	24.4	13.6	1.5
UAE	63	22.3	11.5	3.2	54	42.1	3.2	0.7	77.4	16.4	5.5	0.7
Tunisia	46.1	35.3	14	4.6	5.7	84.9	3.2	6.2	47.5	31.9	17.6	3
Morocco	40.2	43.8	11.5	4.4	3.8	89.8	3.0	3.3	36.9	49.6	10.2	3.3
Total Sample	48.6	36.4	11.8	3.3	14.5	78.7	3.6	3.1	52.7	32.6	12.4	2.3

Country	Arabic Language Proficiency				Foreign Languages Proficiency				Complete Gender Parity			
	Needed and Available	Needed but Unavailable	Not needed but Available	Not Needed and Unavailable	Needed and Available	Needed but Unavailable	Not Needed but Available	Not Needed and Unavailable	Needed and Available	Needed but Unavailable	Not Needed but Available	Not Needed and Unavailable
Jordan	56.4	32.1	9.3	2.1	60.1	25.2	13.1	1.6	47.2	44.4	6.5	1.9
UAE	79.5	13.6	6.2	0.7	60.6	30.5	8.2	0.7	68.7	23.6	7	0.7
Tunisia	46.9	40.9	9	3.3	47.5	26.4	18.8	7.2	51.3	39.4	6.9	2.4
Morocco	24.3	24.2	25.7	25.8	25.0	27.1	25.5	22.3	28.0	22.5	22.8	26.7
Total Sample	47.7	29.3	13.8	9.3	47	26.7	17.4	8.9	45.2	34.1	11.5	9.2

Country	Respecting Prevailing Customs and Traditions				Political Involvement (Engaging in Movements and Parties...)				Complete Gender Parity			
	Needed and Available	Needed but Unavailable	Not Needed but Available	Not Needed and Unavailable	Needed and Available	Needed but Unavailable	Not Needed but Available	Not Needed and Unavailable	Needed and Available	Needed but Unavailable	Not Needed but Available	Not Needed and Unavailable
Jordan	40.0	44.5	9.0	6.4	61.6	26.9	9.5	1.9	32.2	35.5	24.5	6.8
UAE	75.1	15.6	6.2	3.2	80.9	14.8	3.4	0.9	-	-	-	-
Tunisia	47.5	39.4	8.6	4.6	43.9	38.2	12.2	5.8	41	24.8	25.4	8.8
Morocco	23.9	25.6	25.7	24.8	23.1	24.5	25.0	27.5	25.5	25.1	24.0	25.3
Total Sample	41.3	34.1	13.5	11.1	48.8	27.1	13.9	10.2	32.5	29.3	24.6	13.6

Annex 4: Statistical Annex

TABLE A 4-1

Population, Population Growth and Percentage of Youth in the Arab Region

Country	Population (in Thousands) (2013) (a)			Median Age (2013) (a)	% of Population below 15 years of the Total Population (2013) (b)	% of Population in Age Group 15-24 Years of the Total Population (2013) (b)	% of Population in Age Group 15-64 Years of the Total Population (2013) (c)	% of Population Growth (2013) (d)
	Males	Females	Total					
Algeria	19822	19386	39208	26.90	28.40	17.40	66.40	1.90
Bahrain	828	504	1332	30.10	19.70	15.90	77.60	1.10
Comoros	370	365	735	19.10	41.30	18.80	54.90	2.40
Djibouti	438	434	873	22.80	32.90	22.00	63.50	1.50
Egypt	41206	40850	82056	25.20	32.10	17.80	62.90	1.60
Iraq	17069	16696	33765	19.70	36.70	19.60	60.00	2.50
Jordan	3712	3562	7274	23.40	34.50	19.60	60.40	2.20
Kuwait	2014	1355	3369	29.20	25.40	15.30	72.30	3.60
Lebanon	2450	2372	4822	29.80	21.80	17.00	68.70	1.00
Libya	3101	3100	6202	26.60	26.90	18.20	69.10	0.80
Mauritania	1959	1931	3890	19.80	39.50	20.00	56.90	2.40
Morocco	16292	16716	33008	27.00	26.70	17.70	66.90	1.50
Oman	2309	1323	3632	26.30	30.40	19.90	66.30	9.20
The State of Palestine	2196	2131	4326	19.10	33.70	21.70	62.50	3.00
Qatar	1660	509	2169	31.70	12.50	13.40	86.70	5.60
Saudi Arabia	16567	12262	28829	27.50	27.60	19.30	69.20	1.90
Somalia	5221	5275	10496	16.30	44.00	18.90	53.70	2.90
Sudan	19046	18918	37964	19.20	40.80	20.20	55.90	2.00
Syria	11155	10743	21898	22.40	33.20	20.50	62.80	2.00
Tunisia	5451	5545	10997	30.30	23.00	16.00	69.10	1.00
UAE	6549	2797	9346	30.00	20.70	13.70	78.30	1.50
Yemen	12304	12103	24407	19.10	41.70	21.10	55.70	2.30
The Arab Region (Report Team Calculations)	191719	178877	370598		32.5	18.6	63	2.06

Sources: *(a) Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. (2013). World Population Prospects: The 2012 Revision. New York: United Nations. Retrieved on August 7, 2014 from: http://esa.un.org/unpd/wpp/Documentation/pdf/WPP2012_%20KEY%20FINDINGS.pdf*

(b) U.S. Census Bureau, International Data Base 2014. Retrieved on August 7, 2014 from: http://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=4&A=both&RT=0&Y=2014&R=-1&C=AG,BA,CN,DJ,EG,IZ,JO,KU,LE,LY,MR,MO,MU,QA,SA,SO,SU,SY,TS,AE,WE,YM

(c) U.S. Census Bureau, International Data Base 2014. Retrieved on August 7, 2014 from: http://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=1&A=both&RT=0&Y=2014&R=

(d) World Bank Data 2014. Retrieved on August 7, 2014 from: http://data.worldbank.org/indicator/SP.POP.GROW

Table A 4-2

Human Development Indicators

Country	Human Development Index- Country Ranking	Human Development Index (2013)	Multidimensional Poverty Index (MPI)		GNI per Capita (PPP 2011 Dollars) (2013)	Life Expectancy at Birth (Years) (2013)	Gender Parity Index (2013)	
			Year	Index Value			Country Ranking	Index Value
Algeria	93	0.717		..	12555	71	81	0.425
Bahrain	44	0.815		..	32072	76.6	46	0.253
Comoros	159	0.488		..	1505	60.9	…	…
Djibouti	170	0.467	2006	0.127	3109	61.8	…	…
Egypt	110	0.682	2008	0.036	10400	71.2	130	0.580
Iraq	120	0.642	2011	0.052	14007	69.4	120	0.542
Jordan	77	0.745	2009	0.004	11337	73.9	101	0.488
Kuwait	46	0.814		..	85820	74.3	50	0.288
Lebanon	65	0.765		..	16263	80	80	0.413
Libya	55	0.784		..	21666	75.3	40	0.215
Mauritania	161	0.487	2007	0.362	2988	61.6	142	0.644
Morocco	129	0.617	2007	0.048**	6905	70.9	92	0.460
Oman	56	0.783		..	42191	76.6	64	0.348
The State of Palestine	107	0.686	2006&2007	0.007	5168	73.2	…	…
Qatar	31	0.851		..	119029	78.4	113	0.524
Saudi Arabia	34	0.836		..	52109	75.5	56	0.321
Somalia	..	..	2006	0.500	..	55.1	…	…
Sudan	166	0.473		..	3428	62.1	140	0.628
Syria	118	0.658	2006	0.024	5771	74.6	125	0.556
Tunisia	90	0.721	2011&2012	0.006	10440	75.9	48	0.265
UAE	40	0.827			58068	76.8	43	0.244
Yemen	154	0.500	2006	0.191	3945	63.1	152	0.733
The Arab Region	…	0.682*			15817*	70.2	-	0.546

Source: "UNDP. (2014). Human Development Report 2014: Sustaining Human Progress: Reducing Vulnerability and Building Resilience.
*Notes: " ** Minimum estimates, UNDP data. (2013). Human Development Report 2013: The Rise of the South: Human Progress in a Diverse World.*
Reducing Vulnerability and Building Resilience."

