e-HRM Systems for the Civil Service in Kazakhstan, Kyrgyzstan, Uzbekistan and the Republic of Korea
This publication is the result of a cross-country comparative study exploring the development of electronic personnel management systems. Conducted jointly by the Astana Civil Service Hub and the Ministry of Personnel Management of the Republic of Korea, the study focused on three Central Asia countries (Kazakhstan, Kyrgyzstan, and Uzbekistan) and the Republic of Korea, with the latter serving as a benchmark case for an electronic human resource management system (e-HRMS). The findings underscore the areas for improvement in the currently operational e-HRMS, along various dimensions of the human resource management functions and personnel administration in the government sector of the participating countries.

Please cite this publication as:


ISBN 978-601-08-3885-7

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Prologue

Human resource management and personnel policy support systems play an integral role for effective and efficient human resource management in public administration organisations, i.e., recruitment, motivation, and career development of competent personnel to staff these organisations. Consequently, the integration of digital technologies into the public sector has given rise to the development and maintenance of electronic human resource management systems (e-HRMS), which streamline operations and processes and aid decision making in the human resource management realm.

This advance has allowed for personnel management and policy support systems to administer and manage data related to public personnel, i.e., payroll, benefits, allowances, performance evaluation, education and training, and work functions in an integrated manner. This has led to higher efficiency and speed in administering personnel related processes, and to a more customised management of personnel needs, i.e., talent management, career development, etc.

The utilisation of e-HRM has also led to a reduction of costs by lightening the administrative burden in managing personnel records, and at the same time it has helped redefine the role of HR professionals, who can now devote more time to strategic human resource management matters that are paramount in maintaining and developing a personnel force compatible with rapid change, a characteristic of our time.

This comparative analysis of e-HRM systems of the four countries participating in the study, provides an excellent opportunity to delve deeper into the ways e-HRM systems are designed, developed, deployed, and managed and to assess their benefits and impact. It is also a perfect occasion to observe to what extent they have integrated personnel management processes and whether they have accomplished their goals from a user perspective. In fact, the findings of the study have helped in gaining a deeper understanding of the current state of the e-HRM systems’ utility and functionality in these four countries, as well as what needs to be done so that they completely fulfil their intended vision.

We sincerely hope that this work contributes to the on-going assessment of e-HRMS as they have been rolled out in three countries of the Central Asian region and in the Republic of Korea and to providing some lessons on how best to approach e-HRMS development, deployment, maintenance, and enhancement, overall.

We also hope that you will find this report informative and useful in your work field, as its ultimate aim is to contribute to disseminating knowledge and experience that may assist to developing robust electronic personnel management and policy support systems in countries around the world.

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Acknowledgements

This report is the outcome of a collaborative effort of the Astana Civil Service Hub and the Ministry of Personnel Management of the Republic of Korea, showcasing their strong commitment to advancing partnership and fostering evidence-based knowledge on e-HRM systems in the public sector.

We extend our deep appreciation to the diligent research team at the Hub, including Ms. Tolkyn Omarova, Project Expert; Ms. Dinara Dikhanbayeva, Project Associate; and Mr. Panagiotis Liverakos, Research and Knowledge Management International Consultant. Their dedicated efforts in research planning, data collection, analysis, and reporting have significantly contributed to the success of this project.

A special acknowledgment is extended to the representatives from the Ministry of Personnel Management (MPM), namely Mr. Kwangtaek Nam, Deputy Director, International Cooperation Division, and Mr. Jongmin Lee, Deputy Director, ICT Management Division, for contributing with their expertise and technical support throughout the study, especially during fieldwork.

We also express our sincere gratitude to colleagues from the International Cooperation Departments of the government organisations responsible for civil service affairs in the Republic of Korea, Kazakhstan, Kyrgyzstan, and Uzbekistan, for their invaluable support and assistance in coordinating fieldwork and facilitating data collection.

Last, but not least, heartfelt thanks are extended to all collaborators and participants for dedicating their time and interest to enhancing the understanding of e-HRMS development in their respective countries. Each individual has played a crucial role in turning this initiative into a reality.

About the Ministry of Personnel Management (MPM)

The Ministry of Personnel Management (MPM) is a central government agency of the Republic of Korea responsible for designing and implementing public personnel policy including recruitment, remuneration, human resource development, welfare and pension programmes, and ethics and disciplinary processes affecting the public officials of Korea. In November 2014, the MPM was newly established under its current name to reinforce a fair, transparent, and balanced innovation throughout the civil service system in Korea. Currently, the MPM consists of 8 bureaus and 31 divisions, and two affiliated organisations including the National Human Resources Development Institute (NHI) and the Appeals Commission totalling 594 employees (405 in head office and 189 in affiliated organisations, as of 26 March 2024).


About the Astana Civil Service Hub (ACSH)

The Astana Civil Service Hub is a flagship initiative of the Government of Kazakhstan and the United Nations Development Programme. It was created in 2013 by 5 international organisations and 25 countries: now comprising 43 participating countries. The geographical range of its participants stretches from the Americas and Europe through the CIS, the Caucasus, and Central Asia to ASEAN countries, demonstrating that partnerships for civil service excellence is a constant and universal need for all nations.

Its mandate is to assist in the promotion of public service effectiveness by supporting the efforts of governments of the participating countries in building institutional and human capacity; and thus, contributing to the improvement of civil service systems in the countries of the region and beyond.

The Astana Civil Service Hub is a multilateral institutional platform for the continuous exchange of knowledge and experience in the field of public service development, aiming at supporting government in the region and beyond through fostering partnerships, capacity building and peer-to-peer learning activities, and evidence-based research.


About the United Nations Development Programme (UNDP)

The United Nations Development Programme (UNDP) is the leading United Nations organisation fighting to end the injustice of poverty, inequality, and climate change. Working with its broad network of experts and partners in 170 countries, it helps nations to build integrated, lasting solutions for people and the planet.

Table of Contents

Prologue ........................................................................................................................................ I
Acknowledgements ....................................................................................................................... II
About the Ministry of Personnel Management (MPM) ................................................................ III
About the Astana Civil Service Hub (ACSH) ............................................................................. III
About the United Nations Development Programme (UNDP) ...................................................... III
Abbreviations & Acronyms .......................................................................................................... VI

INTRODUCTION ................................................................................................................................ 1
COUNTRY BACKGROUND INFORMATION ..................................................................................... 1
  Republic of Korea ...................................................................................................................... 1
  Kazakhstan ............................................................................................................................... 2
  Kyrgyzstan .............................................................................................................................. 3
  Uzbekistan .............................................................................................................................. 4
RESEARCH METHODOLOGY ....................................................................................................... 5
FINDINGS .......................................................................................................................................... 6
  Republic of Korea ...................................................................................................................... 7
  Kazakhstan ............................................................................................................................... 21
  Kyrgyzstan .............................................................................................................................. 33
  Uzbekistan .............................................................................................................................. 43
DISCUSSION .................................................................................................................................... 53
CONCLUSIONS ............................................................................................................................ 58
APPENDICES ................................................................................................................................... 59
  Appendix 1: Features of the four e-HRMS at a glance .............................................................. 59