Table A 4-3:

Labour Market and Employment Indicators

Country	Size of the Labour Force (2012)	Labor Force Participation Rate (2012)			Employment-to-Population Ratio (≥ 15 years) (2012)	Unemployment Rate (≥ 15 Years) (2012)			Youth Unemployment Rate (15-24 years)(2012)		
		Male	Female	Total	%	Male	Female	Total	Male	Female	Total
Algeria	12,205,635	72	15	44	39	8	18.6	9.8	18.8	36	21.6
Bahrain	741,723	87	39	71	65	4.8	18	7.4	25.4	32.3	27.5
Comoros	239,019	80	35	58	54	6.8	7.5	7	12.4	13.4	12.7
Djibouti	294,586	67	36	52							
Egypt	27,193,916	75	24	49	43	7	27.1	11.9	23.8	64.9	35.7
Iraq	8,178,832	70	15	42	36	13.6	22.5	15.1	28.6	53.7	32.1
Jordan	1,718,877	66	15	41	36	10.3	21	12.2	26.4	51.1	31.3
Kuwait	1,662,315	83	43	68	67	1.6	1.2	1.5	10.7	6.1	9.2
Lebanon	1,636,637	71	23	47	43	8.3	10.6	8.9	23.3	21.8	22.8
Libya	2,305,489	76	30	53	48	6.3	15.6	8.9	18.8	34.4	23.9
Mauritania	1,220,963	79	29	54	37	32.7	26.5	31	48	38.2	45.3
Morocco	11,732,701	57	43	50	46	8.7	9.9	9	18	15.7	17.4
Oman	1,595,244	82	29	64	58	6.9	14.7	8.1	18.1	30.6	20.6
The State of Palestine	983,864	66	15	41	32	24.1	18	23	33.5	40	34.6
Qatar	1,541,663	96	51	87	86	0.2	3.8	0.6	0.5	10.4	1.7
Saudi Arabia	10,382,733	76	18	52*	49**	3.1	20.8	5.6	21.2	55.5	27.8
Somalia	3,011,344	76	37	56	52	7.4	8.1	7.6	12.5	13.2	12.7
Sudan	11,645,635	76	31	54	46	12.7	19.8	14.8	22.1	26.5	23.8
Syria	6,313,323	73	13	44	40	5.8	22.3	8.3	15.4	41	19.3
Tunisia	3,930,458	71	25	48	41	12.3	14.3	12.8	30.2	27.2	29.3
UAE	6,248,007	91	47	79	76	2.4	11.6	3.8	8.4	21.5	11
Yemen	6,858,155	72	27	49	40	14.3	27.1	17.6	28.1	51.7	34.8

Source: World Bank. (2014). World Bank Open Data. Retrieved August 5, 2014 from http://data.worldbank.org/
*Notes: "*43.5 as per ILO estimates for 2013*
***51.1 as per ILO estimates for 2013 "*

Table A4-4a

KEI and KI Indices & World Ranking of the Arab States, Comparison Countries and Other Regions of the World

Country	KEI (2000) Rank	KEI (2000) Index Value	KEI (2012) Rank	KEI (2012) Index Value	KEI Change in Index (Report Team Calculations)	KI (2000)	KI (2012)	KI Change in Index (Report Team Calculations)	Economic Incentives Pillar (2000)	Economic Incentives Pillar (2012)	Economic Incentives Pillar Change in Index (Report Team Calculations)
UAE	48	6.05	42	6.94	0.89	5.56	7.09	1.53	7.51	6.5	-1.01
Bahrain	41	6.85	43	6.9	0.05	6.66	6.98	0.32	7.45	6.69	-0.76
Oman	65	5.28	47	6.14	0.86	4.53	5.87	1.34	7.51	6.96	-0.55
Saudi Arabia	76	4.6	50	5.96	1.36	4.67	6.05	1.38	4.4	5.68	1.28
Qatar	49	6.01	54	5.84	-0.17	5.81	5.5	-0.31	6.64	6.86	0.22
Kuwait	46	6.16	64	5.33	-0.83	5.88	5.15	-0.73	7	5.86	-1.14
Jordan	57	5.58	75	4.95	-0.63	5.68	4.71	-0.97	5.28	5.65	0.37
Tunisia	89	4.15	80	4.56	0.41	4.24	4.8	0.56	3.89	3.81	-0.08
Lebanon	68	4.95	81	4.56	-0.39	5.58	4.65	-0.93	3.04	4.28	1.24
Algeria	109	2.85	96	3.79	0.94	3.44	4.28	0.84	1.09	2.33	1.24
Egypt	88	4.29	97	3.78	-0.51	4.49	3.54	-0.95	3.68	4.5	0.82
Morocco	92	3.74	102	3.61	-0.13	3.33	3.25	-0.08	4.99	4.66	-0.33
Syria	110	2.85	111	2.77	-0.08	3.23	3.01	-0.22	1.72	2.04	0.32
Yemen	127	1.98	121	1.92	-0.06	1.95	1.58	-0.37	2.07	2.91	0.84
Mauritania	122	2.09	133	1.65	-0.44	1.89	1.52	-0.37	2.72	2.05	-0.67
Sudan	138	1.35	137	1.48	0.13	1.62	1.82	0.2	0.54	0.48	-0.06
Djibouti	135	1.59	138	1.34	-0.25	1.43	1.17	-0.26	2.07	1.85	-0.22
Comparison Countries											
Iran	95	3.6	94	3.91	0.31	4.05	4.97	0.92	2.25	0.73	-1.52
Turkey	62	5.42	69	5.16	-0.26	5.18	4.81	-0.37	6.13	6.19	0.06
Cyprus	32	7.53	35	7.56	0.03	6.46	7.5	1.04	7.73	7.71	-0.02
Malaysia	45	6.37	48	6.1	-0.27	6.45	6.25	-0.2	6.11	5.67	-0.44
India	103	3.14	109	3.06	-0.08	3	2.89	-0.11	3.56	3.57	0.01
China	91	3.83	84	4.37	0.54	4.17	4.57	0.4	2.82	3.79	0.97
Countries with High Rankings											
Sweden	1	9.65	1	9.43	-0.22	9.73	9.38	-0.35	9.42	9.58	0.16
Finland	8	9.22	2	9.33	0.11	9.12	9.22	0.1	9.5	9.65	0.15
Denmark	3	9.32	3	9.16	-0.16	9.38	9	-0.38	9.15	9.63	0.48
Netherlands	2	9.34	4	9.11	-0.23	9.36	9.22	-0.14	9.27	8.79	-0.48
Canada	10	9.07	7	8.92	-0.15	9.21	8.72	-0.49	8.64	9.52	0.88
USA	4	9.28	12	8.77	-0.51	9.35	8.89	-0.46	9.07	8.41	-0.66
UK	12	8.89	14	8.76	-0.13	8.83	8.61	-0.22	9.06	9.2	0.14

(Continued)

Table A4-4a (Continued)

Country	Innovation Systems Pillar (2000)	Innovation Systems Pillar (2012)	Innovation Systems Pillar Change in Index (Report Team Calculations)	Education and Human Resources Pillar (2000)	Education and Human Resources Pillar (2012)	Education and Human Resources Pillar Change in Index (Report Team Calculations)	ICT Pillar (2000)	ICT Pillar (2012)	ICT Pillar Change in Index (Report Team Calculations)
UAE	4.32	6.6	2.28	4.44	5.8	1.36	7.92	8.88	0.96
Bahrain	6.37	4.61	-1.76	6.34	6.78	0.44	7.26	9.54	2.28
Oman	4.25	5.88	1.63	4.22	5.23	1.01	5.12	6.49	1.37
Saudi Arabia	4.24	4.14	-0.1	4.28	5.65	1.37	5.49	8.37	2.88
Qatar	5.51	6.42	0.91	4.85	3.41	-1.44	7.05	6.65	-0.4
Kuwait	5.38	5.22	-0.16	5.17	3.7	-1.47	7.09	6.53	-0.56
Jordan	6.2	4.05	-2.15	5.62	5.55	-0.07	5.22	4.54	-0.68
Tunisia	4.24	4.97	0.73	3.92	4.55	0.63	4.54	4.89	0.35
Lebanon	4.47	4.86	0.39	5.77	5.51	-0.26	6.49	3.58	-2.91
Algeria	3.25	3.54	0.29	3.96	5.27	1.31	3.11	4.04	0.93
Egypt	5.03	4.11	-0.92	4.66	3.37	-1.29	3.77	3.12	-0.65
Morocco	4.04	3.67	-0.37	2.02	2.07	0.05	3.93	4.02	0.09
Syria	3.53	3.07	-0.46	2.57	2.4	-0.17	3.58	3.55	-0.03
Yemen	1.58	1.96	0.38	1.96	1.62	-0.34	2.3	1.17	-1.13
Mauritania	1.66	1.68	0.02	1.19	0.71	-0.48	2.81	2.18	-0.63
Sudan	1.38	1.44	0.06	1.38	0.84	-0.54	2.1	3.16	1.06
Djibouti	1.34	1.44	0.1	0.35	0.73	0.38	2.6	1.33	-1.27
Comparison Countries									
Iran	2.62	5.02	2.4	4.42	4.61	0.19	5.1	5.28	0.18
Turkey	5.23	5.83	0.6	4.05	4.11	0.06	6.26	4.5	-1.76
Cyprus	7.4	7.71	0.31	6.95	7.23	0.28	8.04	7.57	-0.47
Malaysia	6.62	6.91	0.29	5.41	5.22	-0.19	7.34	6.61	-0.73
India	3.83	4.5	0.67	2.3	2.26	-0.04	2.85	1.9	-0.95
China	4.35	5.99	1.64	3.36	3.93	0.57	4.8	3.79	-1.01
Countries with High Rankings									
Sweden	9.72	9.74	0.02	9.67	8.92	-0.75	9.79	9.49	-0.3
Finland	9.68	9.66	-0.02	8.31	8.77	0.46	9.37	9.22	-0.15
Denmark	9.52	9.49	-0.03	8.99	8.63	-0.36	9.63	8.88	-0.75
Netherlands	9.53	9.46	-0.07	9.03	8.75	-0.28	9.53	9.45	-0.08
Canada	9.39	9.32	-0.07	9.22	8.61	-0.61	9.03	8.23	-0.8
USA	9.55	9.46	-0.09	9.04	8.7	-0.34	9.47	8.51	-0.96
UK	9.38	9.12	-0.26	8.11	7.27	-0.84	9.02	9.45	0.43

Source: World Bank. (2012). Knowledge Assessment Methodology 2012 (KAM). Retrieved August 1, 2014 from: http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/KFDLP/EXTUNIKAM/0,,menuPK:1414738~pagePK:64168427~piPK:64168435~theSitePK:1414721,00.html

Table A 4-4b

KI, KEI and World Ranking of Regions

Region	KEI					KI			Economic Incentives Pillar		
	(2000)		(2012)		Change in Index (Report Team Calculations)	(2000)	(2012)	Change in Index (Report Team Calculations)	(2000)	(2012)	Change in Index (Report Team Calculations)
	Rank	Index Value	Rank	Index Value							
Rankings of the World's Georgraphical Regions											
North America	1	9.18	1	8.8	-0.38	9.2	8.7	-0.5	9.1	9.11	0.01
Europe and Central Asia	2	7.56	2	7.47	-0.09	7.84	7.64	-0.2	6.72	6.95	0.23
East Asia and the Pacific	3	5.79	3	5.32	-0.47	5.69	5.17	-0.52	6.07	5.75	-0.32
Latin America	4	5.54	4	5.15	-0.39	5.67	5.31	-0.36	5.14	4.66	-0.48
The World	5	5.95	5	5.12	-0.83	6.06	5.01	-1.05	5.61	5.45	-0.16
Middle East and North Africa	6	5.16	6	4.74	-0.42	5.07	4.51	-0.56	5.41	5.41	0
The Arab Region*	…	4.14	…	4.21	0.07	4.12	4.17	0.05	4.21	4.30	0.09
South Asia	7	2.98	7	2.84	-0.14	2.7	2.77	0.07	3.79	3.05	-0.74
Africa	8	3.04	8	2.55	-0.49	3	2.43	-0.57	3.13	2.91	-0.22
Rankings of the Groups of Countries according to the Income Level											
High-Income Economy Countries	1	8.84	1	8.6	-0.24	8.97	8.67	-0.3	8.45	8.39	-0.06
Average-Income Economy States (Top) Countries	2	5.13	2	5.1	-0.03	5.15	5.07	-0.08	5.07	5.18	0.11
Average-Income Economy States (Least) Countries	3	3.44	3	3.42	-0.02	3.55	3.45	-0.1	3.11	3.32	0.21
Low-Income Economy Countries	4	2	4	1.58	-0.42	1.99	1.58	-0.41	2.03	1.61	-0.42

(Continued)

Table A 4-4b (Continued)

Region	Innovation Systems Pillar (2000)	Innovation Systems Pillar (2012)	Innovation Systems Pillar Change in Index (Report Team Calculations)	Education and Human Resources Pillar (2000)	Education and Human Resources Pillar (2012)	Education and Human Resources Pillar Change in Index (Report Team Calculations)	ICT Pillar (2000)	ICT Pillar (2012)	ICT Pillar Change in Index (Report Team Calculations)
Rankings of the World's Georgraphical Regions									
North America	9.54	9.45	-0.09	8.67	8.13	-0.54	9.39	8.51	-0.88
Europe and Central Asia	8.38	8.28	-0.1	7.38	7.13	-0.25	7.78	7.5	-0.28
East Asia and the Pacific	7.43	7.43	0	3.68	3.94	0.26	5.98	4.14	-1.84
Latin America	6.14	5.8	-0.34	5.07	5.11	0.04	5.8	5.02	-0.78
The World	7.75	7.72	-0.03	3.89	3.72	-0.17	6.53	3.58	-2.95
Middle East and North Africa	6.44	6.14	-0.3	3.8	3.48	-0.32	4.97	3.92	-1.05
The Arab Region*	3.93	3.98	0.05	3.69	3.72	0.03	4.73	4.83	0.10
South Asia	3.56	4.23	0.67	2.22	2.17	-0.05	2.33	1.9	-0.43
Africa	3.96	3.95	-0.01	1.7	1.44	-0.26	3.36	1.9	-1.46
Rankings of the Groups of Countries according to the Income Level									
High-Income Economy Countries	9.2	9.16	-0.04	8.81	8.46	-0.35	8.88	8.37	-0.51
Average-Income Economy States (Top) Countries	5.89	6.21	0.32	4.32	4.72	0.4	5.23	4.28	-0.95
Average-Income Economy States (Least) Countries	4.07	4.9	0.83	3.03	2.84	-0.19	3.54	2.62	-0.92
Low-Income Economy Countries	2.06	2.13	0.07	1.8	1.54	-0.26	2.1	1.05	-1.05