List of Figures

Figure 1: Administrative structure of the Republic of Korea ......................................................... 1
Figure 2: Administrative structure of the Republic of Kazakhstan ................................................. 2
Figure 3: Administrative structure of the Kyrgyz Republic ........................................................... 3
Figure 4: Administrative structure of the Republic of Uzbekistan ............................................... 4
Figure 5: e-Saram Mobile Service ............................................................................................ 8
Figure 6: Major functions of e-Saram ....................................................................................... 10
Figure 7: Service available by user type ..................................................................................... 11
Figure 8: Screen for applying vacation ..................................................................................... 12
Figure 9: Screen for employee’s work status management ......................................................... 12
Figure 10: Screen for statistical function of e-Saram ................................................................. 13
Figure 11: Major changes by e-Saram generation ..................................................................... 16
Figure 12: Screen for user authentication ................................................................................... 18
Figure 13: Available HR processes in e-Qyzmet ....................................................................... 23
Figure 14: Statistical report sample in e-Qyzmet ....................................................................... 24
Figure 15: Integration process of information systems on the Smart Bridge Platform ............. 27
Figure 16: Authorisation page of e-Qyzmet .............................................................................. 28
Figure 17: Organisational Structure module .......................................................................... 35
Figure 18: Employees on vacation/on leave status ................................................................. 35
Figure 19: Statistics module of e-Kyzmat .................................................................................. 36
Figure 20: Analytics module of e-Kyzmat ................................................................................ 37
Figure 21: Interoperability of e-Kyzmat .................................................................................... 38
Figure 22: Authorisation page of e-Kyzmat ............................................................................. 40
Figure 23: Employee profile in HRM.argos.uz ........................................................................ 44
Figure 24: Main page of HRM.argos.uz .................................................................................... 45
Figure 25: Personnel-related orders in HRM.argos.uz ............................................................... 46
Figure 26: Integration of HRM.argos.uz ................................................................................... 49

List of Tables

Table 1: Number of interviews’ participants by country and gender ............................................. 5
Table 2: Interview guide ............................................................................................................... 6
Table 3: Government agencies that do not utilise e-Qyzmet ......................................................... 29
INTRODUCTION

The application of digital technologies in the civil service human resource management policies and practices is still evolving, and while there is much discourse about the benefits of electronic personnel management systems, empirical evidence suggesting what conditions do e-HRM systems have to meet for contributing to strategic and technical HRM effectiveness is limited.

The four countries participating in this research project have already deployed electronic human resource management systems in government organisations, but the areas these systems cover vary in both breadth and depth. A comparison between the benchmark country, i.e., the Republic of Korea, and the three Central Asia countries has revealed that there is still much to be done to bring their systems on par. Hence, the objective of this cross-country comparative analysis was to find the gaps between current and optimal operational capacities and capabilities of the existing e-HRM systems in Kazakhstan, Kyrgyzstan, and Uzbekistan on the one hand, and the Republic of Korea on the other.

This report presents the findings of an in-depth case study focusing on such questions as how the four countries have deployed their e-HRM systems, what is the current state of their development, and the major factors which influence the stability and robustness of their e-HRMS. The report also presents the main users’ perspectives on the functioning of their respective electronic personnel management systems, actual benefits derived, as well as drawbacks that hinder the optimal performance of their systems, as they were captured through a series of interviews.

COUNTRY BACKGROUND INFORMATION

Republic of Korea

According to the latest available statistics the current population of the Republic of Korea is over 51.5 million people. Administratively, the country is divided into six metropolitan cities, one special city, one special self-governing city, and nine provinces. These are further subdivided into various entities such as cities, counties, districts, towns, townships, neighbourhoods, and villages (Fig.1).

The civil service personnel systems in the Republic of Korea are guided by three fundamental principles: the «Democratic Civil Service System,» emphasising a commitment to serving the Korean populace; the «Career Civil Service System,» recruiting individuals dedicated to a lifelong commitment to public service; and the «Merit System,» placing individuals in roles strictly based on qualifications and abilities, irrespective of political affiliation or favouritism.

Korea boasts approximately one million public servants, with 660,000 serving as national public officials and 380,000 as local officials (2017). The Korean civil service is broadly divided into «career» and «special career» civil servants. Career civil servants encompass general services, special services, and technical services personnel, while special career civil servants include politically determined personnel, specially designated services personnel, contract-based personnel, and manual workers.

In addition, the civil service system in Korea aligns with a strong tradition of seniority, reflected in its grade-based position assignment and remuneration. Recruitment from outside is limited to certain grade levels, with promotions based primarily on seniority. Civil servants, under the Civil Service Law, are deemed servants of the people and are mandated to embody kindness, fairness, and sincerity.

The personnel management framework at all levels is supported by «e-Saram», a standardised electronic human resource management system. Enabling government-wide personnel administration, “e-Saram” has computerised tasks from recruitment to retirement, facilitating electronic management of appointments, performance evaluations, training, work schedules, and salaries. Since 2014, mobile services are supporting a flexible work environment.

Kazakhstan

Kazakhstan is administratively divided into 17 regions, each segmented further into districts, as well as the cities of Shymkent, Almaty, and the capital, Astana, which operate independently of their surrounding regions (Fig. 2). The population of Kazakhstan is over 19 million (2023).

Figure 2: Administrative structure of the Republic of Kazakhstan

Territorial and administrative divisions in Kazakhstan after the president's address on March 16, 2022 (oblast or regions)

In Kazakhstan, the role of civil servants in public agencies is pivotal for realising state objectives. A Kazakhstani civil servant is a citizen holding a public position within a state agency, undertaking official duties to fulfill the tasks and functions of the state.

The Kazakhstani civil service encompasses two distinct categories: administrative and political civil servants. Administrative civil servants are further classified into two groups: corps A and corps B. Corps A comprises managerial positions with a specialised selection process, competitive requirements, and specific eligibility criteria, including education, work experience, and competencies. Corps B encompasses administrative positions that do not fall under corps A, with roles of lower official standing. There are a total of 88,321 civil servants, with 87,567 serving in administrative roles and 754 serving in political ones.

The distinction between political and administrative civil servants lies in their responsibilities. Political civil servants are those whose appointment or election, termination, and performance are politically oriented, with associated responsibilities for executing political tasks and goals. While administrative civil servants have established categories (A, B, C, D, E) for their positions, political civil servants operate without predefined categories.

Kyrgyzstan

Kyrgyzstan is divided into seven administrative regions and 39 districts (Fig. 3). Cities such as Bishkek, and Osh operate independently and do not fall under the jurisdiction of surrounding regions. The current population of Kyrgyzstan is over 6 million.

Figure 3: Administrative structure of the Kyrgyz Republic

The Kyrgyzstani civil service comprises a total of 18,700 civil servants that are employed in:

- Legislative activities – 600;
- Executive activities - 14,800 (among them employees in the local government - 10,000);
- Judicial activity – 3300.

In Kyrgyzstan, the civil service system is defined by key concepts outlined in the law. Public service encompasses professional activities undertaken by citizens of the Kyrgyz Republic within government bodies, including state civil service, military service, law enforcement service, and

---

2 Career civil servants are classified based on nine levels with 1 being the highest (Assistant Minister level) and 9 being the lowest.

3 This figure excludes individuals employed by the Ministry of Internal Affairs, numbering 123,581 employees.

diplomatic service. State civil servants, or employees, are citizens of the Kyrgyz Republic holding administrative positions in state bodies. They engage in ongoing professional activities for monetary remuneration from the republican budget, executing powers bestowed by the position and bearing responsibility for their execution. Municipal employees, akin to state civil servants, hold administrative positions in local government bodies and perform professional official activities for monetary remuneration from the local budget.

Administrative positions within the civil service are categorised into the highest, main, senior, and junior positions. These positions are organised into groups, and class ranks are assigned to employees based on the register of state and municipal positions, corresponding to groups and categories. Class ranks, such as junior inspector, inspector, adviser, and counsellor, are assigned to each employee holding an administrative position and reflect the individual’s standing within the civil service system. The functioning of the civil service system is supported by career planning. This planning involves the personnel reserve, competitive selection, certification, rotation, training, and material and non-material motivation.

Uzbekistan

Uzbekistan’s administrative divisions include one autonomous republic, twelve regions, and one independent city—Tashkent (Fig. 4). The regions are further subdivided into districts, cities of regional subordination, urban-type settlements, and citizen assemblies of villages, all part of the overall governance structure of the country. The current population of Uzbekistan is over 35 million (2021).

The total number of civil servants in Uzbekistan is 118,000. It is worth noting that this number does not include employees of the Ministry of Internal Affairs (MIA), whose total reaches 120,000 employees. In Uzbekistan, a state civil servant is defined as a citizen of the Republic who serves in a state civil service position. The state civil service system is characterised as a unified organisational and legal complex, incorporating mechanisms for selection, placement, remuneration, professional development, and promotion of state civil servants. State civil service positions are categorised into political, managerial, and support, with categories determined in the State Register of State Civil Service Positions. For managerial and support positions, state civil servants are appointed through competitive processes and dismissed by the head of the respective state body.