Source:World Bank. (2012). Knowledge Assessment Methodology 2012 (KAM). Retrieved August 1, 2014 from: http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/KFDLP/EXTUNIKAM/0,,menuPK:1414738~pagePK:64168427~piPK:64168435~theSitePK:1414721,00.html

Notes: The Arab Region's values were calculated by the report team based on the World Bank data*

Table A 4-5

Literacy Indicators in the Arab Region

Country	Number of Illiterate Adults (≥ 15 years)			GPI for Adult Literacy Rate	Female % of the Adult Illiterate Population	Number of Illiterate Youth (15-24 years)			GPI for Adult Literacy Rate	Female % of the Adult Illiterate Population
	Female	Male	Total			Female	Male	Total		
Algeria (2006)	4,440,405	2,335,540	6,775,946	0.79	65.53	426,602	228,680	655,282	0.94	65.10
Bahrain (2010)	29,278	25,235	54,513	0.95	53.71	1,930	1,416	3,346	0.99	57.67
Comoros (2012)	59,875	39,917	99,713	0.88	60.00	8,710	9,075	17,785	1.00	48.98
Egypt (2012)	9,531,257	5,058,888	14,590,145	0.81	65.33	1,043,211	591,643	1,634,854	0.93	63.81
Iraq (2012)	2,716,243	1,381,670	4,097,912	0.84	66.28	619,927	546,022	1,165,948	0.96	53.17
Jordan (2012)	59,013	36,417	95,430	0.99	61.80	5,252	6,882	12,234	1.00	43.75
Kuwait (2012)	45,828	63,636	109,464	0.99	41.87	2,657	3,659	6,316	1.00	42.07
Lebanon (2007)	207,478	103,975	311,452	0.92	66.62	3,930	6,278	10,208	1.01	38.50
Libya (2012)	354,160	85,416	439,576	0.87	80.57	651	284	935	1.00	69.66
Mauritania (2011)	634,072	416,059	883,870	0.62	60.38	117,190	101,613	218,803	0.72	60.08
Morocco (2011)	5,054,346	2,679,936	7,734,282	0.76	65.35	802,312	351,321	1,153,633	0.83	69.55
Oman (2010)	142,378	122,181	264,560	0.91	53.82	4,831	9,443	14,275	1.01	33.85
The State of Palestine (2012)	79,479	22,844	102,323	0.95	77.67	3,520	3,103	6,623	1.00	53.15
Qatar (2012)	14,839	43,741	58,580	0.99	25.33	114	3,156	3,270	1.01	3.48
Saudi Arabia (2013)	714,426	422,535	1,136,961	0.95	62.84	18,395	18,044	36,438	1.00	50.48
Sudan (2012)	2,796,145	1,985,170	5,781,315	0.80	65.66	527,905	358,972	886,876	0.95	59.52
Syria (2012)	1,448,467	662,890	2,111,358	0.87	68.60	116,400	77,027	193,426	0.98	60.18
Tunisia (2011)	1,184,584	496,005	1,680,590	0.82	70.49	35,285	17,681	52,965	0.98	66.62
UAE (2005)	78,472	252,118	330,590	1.02	23.74	8,787	27,289	36,076	1.04	24.36
Yemen (2012)	3,523,513	1,232,105	4,755,618	0.61	74.09	601,806	92,133	693,939	0.80	86.72
The Arab States (2012)	34,210,871	17,563,026	51,773,897	..	66.08*	4,440,803	2,497,466	6,938,269	..	156.24
The World (2012)	496,005,365	284,676,303	780,681,668	..	..	76,705,770	48,884,827	125,590,597	..	..

(Continued)

Table A 4-5 (Continued)

Country	Adult Literacy Rate (≥ 15 years)			Youth Literacy Rate (15-24 years)		
	Female*	Male	Total	Female*	Male	Total
Algeria (2006)	63.92	81.28	72.65	89.14	94.38	91.78
Bahrain (2010)	91.61	96.14	94.56	97.58	98.62	98.16
Comoros (2012)	71.15	80.73	75.94	86.52	86.31	86.41
Egypt (2012)	65.76	81.68	73.87	86.05	92.36	89.28
Iraq (2012)	72.16	85.84	79.00	80.56	83.68	82.16
Jordan (2012)	97.37	98.44	97.89	99.20	99.00	99.11
Kuwait (2012)	94.97	95.84	95.51	98.84	98.74	98.78
Lebanon (2007)	85.97	93.38	89.61	99.08	98.40	98.71
Libya (2012)	83.70	96.06	89.88	99.88	99.95	99.92
Mauritania (2011)	35.35	57.40	45.50	47.71	66.40	56.12
Morocco (2011)	57.64	76.07	67.08	74.03	88.83	81.51
Oman (2010)	81.80	90.24	86.94	98.17	97.41	97.74
The State of Palestine (2012)	93.58	98.19	95.91	99.23	99.35	99.29
Qatar (2012)	95.77	96.92	96.68	99.83	98.69	99.06
Saudi Arabia (2013)	91.37	96.53	94.43	99.14	99.30	99.22
Sudan (2012)	65.27	81.68	73.44	85.46	90.31	87.91
Syria (2012)	79.19	90.78	85.08	94.49	96.58	95.56
Tunisia (2011)	71.73	87.76	79.65	96.32	98.24	97.30
UAE (2005)	91.47	89.48	90.03	97.00	93.63	95.01
Yemen (2012)	50.16	82.58	66.37	77.81	96.71	87.41
The Arab States (2012)	69.17	85.15	77.50	86.41	92.78	89.69
The World (2012)	80.20	88.59	84.27	86.91	92.08	89.42

Source: UNESCO. (2014). UNESCO Institute for Statistics Data Centre. Retrieved August 15, 2014 from: http://data.uis.unesco.org/
*Notes: * Report team calculations based on UNESCO data*

Table A 4-6

School-Life Expectancy in Selected Arab States, Comparison Countries and Regions of the World

State/Region	School-Life Expectancy (Number of Years)		
	Female	Male	Total
Algeria (2011)	14.19	13.75	14.0
Comoros (2012)	12.25	13.25	12.8
Djibouti (2011)	5.88	6.90	6.4
Egypt (2012)	13.28	13.76	13.5
Jordan (2012)	13.69	13.33	13.5
Lebanon (2012)	13.00	13.33	13.2
Mauritania (2012)	8.09	8.37	8.2
Morocco (2010)	10.61	11.62	11.1
Oman (2011)	13.90	13.42	13.6
The State of Palestine (2012)	13.98	12.52	13.2
Qatar (2005)	14.04	13.86	13.8
Saudi Arabia (2012)	15.91	15.42	15.6
Sudan (2011)	6.60	7.26	6.9
Syria (2011)	11.97	12.11	12.0
Tunisia (2011)	14.99*	14.04*	14.6
Yemen (2011)	7.71	10.55	9.2
Arab States (2012)	11.52	12.17	11.8
The world (2012)	11.85	12.16	12.0
Developed Countries (2012)	16.82	15.90	16.4
Developing Countries (2012)	11.26	11.73	11.5
Countries in Transition (2012)	14.01	13.63	13.8
Central and Eastern Europe (2012)	14.91	14.61	14.8
Central Asia (2012)	12.45	12.54	12.5
East Asia and the Pacific (2012)	12.98	12.83	12.9
Latin America and the Caribbean (2012)	13.77	13.08	13.4
North America and Western Europe (2012)	16.97	15.94	16.4
South and West Asia (2012)	10.92	11.56	11.3
Sub-Saharan Africa (2012)	8.76	9.98	9.4
Austria (2012)	16.06	15.45	15.7
China (2012)	13.21	12.95	13.1
Hungary (2012)	15.66	15.12	15.4
Turkey (2012)	14.03	15.06	14.5
USA (2012)	17.22	15.67	16.4

Source: UNESCO. (2014). UNESCO Institute for Statistics Data Centre. Retrieved August 15, 2014, from: http://data.uis.unesco.org
*Notes: *2010 Data*

Table A 4-7

Gross Enrolment Ratios in Education in Selected Arab States and Other Regions (2010-2013)

Country	Primary Education			Secondary Education			Higher Education		
	Year	Gross Enrolment Ratio	Gender Parity Index	Year	Gross Enrolment Ratio	Gender Parity Index	Year	Gross Enrolment Ratio	Gender Parity Index
Algeria	2012	117.4	0.94	2011	97.6	1.04	2012	31.5	1.48
Bahrain	..	..	..	2012	95.5	1.02	2012	33.5	1.98
Comoros	2012	117.4	0.91	2012	73.5	0.96	2012	11.4	0.84
Djibouti	2013	68.2	0.88	2013	46.2	0.77	2011	4.9	0.68
Egypt	2012	113.4	0.96	2012	86.3	0.98	2012	30.1	0.96
Jordan	2012	98.4	0.98	2012	87.8	1.03	2012	46.6	1.15
Lebanon	2012	106.6	0.91	2012	74.0	1.01	2012	46.3	1.07
Mauritania	2012	96.7	1.05	2012	26.8	0.85	2012	5.1	0.43
Morocco	2013	116.9	0.95	2012	68.9	0.86	2011	16.2	0.89**
Oman	2012	109.0	1.01	2012	93.5	0.95*	2011	28.1	1.45
The State of Palestine	2012	94.4	0.99	2012	82.8	1.10	2012	49.1	1.41
Qatar	2010	..	..	2011	111.6	1.10	2012	12.1	6.76
Saudi Arabia	2013	106.4	1.03	2013	116.2	1.01	2012	50.9	1.06
Sudan	2011	68.6	0.89	2011	37.0	0.92	2012	15.1	1.13
Syria	2012	122.3	0.97	2012	74.4	1.00	2011	25.6	1.01
Tunisia	2012	109.7	0.98	2011	91.1	1.05	2012	35.2	1.59
UAE	2012	108.3	0.97	..	..		..		
Yemen	2012	96.9	0.83	2012	46.9	0.65	2011	10.3	0.44
The Arab Region	2012	103.6	0.93	2012	74.2	0.95	2012	26.1	1.08
The World	2012	108.4	0.97	2012	72.9	0.97	2012	32.0	1.08
Central and Eastern Europe	2012	99.8	1.00	2012	93.0	0.97	2012	70.9	1.19
Central Asia	2012	99.4	0.99	2012	98.6	0.98	2012	24.5	1.10
East Asia and the Pacific	2012	117.1	0.99	2012	84.5	1.01	2012	30.6	1.09
Latin America and the Caribbean	2012	108.7	0.97	2012	88.1	1.07	2012	42.8	1.27
North America and Western Europe	2012	100.9	0.99	2012	100.6	0.99	2012	79.0	1.32
South and West Asia	2012	110.4	1.00	2012	63.9	0.93	2012	22.8	0.81
Sub-Saharan Africa	2012	101.8	0.92	2012	41.4	0.84	2012	7.8	0.61

Source: UNESCO. (2014). UNESCO Institute for Statistics Data Centre. Retrieved August 15, 2014, from: http://data.uis.unesco.org/
*Notes: Data ** 2010 Data 2011 **

Table A 4-8

Public Spending on Education in Selected Arab States

Country	Public Expenditure on Education as % of GDP		Public Expenditure on Education as % of Total Government Expenditure	
	Year	%	Year	%
Algeria	2008	4.34	2008	11.43
Bahrain	2012	2.58	2012	8.87
Comoros	2008	7.61	2008	29.23
Djibouti	2007	8.41	2010	12.48
Egypt	2008	3.76	2008	9.86
Kuwait	2006	3.76	2006	13.37
Lebanon	2012	2.2	2012	7.11
Mauritania	2011	3.69	2011	12.99
Morocco	2009	5.38	2009	17.3
Oman	2009	4.32	2009	10.95
Qatar	2008	2.45	2008	7.36
Saudi Arabia	2008	5.14	2008	17.74
Sudan	2009	2.23	2009	10.77
Syria	2009	5.13	2009	19.18
Tunisia	2012	6.17	2012	17.34
Yemen	2008	5.15	2008	12.49

Source: UNESCO. (2014). UNESCO Institute for Statistics Data Centre. Retrieved August 15, 2014, from: http://data.uis.unesco.org/
Notes: Official Estimates

Table A 4-9

Primary Education Indicators (2007-2013)

Country	Net Enrolment Rate		% of Primary Education Trained Teachers of the Total Number of Teachers		Student-Teacher Ratio	
	Year	Year %	Year	Year %	Year	Year %
Algeria	2012	97.3	2007	98.86	2012	23.16
Bahrain	..	..	2012	82.06	2012	11.77
Comoros	2007	83.33	2011	55.15	2011	27.75
Djibouti	2013	57.84	2013	96	2013	34.22
Egypt	2011	95.1	…	…	2010	27.73
Iraq	2007	91.75	…	…	2007	16.96
Jordan	2012	97.11	…	…	…	…
Kuwait	2007	92.11	2012	77.74	2012	8.60
Lebanon	2012	93.25	…	…	2012	14.34
Libya	…	…	…	…	…	..
Mauritania	2012	69.56	2012	100	2012	40.13
Morocco	2013	97.51	2013	100	2013	25.98
Oman	2012	96.35	…	…	…	…
The State of Palestine	2012	90.37	2012	100	2012	24.41
Qatar	2005	92.39	2009	48.89	2012	9.60
Saudi Arabia	2013	96.49	2007	91.50	2013	10.39
Somalia	…	…	…	…	2007	35.52
Sudan	2011	51.55	2009	59.72	2009	38.38
Syria	2010	93.1	…	…	…	…
Tunisia	2012	98.87	2012	100	2012	17.15
UAE	2012	91.19	2012	100	2012	17.97
Yemen	2012	86.27	…	…	2011	30.25
The Arab Region	2012	88.37	…	…	2012	18.86
The world	2012	89.08	…	…	2012	24.24

Source: UNESCO. (2014). UNESCO Institute for Statistics Data Centre. Retrieved August 15, 2014, from: http://data.uis.unesco.org/

Table A 4-10

Enrolment in Vocational Education in Selected Arab States and the World

Country	School Year	Percentage of Students Enrolled in Vocational Education of the Total Secondary Stage Students	Number of Students Enrolled in Vocational Education (Secondary stage)
Algeria	2011	8.33	380890
Bahrain	2012	7.31	6204
Comoros	2012	0.51	387
Djibouti	2013	4.09	2338
Egypt	2012	19.88	1560440
Jordan	2011	3.49	25076
Kuwait	2012	1.72	4715
Lebanon	2012	14.59	56167
Morocco	2012	6.09	155414
The State of Palestine	2012	0.40	2803
Qatar	2012	0.67	518
Saudi Arabia	2008	3.58	103555
Sudan	2011	1.45	28025
Syria	2012	4.47	128675
Tunisia	2011	13.96	160841
UAE	2012	1.12	3997
Yemen	2012	0.73	12229
The Arab Region	2012	9.11	2854835
The World	2012	10.49	57858737