Figure 4: Administrative structure of the Republic of Uzbekistan

5 State civil service, a subset of public service, involves citizens executing ongoing tasks, functions, and powers outlined in the Constitution and regulatory legal acts. Similarly, municipal service entails professional service activity within local government bodies for the continual implementation of designated tasks, functions, and powers as per constitutional and legal directives. http://cbd.minjust.gov.kg/act/view/ru/ru/1232037?cl=ru-ru

RESEARCH METHODOLOGY

This research project employed a qualitative approach to capture a comprehensive snapshot of the current stage of the e-HRMS development in the four participating states and identify where improvements are needed across various dimensions aimed at further enhancing the efficiency of the government sector electronic personnel management systems. The findings of this study are based on data collected mainly through focus group interviews - administered in person - in central governmental bodies responsible for e-HRM policy and implementation in the four participating countries, that is the Ministry of Personnel Management of the Republic of Korea, the Agency for Civil Service Affairs of the Republic of Kazakhstan, the State Agency for Civil Service and Local Government under the Cabinet of Ministers of the Kyrgyz Republic, and the Agency for the Development of Public Service under the President of the Republic of Uzbekistan. The findings were also informed by the usability assessment results of the e-HRMS web interfaces and, where applicable, of the mobile application interfaces.

Heads and specialists of HR Units from different ministries and other central-level state bodies – the main users of the e-HRMS – were invited to the interviews. Interviews were also conducted with representatives of developers and maintenance companies. All fifteen focus-groups and one individual interview, each lasting for 1.5 hours on average, were conducted from May to June 2023.

This case study utilised purposeful sampling to select the focus groups participants to ensure a comprehensive exploration of the most relevant perspectives. Diverse stakeholders, including policymakers, system developers/maintainers, HR heads, and specialists, were deliberately selected; as they are individuals who possess significant experience of working with the e-HRMS systems. The total number of interview participants was 55 from all four countries.

Table 1: Number of interviews’ participants by country and gender

<table>
<thead>
<tr>
<th>Number of participants</th>
<th>Republic of Korea</th>
<th>Kazakhstan</th>
<th>Kyrgyzstan</th>
<th>Uzbekistan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>4</td>
<td>13</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td>13</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Total per country</td>
<td>10</td>
<td>20</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Total in four countries</td>
<td></td>
<td></td>
<td></td>
<td>55</td>
</tr>
</tbody>
</table>

Structured interview protocols were designed to include a series of questions aimed at capturing the opinions and views of interviewees on the current status of their e-HRMS development and operational capacity, on the challenges they have confronted, and on opportunities for further enhancement.

The questionnaires covered four relevant aspects: institutional framework, operational dimensions, user participation, and user involvement. The organisational framework aspect comprised the regulatory framework, organisational components, goals of the e-HRMS, and the type of the e-HRMS. Operational dimensions encompassed available functionality, existing infrastructure, extent of coverage, and integration. User participation and involvement were operationalised through questions addressing system usage among users, and extent to which training, support, and information are provided. Although interview questions differed among stakeholder groups, they all covered the e-HRMS key aspects, as outlined in Table 2.

7 Individuals from either affiliated government and quasi-government institutions, or private sector organisations, depending on whether development and maintenance were performed by government entities or were outsourced to private entities.
Table 2: Interview guide

<table>
<thead>
<tr>
<th>e-HRMS aspects</th>
<th>Sample questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory, organisational</td>
<td>(1) does a national organisation exist that create, manage, and operate the electronic personnel management system? (2) how is the system maintained and enhanced? (3) is there a special maintenance and enhancement budget? (4) how are data security and personal privacy ensured within the e-HRM?</td>
</tr>
<tr>
<td>Goals</td>
<td>(1) has the e-HRM system reduced the cost of HRM services and how? (2) have HR services improved with the introduction of electronic personnel management system and how? (3) does the e-HRM have a strategic orientation of HRM?</td>
</tr>
<tr>
<td>Feasibility</td>
<td>(1) to what extent are administrative HR functions, e.g., employee personal data and payroll, embedded in the system? (2) does the e-HRM system provide the choice between asking employees to keep their own personal data up to date through an HR portal or is there administrative apparatus in place to do this? (3) does the system support HR policy implementation by means of recruitment, training, performance management, etc.? (4) has the e-HRM transform the HRM functions and (5) does it support strategic decision making on personnel matters?</td>
</tr>
<tr>
<td>Coverage, infrastructure</td>
<td>(1) at what government level has the system been introduced to? (2) what is the coverage rate of e-HRM in terms of the number of government organisation utilising the system? (3) where does government store HRM critical data on the nationwide cloud, if any or in local servers?</td>
</tr>
<tr>
<td>Integration</td>
<td>(1) is the e-HRM integrated with other e-Government systems? If yes, to what extent? (2) is there HR data connection among ministries, agencies, etc.? (3) is there an information utilisation system integrated for joint use of HR information?</td>
</tr>
<tr>
<td>Training, support</td>
<td>(1) to what extent, if any, e-HRM trainings are conducted for all government employees? (2) is e-HRM training compulsory for main users?</td>
</tr>
<tr>
<td>Usage</td>
<td>(1) who are the users of the electronic personnel management system? (2) is there a mobile application of the e-HRM system? (3) the number of active users aggregated by categories.</td>
</tr>
</tbody>
</table>

FINDINGS

The findings of this study are a culmination of information collected through extensive interviews with public personnel policy makers, HR professionals, and many e-HRM system users in Korea, Kazakhstan, Kyrgyzstan, and Uzbekistan. They provide a deeper look into the ways the respective e-HRMS are designed, developed, rolled out, maintained, and managed; and how they are evolving by incorporating different personnel management processes and procedures and how they are integrating with other electronic government systems.

The findings also allowed for an assessment of benefits derived following the deployment of the e-HRMS and their impact on personnel management and human resource support systems in the four countries participating in this study. By looking at the trajectory of their design development stages, their similarities and differences in their design and architecture, their functionalities, coverage, usage of the system and user experience, training, and support, as well as of the levels of data protection and privacy, it was possible to discern certain limitations and challenges associated with the current state of the e-HRMS and observe some shortcomings with respect to optimal operational capacity and functionality.

The findings are presented by country. They start with a brief description of the e-HRMS evolution and development over time in each of the four countries. Then, they continue with providing information on the governance and management of the overall system, i.e., the government authority that oversees its development, deployment, maintenance, and potential improvements; on the functionality of the system, i.e., the administrative and policy-related activities of personnel management it covers and the type of information that is made available through its statistical module for decision-making and policy planning and formulation.

The coverage of the system, i.e., the number of public employees it manages, is presented next followed by the degree of its integration of personnel processes and procedures and with other electronic government systems, and the degree of unification of hardware, software, and databases, utilised by the system; as well as the level of training and support provided to its users, and the users participation and involvement in the system development. The final part of the analysis describes the benefits the system has generated and the impact it has had on government personnel management. This part ends by touching upon the challenges and limitations the e-HRMS that need to be overcome for reaching an optimal state of operation.

Republic of Korea

Brief description

The Korean e-HRMS, the “e-Saram” is a digital system for managing public human resources, serving as the backbone of South Korea’s civil service administration. It comprises two core components: the “Standard HRMS” and the “HR Policy Support” system. The Standard HRMS is used by every government ministry and agency to manage data concerning human resources personal details, compensation, performance assessments, education and training qualifications, and other services such as annual, sick leave, etc. and which are pooled into a structured database, enabling efficient data handling. The HR Policy Support module manages policy-related services, such as recruitment, promotion, and evaluation of senior public officials and presidential appointees. A third module is also part of the system that provides various status updates and statistical tools to facilitate timely decision-making and efficient administration of public human resources.