Source: UNESCO. (2014). UNESCO Institute for Statistics Data Centre. Retrieved August 15, 2014, from: http://data.uis.unesco.org/

Table A 4-11

Technology Indicators in the Arab States

Country	Households with a Computer (a)		Number of Mobile Subscriptions per 100 Inhabitants (2013)	Number of Landline Subscriptions per 100 Inhabitants (2013)	% of Internet Users per 100 Inhabitants (2013)	Number of Facebook Users per 100 Inhabitants (2012)
	Year	Year %				
Algeria	2010	20.00	102.01	7.98	16.5	4,111,320
Bahrain	2012	92.70	165.91	21.78	90.0	413,200
Comoros		...	47.28	3.13	6.5	19,940
Djibouti	2010	13.01	27.97	2.37	9.5	50,140
Egypt	2012	37.92	121.51	8.31	49.6	12,173,540
Iraq	2008	18.20	96.10	5.63	9.2	2,555,140
Jordan	2012	54.60	141.80	5.20	44.2	2,558,140
Kuwait	2012	82.31	190.29	15.08	75.5	890,780
Lebanon	2011	71.50	80.56	18.04	70.5	1,587,060
Libya		...	165.04	12.72	16.5	781,700
Mauritania	2010	2.99	102.53	1.39	6.2	106,200
Morocco	2012	43.06	128.53	8.86	56.0	5,091,760
Oman	2011	58.00	154.65	9.67	66.5	584,900
The State of Palestine	2012	53.94	73.74	9.29	46.6	966,960
Qatar	2012	91.51	152.64	19.02	85.3	671,720
Saudi Arabia	2010	57.30	176.50	16.37	60.5	5,852,520
Somalia		...	49.38	0.61	1.5	123,480
Sudan	2012	14.00	72.85	1.09	22.7	..
Syria	2010	40.37	55.97	20.22	26.2	..
Tunisia	2010	19.10	115.60	9.29	43.8	3,328,300
UAE	2012	85.20	171.87	21.32	88.0	3,442,940
Yemen	2010	3.96	69.01	4.68	20.0	495,440
The Arab Region						45,805,180

Source: (a) ITU Statistics. (2014). Retrieved August 15, 2014, from: http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2013/Core_Indicators.xls
(b) ITU Statistics. (2014). Retrieved August 15, 2014, from: http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2014/Mobile_cellular_2000-2013.xls
(c) ITU Statistics. (2014). Retrieved August 15, 2014, from: http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2014/Fixed_tel_2000-2013.xls
(d) ITU Statistics. (2014). Retrieved August 15, 2014, from: http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2014/Individuals_Internet_2000-2013.xls
(e) Internet World Stats. (2014). Retrieved August 5, 2014, from: http://www.internetworldstats.com/stats1.htm

Table A 4-12

Networked Readiness Index for a Number of Arab States

Country	Index Value (2014)	World Ranking (148 Countries)
Algeria	2.98	129
Bahrain	4.86	29
Egypt	3.71	91
Jordan	4.36	44
Kuwait	3.96	72
Lebanon	3.64	97
Libya	2.75	138
Mauritania	2.61	142
Morocco	3.61	99
Oman	4.56	40
Qatar	5.22	23
Saudi Arabia	4.78	32
Tunisia	3.77	87
UAE	5.2	24
Yemen	2.73	140

Source: World Economic Forum (2014). The Networked Readiness Index 2014. Retrieved August 15, from: http://www.weforum.org/issues/global-information-technology/the-great-transformation/network-readiness-index

Table A 4-13

ICT Development Index (IDI) (2011-2012)

Country	Rank (2012)	Index (2012)	Rank (2011)	Index (2011)
Qatar	31	6.54	30	6.41
UAE	33	6.41	45	5.68
Bahrain	39	6.3	42	5.79
Saudi Arabia	50	5.69	48	5.46
Lebanon	52	5.37	61	4.62
Oman	54	5.36	58	4.8
Jordan	76	4.22	77	3.9
Egypt	86	3.85	87	3.65
Morocco	89	3.79	89	3.59
Tunisia	91	3.7	92	3.58
Syria	102	3.22	99	3.13
Algeria	106	3.07	105	2.98
Sudan	119	2.33	118	2.19
Yemen	127	1.89	129	1.76
Djibouti	131	1.77	131	1.71
Comoros	138	1.7	134	1.68

Source: International Telecommunication Union (ITU). (2013).Measuring the Information Society. Geneva: ITU. Retrieved August 15, 2014, from http://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2013/MIS2013_without_Annex_4.pdf

Notes: The ranking lists 157 countries that are included in the 2013 Report, The value of the index ranges between 0 (worst performace) and 10 (best performace).

Table A 4-14

Innovative Capacity and the Localisation of Technology as per the Arab World Competitiveness Report 2012

Ranking	Country	% of High-tech-nology Exports	% of Imported Equipment & Machinery of the Total Imports	Foreign Direct Invest-mentnet Inflows	% of Students Enrolled in Sciences and Technology	Spending on Scientific Research and Technology as % of the Production	Number of Reseachers per 100 Inhabitants	Number of Patents	Number of Scientific and Technology Articles	Innovative Capacity and the Localisation of Technology Index
1	South Korea	0.65	0.38	0.01	1.00	1.00	1.00	1.00	0.67	0.71
2	Ireland	0.62	0.66	0.06	0.78	0.40	0.67	0.39	1.00	0.57
3	Malaysia	1.00	0.98	0.23	0.96	0.20	0.12	0.04	0.05	0.45
4	Bahrain	0.00	0.08	0.67	0.40	0.00	0.03	0.00	0.09	0.16
5	UAE	0.04	0.40	0.64	0.51	0.00	0.00	0.01	0.08	0.21
6	Portugal	0.18	0.39	0.16	0.99	0.31	0.55	0.01	0.57	0.40
7	Czech Republic	0.28	0.69	0.30	0.84	0.47	0.61	0.03	0.62	0.48
8	China	0.60	0.73	0.11	...	0.44	0.23	0.01	0.07	0.31
9	Chile	0.13	0.47	0.53	0.98	0.21	0.21	0.01	0.18	0.34
10	Greece	0.19	0.35	0.07	0.92	0.16	0.43	0.02	0.78	0.37
11	Saudi Arabia	0.01	0.79	0.44	0.59	0.01	0.00	0.01	0.04	0.24
12	Argentina	0.15	0.85	0.16	0.70	0.15	0.21	0.01	0.15	0.30
13	Qatar	0.00	0.91	0.32	0.58	0.00	0.00	0.01	0.08	0.24
14	Kuwait	0.01	0.59	0.00	...	0.03	0.04	0.02	0.18	0.12
15	Mexico	0.38	0.81	0.16	0.84	0.16	0.11	0.01	0.07	0.32
16	Tunisia	0.11	0.36	0.37	0.91	0.32	0.37	0.01	0.12	0.32
17	Oman	0.01	0.91	0.48	0.55	0.00	0.00	0.00	0.09	0.25
18	Jordan	0.02	0.25	1.00	0.75	0.11	0.00	0.00	0.10	0.28
19	South Africa	0.12	0.59	0.15	0.37	0.29	0.09	0.02	0.10	0.22
20	Brazil	0.24	0.54	0.19	0.63	0.31	0.14	0.01	0.11	0.27
21	Turkey	0.04	0.38	0.19	0.62	0.19	0.14	0.00	0.22	0.22
22	Lebanon	0.03	0.00	0.82	0.65	0.00	0.00	0.01	0.10	0.20
23	Libya	0.00	0.66	0.29	...	0.00	0.00	0.00	0.01	0.14
24	Algeria	0.03	0.63	0.08	0.51	0.00	0.04	0.00	0.02	0.16
25	Egypt	0.01	0.13	0.55	...	0.08	0.15	0.00	0.04	0.14
26	Syria	0.03	0.14	0.21	...	0.00	0.01	0.00	0.01	0.06
27	Morocco	0.19	0.32	0.15	0.61	0.20	0.15	0.00	0.02	0.21
28	Sudan	0.01	1.00	0.43	...	0.09	0.06	0.00	0.00	0.23
29	Mauritania	0.00	0.50	0.73	0.12	0.00	0.00	0.00	0.00	0.17
30	Yemen	0.01	0.20	0.21	0.00	0.00	0.00	0.00	0.00	0.05
Average of the Arab States		0.03	0.46	0.43	0.51	0.05	0.05	0.00	0.06	0.19
Average of Comparison States		0.35	0.60	0.18	0.80	0.33	0.35	0.12	0.35	0.38
Size of the Gap between the Arab Region and the Comparison States		-91%	-23%	139%	-36%	-85%	-86%	-100%	-83%	-50%

Source: Arab Planning Institute. (2012). Arab World Competitiveness Report. 4th edition. Kuwait: Arab Planning Institute. http://www.arab-api.org/images/publication/pdfs/310/310_compissue2012.pdf (Reference in Arabic)
Notes: The study includes 30 states and the index ranges between 0 (worst performace) and 1 (best performance).

Table A 4-15

Global Innovation Index (GII) 2013

Index/Country	UAE	Saudi Arabia	Qatar	Bahrain	Jordan	Kuwait	Oman	Lebanon
GII 2014	43.3	41.6	40.3	36.3	36.2	35.2	33.9	33.6
GII 2013	41.9	41.2	41.0	36.1	37.3	40.0	33.3	35.5
*GII 2012	44.4	39.3	45.5	41.1	37.1	37.2	39.5	36.2
World Ranking 2014	36	38	47	62	64	69	75	77
World Ranking 2013	38	42	43	67	61	50	80	75
*World Ranking 2012	37	48	33	42	56	55	47	61
World Ranking 2014	1	2	3	4	5	6	7	8
Ranking among Arab States 2013	1	2	3	6	5	4	9	8
*Ranking among Arab States 2012	2	5	1	3	7	6	4	9
Sub-Index: Innovation Input	56.2	47.8	50.4	45.5	40.3	39.4	42.8	42.2
Institutions	76.6	60.0	75.5	67.9	64.3	60.2	70.8	58.1
Political Environment	75.0	46.4	76.2	43.5	51.5	60.2	61.2	42.3
Regulatory Environment	82.0	64.6	70.8	80.2	77.5	55.9	80.9	67.1
Business Environment	72.9	69.1	79.5	80.1	64.0	64.6	70.3	64.9
Human Capital and Research	62.1	35.6	33.6	27.0	28.3	23.3	28.3	34.4
Education	66.3	48.1	33.8	40.7	35.5	45.1	33.4	32.1
Tertiary Education	100.0	43.7	58.5	34.1	35.9	22.0	45.8	48.3
Research & Development	19.9	15.1	8.3	6.0	13.5	2.6	5.5	22.7
Infrastructure	55.9	47.0	53.2	48.1	31.1	39.0	39.8	34.9
ICT	71.2	61.8	66.5	68.0	29.6	38.3	52.4	43.8
General Infrastructure	53.7	46.9	58.8	45.1	31.7	45.0	42.2	24.8
Ecological Sustainability	42.7	32.3	34.0	31.2	31.9	33.7	24.8	36.2
Market Sophistication	46.2	59.0	46.3	48.5	39.9	47.0	48.1	44.6
Credit	37.3	39.9	27.2	32.9	19.0	31.5	34.3	26.9
Investment	25.2	54.3	28.8	36.7	26.0	38.0	29.9	28.7
Trade and Competition	76.2	82.8	83.1	76.0	74.9	71.6	80.2	78.1
Business Sophistication	40.3	37.6	43.4	35.7	37.8	27.7	27.2	39.1
Knowledge Workers Availability	37.6	49.2	37.2	43.4	34.5	47.9	19.2	65.5
Innovation Linkages	63.8	45.9	71.8	50.3	53.4	25.7	53.4	27.7
Knowledge Absorption	19.5	17.7	21.4	13.5	25.5	9.5	8.9	24.0
Sub-Index: Innovation Output	30.3	35.4	30.2	27.1	32.1	30.9	24.9	25.0
Knowledge & Technology	14.3	25.7	20.4	28.4	29.4	33.8	21.2	22.6
Knowledge Creation	7.7	10.0	4.7	3.0	19.6	7.7	5.3	16.3
Knowledge Impact	34.9	42.3	29.5	42.8	35.3	37.3	32.8	24.7
Knowledge Diffusion	0.3	25.0	27.0	39.4	33.3	56.4	25.6	26.7
Creative Outputs	46.2	45.0	40.1	25.8	34.9	28.1	28.6	27.4
Intangible Assets	74.2	67.3	60.5	36.4	49.8	36.6	47.4	35.9
Creative Goods and Services	4.9	19.5	11.0	2.2	18.8	11.6	2.6	29.5
Online Creativity	31.7	25.9	28.3	28.0	21.1	27.4	17.0	8.2

(Continued)

Table A 4-15 (Continued)

Index/Country	Tunisia	Morocco	Egypt	Algeria	Yemen	Sudan	Syria
GII 2014	32.9	32.2	30.0	24.2	19.5	12.7	..
GII 2013	35.8	30.9	28.5	23.1	19.3	19.8	23.7
*GII 2012	36.5	30.7	27.9	24.4	19.2	16.8	23.1
World Ranking 2014	78	84	99	133	141	143	..
World Ranking 2013	70	92	108	138	142	141	134
*World Ranking 2012	59	88	103	124	139	141	132
World Ranking 2014	9	10	11	12	13	14	..
Ranking among Arab States 2013	7	10	11	13	15	14	12
*Ranking among Arab States 2012	8	10	11	12	14	15	13
Sub-Index: Innovation Input	39.7	38.0	34.1	31.7	24.4	23.2	32.8
Institutions	61.8	59.6	42.1	47.2	36.6	36.4	48.3
Political Environment	49.5	51.7	33.7	40.8	14.6	14.0	22.9
Regulatory Environment	67.4	59.1	38.5	50.5	41.1	37.5	62.7
Business Environment	68.6	68.0	54.0	50.2	54.1	57.8	59.1
Human Capital and Research	37.8	29.7	27.8	25.5	15.5	7.6	34.1
Education	46.5	41.9	48.3	44.1	30.9	11.9	95.0
Tertiary Education	48.7	38.2	19.0	30.6	15.6	...	7.4
Research & Development	18.3	9.1	16.2	1.6	0.0	3.3	0.0
Infrastructure	37.0	39.6	36.1	32.2	16.3	18.3	22.9
ICT	35.6	40.8	48.9	18.4	11.2	18.0	21.7
General Infrastructure	33.8	41.7	23.0	45.9	13.0	17.1	25.3
Ecological Sustainability	41.7	36.3	36.5	32.4	24.9	19.7	21.9
Market Sophistication	39.9	42.8	35.4	36.2	40.7	38.9	37.6
Credit	25.4	26.6	21.8	23.5	8.4	9.7	9.3
Investment	27.1	25.8	18.9	33.4	40.0	33.3	24.3
Trade and Competition	67.3	76.0	65.4	51.6	73.8	73.8	79.4
Business Sophistication	22.1	18.2	28.9	17.2	12.7	14.8	21.2
Knowledge Workers Availability	24.8	20.9	38.8	20.5	14.2	14.6	37.6
Innovation Linkages	24.1	20.4	31.3	19.0	20.4	10.7	14.5
Knowledge Absorption	17.5	13.3	16.6	12.1	3.4	19.0	11.5
Sub-Index: Innovation Output	26.1	26.5	26.0	16.7	14.7	2.1	14.6
Knowledge & Technology	21.2	25.5	25.4	19.5	13.7	2.4	6.2
Knowledge Creation	13.8	9.3	11.5	5.5	3.6	2.6	4.8
Knowledge Impact	29.4	31.0	33.2	32.4	18.5	0.7	11.2
Knowledge Diffusion	20.4	36.3	31.4	20.5	19.1	3.8	1.9
Creative Outputs	31.1	27.4	26.6	14.0	15.7	1.9	23.1
Intangible Assets	39.8	38.8	40.1	19.7	25.5	2.7	23.9
Creative Goods and Services	26.9	12.8	9.7	4.0	2.1	1.9	27.3
Online Creativity	17.8	19.2	16.6	12.5	9.5	0.2	17.2