The e-Saram’s origins can be traced back to the early 2000s, at a time no other fully fledged electronic personnel management and personnel policy support systems existed around the world. The first generation of e-Saram became operational in early 2001, and it underwent pilot testing at four ministries and agencies, gradually expanding to all ministries and government agencies by 2008.

In the absence of such human resource systems, the first-generation e-Saram was subjected to systematic BPR (business process reengineering). It was instrumental to streamline processes before, digitising them in order to avoid merely automating existing – manually executed – tasks. This practice continued into the second generation, and it is continuing into the third, as this iterative approach has ensured adaptability to evolving work methods and policies.²

While developing the second generation of e-Saram, in 2011, an ISP (information systems planning) approach was adopted,² with a particular emphasis placed on defining the system’s functionalities addressing the question “What to build” - in contrast with the first-generation

² A necessary methodological approach for ensuring systematic development while considering and accommodating changing requirements and policies.

² When the BPR stage was completed, development advanced to the ISP stage. In this manner, the design and construction of the system aligned with specific functionalities. In effect, the ISP incorporated functionalities, e.g., annual leave and flexible work hours, while BPR focused on execution and implementation of associated processes.
e-Saram, whose primary focus was on enhancing workflows and digitalising human resource processes, thus addressing the question on "how to do it".\textsuperscript{10} The introduction of the second-generation e-Saram, in 2012, allowed for a smooth integration of a multitude of disparate systems operating across a multitude of government institutions, and thus creating a cohesive and unified e-Saram framework.\textsuperscript{11}

In 2013, in response to the proliferation of hand-held smart devices, the e-Saram mobile system was also introduced. This system enables the handling of various types of information through mobile devices, such as requests for annual leave, business trips, work schedule adjustments, and assignments. Users can also access their salary statements, appointments, transfers, and promotion events. For approval related activities, the system offers functions for managing and tracking approvals, including status updates. Users can also receive notifications via push notifications of approvals in progress or when completed. Other functions include access to announcements, retrieval of service centre information, and access to basic user information.

\textbf{Figure 5: e-Saram Mobile Service}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{e-Saram_Mobile_Service.png}
\caption{e-Saram Mobile Service}
\end{figure}

In 2020, enhancements were introduced to automate the traditional manually performed compensation procedures by integrating the relevant systems. In addition, a digital-based HR policy was established for transforming civil service management processes, such as secondment and recruitment. This expansion paved the way for a more transparent and intelligent HRM policy was established for transforming civil service management processes, such as secondment and recruitment. This expansion paved the way for a more transparent and intelligent HRM.

\textsuperscript{10} Another distinction between the first and second generations of e-Saram lay in their architecture. The first was programme-based necessitating installations on computers. The second transitioned to the web, prioritising user convenience and refining each function; as well as incorporating the capability for the generation of statistics on demand.

\textsuperscript{11} Seventy distinct institutions, part of the network, functioned independently using their own separate servers and each maintaining their own unique systems and adhering to specific regulations of their respective ministries. In total, 180 distinct systems have been seamlessly integrated with e-Saram.
For ensuring flexibility and scalability to changing needs and future growth, the e-Saram has three distinct domains: (i) profiles of government officials; (ii) work schedules, annual and other types of leave; and (iii) payroll-related matters. These three domains have the capacity to operate as stand-alone separate systems. However, they are also integrated into a unified and comprehensive system. For instance, when government officials request any type of leave, this has implications on both their payroll and their promotion prospects. In this context, the integrated system is designed to ensure that changes occurring in one area do not necessarily require changes in the other.

The system provides tailored services to various user categories, encompassing tasks such as browsing, recording, and management. This approach ensures that policy service administrators, service administrators in individual ministries and agencies, division heads, organisation leaders, and individual public servants all receive services optimised in accordance with their respective roles and responsibilities. In fact, e-Saram system access to data is segmented into three categories: (i) for individual users; (ii) for department administrators; and (iii) for HR managers, thus accommodating the diverse responsibilities the system’s user base have.

E-Saram’s functionality goes beyond personal information management, as it can also perform appointment related functions. For instance, when vacant positions are announced in various departments, interested candidates can apply for up to four positions at the same time ranked in order of preference. This feature streamlines the appointment function.

The e-Saram provides statistics primarily on managing employee annual and various other types of leave, e.g., family care, medical, etc. A recently implemented system update automated the generation of essential data, such as the average number of leave days taken by employees, reducing workload for personnel administration considerably. The e-Saram also allows for the generation of periodic reports that need to be submitted (once or twice per year). Furthermore, the system offers filtering functions for selecting only the necessary information for the generation of a given report.

17 To illustrate, if there are modifications to the rules governing annual leave, this does not automatically mean that the rules pertaining to government officials’ profiles or payroll have to be altered. Only the functionality related to annual and other types of leave will be adjusted, keeping the other areas unaffected.

18 An example of an individual user functionality is “leave”. If individual users would like to take leave, they can input the information, and the approval process is automatically carried out. If an individual user is unable to do so, administrators or HR managers can help. The format for leave requests - unlike in other countries - is not document-based; rather, it is integrated into the system itself.
Data extracted from the e-Saram serves a crucial role in decision-making. For instance, during the COVID19 pandemic, data played a pivotal role in having a clear picture of the number of employees who contracted the virus, how many required medical leave, and other related metrics. This information served as the basis for decision-making and assessment of the situation by the senior management of government organisations. Furthermore, leave data is utilised to calculate and maintain accurate records for employees' remaining leave balances.19

HR managers first compute manually leave entitlements and subsequently cross-verify the results with the system’s calculations. This verification process is particularly relevant in cases like maternity leave, where discrepancies may arise due to inaccurately filled information in the system or the data is omitted. Thus, manual calculations are performed as a precautionary measure, and to ensure accuracy. This practice is common across most government organisations.

Overall, experience to date demonstrates that the utilisation of the e-Saram statistical function has influenced decision-making in other HRM-related areas. For example, if an individual with an English background is needed, the system allows for categorisation of civil servants by major degree, thus allowing to search for individuals with specific backgrounds and find the most appropriate ones for specific positions. Another example pertains to the Ministry of Foreign Affairs (MFA), which handles a significant number of high-ranking public officials. In this instance, statistics are used to determine the availability of vacant positions for high-ranking officials and future expectations. Such data significantly influence promotion and other career-related decisions. Moreover, since gender quotas for high-ranking public positions are in force, gender-related statistics also prove very useful.

Rotation is another function handled by e-Saram as the law mandates that public employees rotate every three years, although it is not obligatory. Since rotation is not obligatory, the e-Saram does not send push notifications for rotation. However, statistics are available — utilising certain filters — to sort employees in a department by length of service, ranging from the longest to the shortest. In this manner, if a rotation list is needed, it can be generated from e-Saram using the filter function.

Training records of public employees are also part of the e-Saram. All specific training programmes that public officials must undergo are recorded in the system.20 As of 2022, all educational websites providing training courses were integrated into e-Saram. While further refinements are conceivable, this integration has substantially alleviated the need for manual data entry of public employees’ training activities resulting to improvements in operational efficiency. If previously, manual data entry entailed a daily workload of one to two hours by HR managers, it now takes approximately ten to fifteen minutes. This notable enhancement has resulted in a considerable reduction in time and effort expended on this task.

20 In Korea, civil servants must complete mandatory educational training to advance in their careers. The training hours vary by department, typically ranging from 80 to 100 hours. Although the term «mandatory» lacks punitive measures for non-compliance, completion of these hours significantly impacts employees’ promotion prospects and contributes to their performance evaluation. Delays in submitting performance goals or completing trainings are common. To address this issue, reminders are sent, sometimes daily, to keep employees informed about their progress and encourage timely completion.
A notable function of e-Saram – that other countries may find valuable – is that government officials who have undergone training abroad cannot retire or leave their positions for a specific period by law. The system enforces the rule by notifying such individuals when they attempt to initiate the leave or retirement request processes.

Additionally, e-Saram has digitised the individual performance assessment process, a task that government officials must undergo twice a year. Digitising this process has significantly saved time for both employees and administrators responsible for performance evaluation. It is worth noting that in case of performance re-evaluation, the process is handled independently of the e-Saram; all requests and subsequent communications are conducted through email.

The e-Saram also handles functions related to awards and penalties. In the case of awards, the system records two key pieces of information: (i) date an employee received award; and (ii) department responsible for granting award. This is crucial information, as regulatory requirements prevent individuals from receiving the same award for a specific period (usually three to five years). Additionally, the record of awards may be used by awardees to potentially offset penalties they may incur. With respect to updating information in the e-Saram, if the award is granted within a ministry or a government organisation, the relevant information is directly uploaded into the system. However, if the award is granted to an employee in a different department or organisation, awardees must notify their organisation so they can upload all related information into the system. Conversely, if the award is granted by a government organisation, the relevant information is directly uploaded into the system. However, if the award is granted to an employee in a different department or organisation, awardees must notify their organisation so they can upload all related information into the system. Conversely, if the award is granted by a government organisation, the relevant information is directly uploaded into the system.

For penalties, the system captures the following information: (i) date of penalty; (ii) reasons for it; and (iii) its severity. Recording penalty-related information is essential because it may have significant consequences, including a salary reduction, and/or a negative impact on promotion prospects.

21 Performance evaluation procedures differ by rank of public employees. It is also worth mentioning that performance evaluation primarily influences promotions rather than payrolls, although in the case of Rank 1 to Rank 5 civil servants, it may also result in payroll adjustments (there are nine ranks of civil servants; Rank 1 the highest and Rank 9 the lowest). In other words, for senior or high-ranking public officials, performance evaluation scores impact their payroll directly. In case of exemplary performance, these officials receive bonuses in addition to their regular compensation. For other civil servants, their performance evaluation primarily affects their promotion prospects.

22 Generally, the individual performance assessment consists of the following procedures: (i) Qualification Assessment: Eligibility for performance appraisal is established based on specific timelines, such as a requirement for employees to have worked at least two full months (for example, if evaluation takes place in July, the duration of the work of the employee from the period January-July need to be full two months); (ii) Employee Data Input: Eligible individuals are responsible for entering their performance data into the application in the e-Saram system; (iii) Department Head Review: Subsequently, department heads review the performance assessments submitted by their employees. To ensure department heads evaluate their subordinates’ performance, HR managers perform a critical matching procedure in the system; and (iv) Final Evaluation Check: Following completion of performance assessments at all levels, a comprehensive evaluation check is performed to ensure adherence to the predefined criteria and guidelines.

23 It is common for government employees to disagree with their performance evaluation results. In such instances, they have the option to submit a complaint form and request a re-evaluation by senior management. In most cases, however, re-evaluation requests often yield minimal changes in evaluation scores. This is largely attributed to the ranking system. Altering the performance evaluation score of one employee can significantly impact the ranking of other employees.

24 Public civil servants can be recognised and rewarded through various means, including Public Service Awards, Long Service Awards for dedicated individuals, and Ministry-Level Awards specific to each government department. Outstanding public servants may also receive the President’s Commendation for distinguished service and contributions to the nation. Additionally, merit-based awards are often granted to individuals who demonstrate exceptional accomplishments or leadership. Regarding the assignment of awards, the process can vary. It can be initiated from top management to lower levels or vice versa. In the case of significant awards, senior managers may create a list of candidates, which is then checked for eligibility. For other awards, each department may nominate candidates, and the eligibility of these candidates is verified before compiling a list of eligible awardees.

25 Penalty records are manually entered into the system.

26 It includes thirteen minister level organisations, nineteen ministries, six agencies, nineteen offices, and thirteen provisional committees.

27 The hiring process cannot be completed without submission of the personal consent form.

28 In total, 180 distinct systems were seamlessly integrated into e-Saram, establishing e-Saram as a comprehensive repository and authoritative source of information for various administrative functions. However, due to strict legal regulations, integration of data such as social security numbers, addresses, names, etc is not allowed, although it is technically feasible. e-Saram is also integrated effectively with parallel systems, e.g., Insanang and NEIS.

29 The integration process faced significant levels of complexity, given the involvement of 70 different institutions, which until then operated their own unique systems independently on separate servers and adhered to distinct ministry-specific regulations. Thus, the seamless integration of these different systems of different organisations into a unified e-Saram framework was a primary objective at the time. Despite these complexities, integration was a success story that stands out as a remarkable achievement in streamlining and harmonising the operations of these diverse entities and their systems under a common platform.

The e-Saram does not handle recruitment as such, as the MPM handles the recruitment of government officials through comprehensive national examinations. The involvement of HR managers is focused on addressing specific requirements only. These requirements may pertain to a limited number of positions (typically one or two), non-regular appointments, government officials with short-term assignments, or individuals with specialised skills, as these cases are not covered by the MPM’s recruitment process.

Coverage

The e-Saram is responsible for the integration and administration of data pertaining to personnel matters, compensation, performance assessment, education and training, and other HR-related services for approximately 400,000 public servants across 70 central administrative government departments and agencies (as of November 2023), encompassing all public officials irrespective of their rank. For instance, during the hiring process, submission of personal consent forms, and other required documents, is mandatory for all employees. There are no distinctions or special security measures in place for high-ranking or lower-ranking employees during the hiring process. In addition to public servants, approximately 6,000 HR managers and 1,000 financial managers use the e-Saram.

Integration

The introduction of the second-generation e-Saram allowed for the integration of 70 distinct institutions than previously maintained separate and unique systems. In 2011, hardware, databases, and applications (software) were integrated into a unified system that resulted to the enhancement of information resources operation and management. Nowadays, e-Saram is the central human resource management electronic system for public servants and a comprehensive repository and authoritative source of information for administrative functions. However, due to strict legal regulations, integration of data such as social security numbers, addresses, names, etc is not allowed, although it is technically feasible. e-Saram is also integrated effectively with parallel systems, e.g., Insanang, and NEIS.

The integration process involved several essential steps: (i) Settlement of Data Exchange Rules: determine how long data will be exchanged, what type of data and in what format. This step set the stage for the integration process; (ii) Recipients’ Request: potential recipients of the data must submit a request specifying their data needs; (iii) Institutional approval: institution responsible for the data sends an approval for sharing requested data; (iv) MOIS approval: The approved request is sent to the Ministry of the Interior and Safety for additional approval; (v) Development process (if necessary): any development processes required to facilitate integration are carried out at this stage. Technically speaking, it is possible to achieve integration in a single day. However, considering that the above-mentioned processes need to be completed, the integration takes about a week to complete on average.

Separate systems also exist. The “Insanang”, operated by the Ministry of the Interior and Safety (MOIS), handles personnel management of local government officials, because of the division of responsibilities among different ministries. The NEIS, managed and operated by the Ministry of Education for teachers and educational officials, is also distinct from the e-Saram. In addition, the Ministry of Defence operates its own internal system, and it is not directly integrated with e-Saram.
This extensive integration significantly enhanced efficiency and coordination across the public sector, facilitating the exchange of vital data and ensuring a harmonious operation. For example, the integration of payroll and family information into the Government24 – the One-Stop Civil Service Portal. Any changes made to the information contained in the portal, automatically update the family and payroll related modules in the e-Saram, ensuring accuracy and consistency.

**User participation and involvement**

In ensuring active user participation in the e-HRMS development and implementation stages, the Ministry of Personnel Management conducted a series of interviews and collaborated with HR divisions across ministries. It also conducted a comprehensive survey among all e-HRMS users. They all focused on addressing challenges faced with the first-generation system and collecting requests and recommendations from HR managers at the same time. In parallel, the Ministry facilitated implementation by providing necessary information through public relations sessions that involved central ministries, agencies, and other relevant organisations, placing emphasis on the benefits of developing an electronic personnel record management system, while at the same time highlighting the importance of the data protection and security principles incorporated into the system. This holistic approach aimed at fostering a conducive environment for seamless implementation and integration of the second-generation e-Saram across government ministries and agencies. In addition, the Ministry of Personnel Management held a two-day session, in 2022, involving all HR managers to discuss the features of the system and inform the development of the third generation of e-Saram; currently under way.