Source: Cornell University, INSEAD, & WIPO. (2014). The Global Innovation Index 2014: The Human Factor In innovation, Fontainebleau, Ithaca, and Geneva.
Cornell University, INSEAD, & WIPO. (2013). The Global Innovation Index 2013: The Local Dynamics of Innovation. Geneva, Ithaca, and Fontainebleau.

Table A 4-16

Global Competitveness Indicators

Country	2013 - 2012		2014 - 2013							
	Competitiveness Index		Competitiveness Index		Basic Requirements		Efficiency Enhancers		Innovation and Sophistication Factors	
	World Ranking	Index Value	World Ranking	Index Value	World Ranking	Index Value	World Ranking	Index Value	World Ranking	Index Value
Qatar	11	5.38	13	5.24	5	6.01	18	5.02	14	5.08
Saudi Arabia	18	5.19	20	5.1	14	5.73	27	4.69	29	4.33
UAE	24	5.07	19	5.11	4	6.04	20	5	24	4.67
Oman	32	4.65	33	4.64	13	5.77	29	4.45	39	4.05
Bahrain	35	4.63	43	4.45	25	5.46	38	4.5	59	3.71
Kuwait	37	4.56	36	4.56	32	5.22	77	3.95	101	3.34
Jordan	64	4.23	68	4.2	76	4.51	70	4.01	51	3.87
Morocco	70	4.15	77	4.11	69	4.58	84	3.9	100	3.34
Lebanon	91	3.88	103	3.77	126	3.63	75	3.97	90	3.4
Egypt	107	3.73	118	3.63	118	3.78	109	3.57	104	3.31
Algeria	110	3.72	100	3.79	92	4.27	133	3.18	143	2.63
Libya	113	3.68	108	3.73	93	4.24	139	3.11	141	2.71
Mauritania	134	3.32	141	3.19	132	3.49	147	2.71	134	2.84
Yemen	140	2.97	145	2.98	145	3.05	144	2.9	139	2.73

Source:The World Economic Forum. (2013). The Global Competitiveness report 2014-2013. Geneva: World Economic Forum. Retrieved August 15, 2014, from: http://reports.weforum.org/the-global-competitiveness-report2014-2013-/

Notes:The tanking includes 148 countries, The index ranges between 0 (worst performace) and 7 (best performace).

Table A 4-17

Arab Competitveness Index 2012

Ranking	Country	Current Competitiveness Index	Latent Competitiveness Index	Arab Competitiveness Index
1	South Korea	0.62	0.74	0.68
2	Ireland	0.61	0.70	0.65
3	Malaysia	0.56	0.51	0.53
4	Bahrain	0.58	0.48	0.53
5	UAE	0.58	0.47	0.52
6	Portugal	0.46	0.57	0.51
7	Czech Republic	0.48	0.54	0.51
8	China	0.62	0.40	0.51
9	Chile	0.52	0.45	0.49
10	Greece	0.38	0.57	0.48
11	Saudi Arabia	0.52	0.43	0.47
12	Argentina	0.44	0.50	0.47
13	Qatar	0.53	0.41	0.47
14	Kuwait	0.53	0.39	0.46
15	Mexico	0.50	0.42	0.46
16	Tunisia	0.47	0.44	0.45
17	Oman	0.50	0.35	0.43
18	Jordan	0.41	0.43	0.42
19	South Africa	0.44	0.39	0.41
20	Brazil	0.37	0.42	0.40
21	Turkey	0.46	0.33	0.40
22	Lebanon	0.39	0.39	0.39
23	Libya	0.45	0.29	0.37
24	Algeria	0.39	0.33	0.36
25	Egypt	0.39	0.32	0.36
26	Syria	0.37	0.31	0.34
27	Morocco	0.40	0.27	0.34
28	Sudan	0.31	0.23	0.27
29	Mauritania	0.34	0.18	0.26
30	Yemen	0.35	0.14	0.25
	Arab States Average	0.44	0.35	0.39
	Comparison States Average	0.50	0.50	0.50

Source: Arab Planning Institute. (2012). Arab World Competitiveness Report. 4th edition. Kuwait: Arab Planning Institute. (Reference in Arabic)
Notes: The study includes 30 states and the index ranges between 0 (worst performace) and 1 (best performance).

Table A 4-18

Corruption Perceptions Index (CPI)

Country	World Ranking (2013)	Index Value (2013)	Index Value (2012)	Change in Index
UAE	26	69	68	1
Qatar	28	68	68	0
Bahrain	57	48	51	-3
Oman	61	47	47	0
Saudi Arabia	63	46	44	2
Jordan	66	45	48	-3
Kuwait	69	43	44	-1
Tunisia	77	41	41	0
Morocco	91	37	37	0
Algeria	94	36	34	2
Djibouti	94	36	36	0
Egypt	114	32	32	0
Mauritania	119	30	31	-1
Lebanon	127	28	30	-2
Comoros	127	28	28	0
Yemen	167	18	23	-5
Syria	168	17	26	-9
Iraq	171	16	18	-2
Libya	172	15	21	-6
Sudan	174	11	13	-2
Somalia	175	8	8	0

Source: Transparency International. (2013). The Corruption Perception Index. Retrieved August 2014 ,15, from: http://cpi.transparency.org/cpi2013/results/#myAnchor1
Note: The CPI is issued by Transparency International, it includes 177 states that are ranked in the 2013 Index, ranging between 0 (perception of high-level corruption) and 100 (perception of a very clean state).

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As the region's population steps into the 21st Century, the Arab communities are no longer capable of sustaining traditional development approaches. They must adopt innovative development approaches that enable them to effectively address the growing challenges on various social and economic levels. Furthermore, and given the association of knowledge with power and progress, building the knowledge society and economy in the Arab region has become a necessity for prosperity and competitiveness in the current age of globalisation.

Given the importance of the youth at all stages, addressing the challenges at the present time is of utmost importance. The development phase that the Arab region is going through clearly shows the growing role of the Arab youth and their emergence as a critical mass, considered the largest in numbers, and the most powerful and influential in defining all developmental courses and directions, as well as in creating progress in the Arab future reality. Therefore, targeted initiatives and effective strategies should be devised to develop the capacities of the youth and turn them into a positive productive force. They must not be merely a force of criticism and objection, but rather one that builds and develops society on all levels. The most important of these levels is knowledge, as it is the foundation from which communities and nations can rise.

The positive critical vision adopted in this Third Arab Knowledge Report is an urgent call to seize the opportunity to integrate knowledge, innovation and technological progress – as it constitutes a lever for development – while focusing on the youth and future generations. There is still a strong opportunity to qualify young people, form them and actively integrate them in the localisation of knowledge, enabling them to contribute to establishing sustainable human development based on the grounds of positive citizenship and social justice.