**Figure 11: Major changes by e-Saram generation**

![Diagram showing changes by e-Saram generation]

**Training and support**

Upon entry into a government organisation new employees undergo a comprehensive orientation on system usage that spans over three to four weeks approximately. This orientation includes instructional videos that delineate where and how data should be input in the system and the appropriate methods of doing so. Additional training is also provided by their predecessors during the handover period. Comprehensive training on the e-Saram system is also regularly provided by the MPM in a formal manner. Typically, two-day training sessions are conducted at the beginning and at the middle of the year.

Furthermore, informative booklets containing supplementary material are readily accessible through Customer Service. While most processes are well-covered, approximately 20% of tasks - particularly those concerning penalties - lack corresponding instructions. In such cases, employees can request assistance from the Customer Service team that promptly offer guidance and support through email and/or telephone. In situations, where certain aspects remain unclear, direct communication with certain departments is available for specialised support.

Support is provided through Customer Service, which includes a Call Centre. In addition to the call centre, a website is available for submitting requests for specific issues. Responses to website requests are typically rapid, often within an hour or by the end of a working day. Responses are usually provided by direct telephone calls from Customer Service employees. An FAQ (frequently asked questions) section is also available, and it is regularly updated to provide answers to popular queries. Users are encouraged to check the FAQ section before making requests for support.

**Data Protection and Privacy**

The e-Saram system handles a substantial amount of personal information, which necessitates stringent access controls and security measures. To obtain personal data, it is mandatory to secure the individual’s consent by means of a personal consent form. Additionally, distinct regulations are in place to govern access to different categories of data. Concurrently, in alignment with increased emphasis on personal information protection, the system bolsters the encryption of sensitive personnel data, and it possesses a refined authority structure as part of the system integration process. The stringent privacy regulations in Korea contribute to high data privacy standards. As a result, the integration of certain systems with e-Saram, although technically feasible, faces challenges due to these strict legal requirements.

Access to data involves a comprehensive security clearance process designed to restrict access to authorised personnel only. Data can only be accessed through a secure private network exclusively available to government officials. Requests for connection are vetted by the National Intelligence Service, ensuring the stringent security measures are consistently upheld and that access to this private network is meticulously restricted to authorised public officials only. User authentication and authorisation for accessing data requires registration with the system for obtaining an ID and password, a privilege extended exclusively to public officials. While individual personal laptops can be used for signing in, this access is restricted to within the specific network (intranet) environment.

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22 It is worth noting that, in terms of user-friendliness, while the system’s layout may not adhere to a strictly linear structure, its search functionality is highly commendable. Users can efficiently retrieve pertinent data and information by entering specific keywords.

23 In 2011, the Personal Privacy Protection Law was enacted. Article 1 (Purpose): The purpose of this Act is to provide for the processing of personal information for the purpose of enhancing the right and interest of citizens, and further realising the dignity and value of the individuals by protecting their privacy from the unauthorised collection, leak, abuse or misuse of personal information; http://koreanlii.or.kr/w/images/0/0e/KoreanDPAAct2011.pdf

24 Regarding the connection between the internet and the secure private network, a server gateway exists for the purpose of handing the communication and access is rigorously controlled and limited. Accessing the private network involves a comprehensive security clearance process, designed to ensure that only authorised personnel with a legitimate need can enter the private network. This procedure is integral to safeguarding the integrity and confidentiality of sensitive information.

25 https://eng.nis.go.kr/ 31

26 To access this network, public officials are required to use specially configured laptops equipped with dedicated software. Upon logging in, the security protocols are automatically enforced, maintaining a high level of security on any computer they use.
The system employs a Public Servant Verification System to manage user authentication and authorization. This system issues certificates that are mandatory for gaining access to the platform. However, alternative methods are also available. Overall, there are three primary methods for signing in: (i) Government Public Key Infrastructure (GPKI): This method serves as one of the authentication options; (ii) ID and Password: An alternative means of logging in; and (iii) QR Code: A QR code-based option is also provided.

**Figure 12: Screen for user authentication**

Within the system, access is granted to specific roles, notably human resources (HR) personnel and those responsible for payroll management. In the context of performance evaluations, relevant information is shared with the respective employees and examination teams. It is important to emphasise that not all information is universally accessible. Instead, selective access is provided, granting limited information that pertains exclusively to the relevant department or designated individuals, including examination teams or other specific parties.

Nevertheless, there may be exceptions to these regulations, particularly for the MFA personnel stationed abroad. These exceptions likely consider the unique circumstances and security requirements of MFA personnel operating in foreign locations, allowing them to use the system under different conditions.

The Personal Information Protection Commission plays a crucial role in safeguarding personal information and preventing breaches. This Committee is responsible for protecting individuals’ personal data and ensuring that their privacy is not compromised. In the event of information leaks, the Commission investigates and imposes penalties and punishments. It operates within a framework of policies and relevant laws, offering support for information protection to organisations and addressing information leaks in the media.

For individuals affected by information leaks, there is a dedicated website where they can report such incidents. Whether it is a case of hacking or the unintentional disclosure of personal or corporate information, affected individuals can file reports on the website. Subsequently, Committee members conduct examinations and investigations. If the breach is attributed to system vulnerabilities, security measures are implemented. In cases where individuals fail to comply with data protection rules, the Committee decides on appropriate penalties and corrective actions. The core principles of personal information protection remain consistent irrespective of the government unit; they are all governed by the same laws on personal information protection. Chief Privacy Officers (CPO) are designated in each ministry responsible for upholding data privacy.

**Benefits of the system**

The system significantly enhances work efficiency through various functions as stated by HR managers. Functions like filtering, statistics, and categorisation play a crucial role in improving work efficiency. For example, filters within the system are instrumental in streamlining leave-related processes. As well, the system now provides disaggregated statistics for men and women, making it considerably more convenient, specifically in maternity or paternity leave calculations. Previously, there was only one category for all. The system now offers automatic categorisation for newly hired employees based on factors such as educational background, majors, and gender. This categorisation proves valuable in making human resource management decisions, especially concerning hiring.

**Challenges and Limitations**

The challenges during system integration implementation included concerns about data overlaps between government organisations and data ownership. Furthermore, during the development of the second-generation e-Saram significant consideration of the seamless migration of data from the first-generation e-HRMS was given, ensuring a seamless transition without downtime and uninterrupted user access.

Additionally, in the early stages of the first-generation e-Saram, the primary challenges faced included the digitalisation of paper documents - for this, extensive BPR was conducted to address such issues, drawing inspiration from private sector practices. Another significant challenge was resistance from individuals, primarily due to concerns about confidentiality when all relevant information is consolidated into a single system.

The development of the second-generation of e-Saram encountered minimal technical challenges. However, it faced hurdles, primarily in the domain of laws and regulations. The system was continually adapted to changing policies and regulations, presenting formidable challenges with respect to the system’s adaptability.

Notable differences exist in the hiring process in Korea compared to other countries. In Korea, information for a new employee is input manually initially, whereas in other countries this information can be obtained using the individual identification number (IIN) of an employee and through integration with other government systems, eliminating the need for manual data entry.

The level of integration of the e-HRMS in Korea could easily allow such retrieval of data from other systems and databases. Yet, there is no such intention due to data privacy concerns. However,
Korea is trying to solve the problem of data integration in the hiring process through the 3rd generation that we are currently in progress.

Another challenge faced is related to rotation. Every three years, HR managers transition to a new position and a new team, which is usually accompanied with changes in assigned tasks performed. Ideally, the transition should include training to prepare them for their new roles. However, in practice, this training does not occur consistently. Consequently, newly transferred employees find themselves working with the system and managing data before they receive the necessary training, which can lead to mis-entries and errors. A single mistake can have far-reaching effects on subsequent records and processes, highlighting the importance of comprehensive training during the transition period.

Currently, the primary objective of the e-Saram development and operational capacity is to attain more integration and flexibility across the various systems deployed by different ministries and government agencies, consolidating them into the e-Saram system. More databases integration will also assist in achieving this objective. Moreover, there are plans for improvements that were highlighted during a two-day session held in 2022, involving HR managers, on the development of the third-generation e-Saram.

Areas for improvement suggested were: (i) Limitation on open pages: only up to ten windows/pages of the third-generation e-Saram. This will also assist in achieving this objective. Moreover, there are plans for improvements that were highlighted during a two-day session held in 2022, involving HR managers, on the development of the third-generation e-Saram.42

(ii) Connectivity issues: connectivity issues detected, especially when following specific steps or processes while hiring new employees, as the system’s current configuration does not support sequencing, necessitating to managing the order manually. (iii) Systemic processes: it is observed that the system lacks support for systemic processes, such as payroll management. (iv) Growing demand for data: with e-Saram becoming more relevant in HRM processes, demand for more data is increasing – approximately 20 to 30 institutions request data from the system annually – thus more integration of databases is expected; (v) Access to personal information: A notable concern was the segregation of personal information handling across different departments. HR managers pointed out that they may require access to specific information managed by other departments, which necessitates navigating department-specific networks. Therefore, having access over all initial data to optimise the hiring process was requested; (vi) Individual Performance Assessment: Discussions during the session inquired into the individual performance assessment, particularly the assessment criteria tied to activities and contributions. Consideration was given to factors such as appointment allocation and their impact on performance evaluation; (vii) Training needs: As was mentioned previously, every three years HR managers have rotations. Thus, the need for training prior to using the system was deliberated during the session; (viii) Feature Enhancement: A suggestion was made to include a feature in the system that offers guidance on how inputted information influences other data aspects. For instance, the system could generate pop-up messages providing insights into how, for example, appointment-related information affects other data categories, enhancing user comprehension and data accuracy.

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Kazakhstan

Brief description

The integrated information system “e-Qyzmet” is an electronic system designed to fully automate human resource management in the civil service, in the Republic of Kazakhstan. It serves as a unified database of all administrative civil servants, streamlining every aspect of their journey from recruitment and entry into the civil service to retirement. E-Qyzmet comprises over 400 distinct business processes that implies a high coverage of HR procedures across various state agencies.

The e-Qyzmet was established between 2013 and 2015, marking the initial steps towards digitising civil service personnel management with the purpose of consolidating personnel units into a nationwide network and automate their activities. From the outset, both modules for HR departments (main users) and civil servants (general users) were developed simultaneously. The system became operational in 2016 with nine blocks and 32 subsystems. Subsequently, it underwent continuous advancements until 2021, by incorporating new functionalities to align it with the evolving legislation of the e-HRM landscape. In 2022, the e-Qyzmet development trajectory took a significant turn entering a new development and modernisation phase. The e-HRMS underwent a comprehensive rebuilding process to address changing personnel management needs and consider the latest technological advancements. This modernization continued into 2023, enhancing the transition to full process automation eliminating the parallel paper-based document flow.44

Also, in 2022, the development of an e-HRM mobile application began, to be completed by the end of 2023. Its main objective is to reduce processing time for document review and approval, which will be achieved through a self-service module that will eventually simplify the submission of leave requests and business trip memos by civil servants.

Overall, it seems that the initial goal of streamlining the work of HR units has largely achieved through automation of many HR processes and efficiency improvements with respect to time spent on data entry and processing. Furthermore, emphasis is given on generating reliable statistics for better decision-making, that is the e-Qyzmet providing senior management with real-time information on the entire civil service workforce nationwide, by ensuring that all relevant data on civil service personnel is continuously updated and readily accessible through the system at all times.

Governance and Management

The main government body responsible for designing policy and coordinating implementation for the unified e-HRMS for the civil service is the Agency for Civil Service Affairs of the Republic of Kazakhstan.45 The primary role of the Agency is to oversee and manage recruitment and other human resource functions in the public administration system of Kazakhstan. With the implementation of the integrated personnel management information system – e-Qyzmet – the Agency’s role extends to ensuring the efficient and effective management of personnel-related information, processes, and services through a digital platform.

44 For this purpose, more than 200 integrations have been executed between e-Qyzmet and external information systems since the inception of the former.

45 Since its inception in 1998, this Agency has played a crucial role in overseeing various aspects of human resource management in state organisations, while being directly subordinate and accountable to the President of the Republic of Kazakhstan.

46 The development of the e-Qyzmet system is grounded in the strategic vision of the Agency of the Republic of Kazakhstan for Civil Service Affairs, as outlined in the Strategic Plan for 2011-2015. It is also aligned with the principles of the Concept of the new model of civil service of the Republic of Kazakhstan, which was adopted in 2011. These documents set the objectives and provided the legal foundation for the development of the e-HRM system. Furthermore, the Law on Informatisation, and the Concept of Information Security of the Republic of Kazakhstan until 2016 inform the principles on which the e-HRM is built upon.
The Agency is empowered to make decisions, allocate resources, and set guidelines related to the implementation, maintenance, and usage of the e-Qyzmet across government organisations. It has the authority to standardise business processes and develop a methodology for automation and procedures that govern how personnel data is collected, stored, processed, and accessed in the system in a unified manner across the country.

The maintenance of the e-HRMS is outsourced to the private sector through a public procurement process annually. The current developer is the second company to undertake system development related work since 2013. The rationale for involving private companies lies in their comparatively wider human and technical capabilities, and their flexibility and capacity they possess for swift implementation of changes. However, outsourcing also carries challenges associated with extended procurement procedures that often result to significant delays – for up to six months – in providing funds to the developer company and, consequently, limiting the time available for implementing changes, as deadlines for completion remain the same.

The e-Qyzmet is maintained by the National Center for Civil Service Personnel Management (NCCSPM), a Joint Stock Company (JSC), operating under the Agency’s jurisdiction. Its responsibilities encompass a variety of tasks, such as conducting system testing, system performance monitoring, providing technical support to users, collecting revision requests from government agencies, and then compiling quarterly reports summarising the proposals forwarded to the Agency for Civil Service Affairs.

The servers of the system are situated in the Unified Server Centre of state bodies, located on the premises of the information and communication technology operator, National Information Technologies JSC (NIT). Access to these servers by third parties is not permitted.

The Technical Support Department of the Center provides its services through a call centre operating during business hours - with an additional hour for the western region, located in a different time zone - along with a 24/7 email access for government agencies to submit proposals and inquiries, ensuring prompt feedback and response. When there is need to create or modify part[s] of the system, the Center facilitates the process, transferring approved changes to developers for implementation.

**Functionality**

The system automates a range of administrative HR activities, commencing with basic activities such as submitting leave or business trip requests. Request forms are filled electronically and when all required fields are filled, the system generates an electronic record document routed through the system for approval. According to the rules, a one-day timeframe is set for approval and/or signing of leave requests. However, irregular, and untimely review of such requests in the system by managers in some departments leads to late receipt of applications by HR Units that subsequently causes other delays. E-Qyzmet allows every employee to view their remaining vacation days, although still some occasional errors can occur. To eliminate such errors, HR departments conduct detailed reviews of all approved leave requests manually for determining where the error may have occurred.

Business trips are managed in a similar manner as leave requests. Once approved, business trip memos are forwarded to senior management with the duration indicated. The system then automatically computes the number of business trip days, daily allowance, accommodation rates, and the travel route. Following this, a personnel specialist signs the document electronically and sends it to the accounting department – outside the system - for further action. At this point the business trip process automation stops, as the e-Qyzmet system lacks payroll functionality.

**Figure 13: Available HR processes in e-Qyzmet**

Currently, the system does not track and reflect short absences or instances of overtime. This is an issue when employees need to take a short leave, e.g., a half-day or just a few hours. Similarly, for overtime, where additional hours worked need to be recorded, the system falls short. In the case of maternity leave, the system allows employees to choose the duration of their leave, also providing the option for extension or reduction of the duration. If an employee’s maternity leave is coming to an end, the system sends a push notification. However, human intervention becomes necessary at this point, as the HR department must either manually contact the employee or send a notification by mail, requesting their presence to complete the necessary paperwork.

Issuance of employment statements or service records that require a manager’s signature, is still handled manually by HR departments. Automation of the process would allow employees to generate these certificates themselves. However, questions about the legality of electronically signed certificates, such as whether banks would accept them, need to be addressed first. Alternatively, a solution – utilising the e-Government platform - could be adopted, where certificates include an electronic barcode for authenticity verification, as it is done with public services related documentation.

When employees move from one government agency to another, all their information, i.e., personal details, first and last name, education qualifications and other pertinent information, is also transferred without alterations or additions. When public employees leave the public sector, their data is not deleted but is retained within the system. If they return to the public sector, their data is simply reinstated from the stored records.

E-Qyzmet also handles the recruitment and selection processes. This function is performed through a separate “Selection” module, introduced as an external portal in 2022, aimed at digitalising the civil service selection process. This module enables posting vacancy announcements, civil service candidates to complete their applications, scheduling and managing interviews, computing tests, and interview results, and generating final decision protocols. This module is accessible by civil service candidates to complete their applications, scheduling and managing interviews, computing tests, and interview results, and generating final decision protocols. This module is accessible by civil service candidates to complete their applications, scheduling and managing interviews, computing tests, and interview results, and generating final decision protocols. This module is accessible by national legislation.

47 Forms can be filled either in Kazakh or Russian, as the e-HRMS supports both languages in accordance with national legislation.

46 For addressing this issue, an unwritten rule is in place that obliges all managers to conclude their workday by reviewing all electronic applications that they are responsible for and resolve any pending tasks before their departure.

45 For instance, an employee may have accumulated 10 vacation days, but the system displays 12. This issue tends to arise primarily among long-term employees. In contrast, for those who joined the civil service in 2021 or later, who experience such errors far less frequently.

50 Accounting departments use the information in the memo to perform the necessary calculations in their own separate system and then they transfer the appropriate amount to the recipient’s bank account.

[www.eqyzmet.gov.kz](http://www.eqyzmet.gov.kz)
currently piloted in five government agencies.52 Performance appraisal is another traditional HRM activity handled by the e-Qyzmet nowadays. It covers the assessment of employees’ performance, career progression, and training history. Employees complete an electronic evaluation form on a quarterly basis, which is then reviewed by their immediate supervisors on four dimensions: competence, discipline, and proactivity (includes 2 dimensions). For individuals in high-ranking positions of Category B, performance appraisal is completed quarterly as well, but it relies on real performance indicators (KPIs), typically 4-5.

Generation of HR related statistics is an important feature incorporated into the e-Qyzmet, through the “Reports” module (Figure 14). The module is capable of generating diverse sets of data, i.e., number of employees by gender, education, vacation status, length of service, dismissals, disciplinary actions, training, and other. The system additionally furnishes data on completion details, participant demographics (gender, age, education), work experience, employee background (private or public sector), work experience, etc. Overall, the e-Qyzmet facilitates quarterly monitoring of the entire civil service, with automatic report generation based on the collected data.53 However, no graphical data analytics have been incorporated into the system yet.

Figure 14: Statistical report sample in e-Qyzmet

52 These are: (1) the Agency for Civil Service Affairs; (2) the Ministry of Industry and Infrastructure Development; (3) the Ministry of Trade and Integration; (4) the Akimat of Akmola region; and (5) the Akimat of Shymkent City.
53 According to HR specialists, statistical data provided by the e-HRMS is relatively basic and may contain inaccuracies since certain information is manually entered into the system. Hence, there is a recognised need for further enhancement of the Reports module, focusing on ensuring regular and accurate data recording while minimising the need for paper-based records. This could be achieved through higher automation and optimised business processes, tasks that are currently underway. It is also important to expand the available range of statistical data. For instance, heads of HR units expressed the view that it would be an advantage if the system could provide information currently compiled manually, i.e., reasons for leave, post-departure destinations, backgrounds of new specialists, positions of individuals leaving a government organisation, etc.

Coverage
The e-Qyzmet covers the majority of government entities at all levels, serving as a centralised human resource management database for a wide spectrum of organisations from central state bodies to various committees and local executive bodies. Currently, the system accommodates a user base of over 85,000 civil servants, each with a distinct access level, i.e., general user, human resources unit user, and management user. An individual civil servant can initiate applications, memos, and similar tasks. A personnel officer can perform more functions, including management of staffing tables and timesheets, and other related functions and tasks. Management positions primarily entail two key functions: the authority to sign orders and the ability to delegate signing rights for specific instances.

Notably, the Presidential Decree on the Debureaucratisation of the activities of the state apparatus (2022) has facilitated the expansion of coverage of the e-Qyzmet by encompassing all government entities, irrespective of their status; a process that is currently underway. The Executive Office of the President and the Prime Minister’s Office are in the midst of connecting to the e-Qyzmet. However, law enforcement personnel will not join the e-HRMS due to privacy and confidentiality concerns in accordance with the legislation, despite the fact that, as part of the modernisation efforts, plans are also in progress to introduce personnel management capabilities for this group of public servants in the near future.

Integration
The level of integration of the e-HRMS system in Kazakhstan is quite extensive, designed to maximise efficiency and automate various aspects of personnel management. Overall, the system is connected to over 100 information systems and databases of various state entities. For instance, the e-Qyzmet is integrated with the database of legal entities to access information about state bodies and their legal addresses. Furthermore, integration with other databases facilitates the process of conducting compliance checks of civil service candidates during the recruitment process.54

E-Qyzmet is well integrated with various government agencies databases with respect to automated data retrieval and filling. It communicates with such databases enabling automatic completion of personal files. For instance, the e-Qyzmet interacts with the state database of individuals to retrieve personal data using their IIN (Individual Identification Number). It also retrieves data from the Registry Office information system to obtain information about civil servants’ spouses. Moreover, the e-Qyzmet retrieves data from the Ministry of Education database regarding civil servants’ educational background and from the Ministry of Labour and Social Protection information on employment history, mainly in the civil service. Conversely, the e-Qyzmet system reciprocates by supplying information about recent civil service hirings and appointments.

Integration of e-Qyzmet with the Access Control and Management System (ACMS) allows for the monitoring of entrance and exit to government buildings. This integration serves as an important security measure and involves collaboration with numerous government agencies throughout Kazakhstan, each working with the Agency for Civil Service Affairs independently for integrating the ACMS with the e-HRMS. However, while this integration effectively tracks the presence and absence of employees at work, it does not monitor their working hours for time sheet purposes.

Conversely, e-Qyzmet serves as a source of information for various government services and business processes. For instance, e-Qyzmet plays a role in internal investigations within the civil service. When investigations uncover disciplinary violations or other infractions that need to be reported to

54 Prospective civil servants are checked for offenses, corruption violations, or criminal records by accessing the Committee on Legal Statistics and Special Records (CLS&SR) to ensure that individuals with disqualifying violations are not considered for civil service roles. Similarly, adequacy of their physiological health is verified by accessing the database of the Ministry of Healthcare and . Furthermore, the e-HRMS can access the state database of legal entities to check prospective civil servants’ affiliation with any legal entities that are prohibited for civil servants.
the Prosecutor General’s Office, the system transfers relevant information to the appropriate authorities for analysis and action. Moreover, as many social programmes require verification of a person’s civil servant status, e-Qyzmet provides such information and thus aiding in determining whether an individual is currently employed as a civil servant, has been dismissed, or is no longer eligible for certain programme benefits.55

Furthermore, efforts are being made to develop integration that will allow the transfer of information to compile the time sheet. It will be used to transmit data about an employee’s work hours for an entire month, their sick leave, or their business trip. The necessity for this integration arises because the system lacks the functionality related to wage calculation, which is currently computed and transferred independently to the «1C» accounting programme, without any interaction with e-Qyzmet. At present, the integration of the two systems is prevented by information security concerns, as the actual earnings of individual civil servants are considered confidential information intended for official use exclusively.

There are also intentions to integrate e-Qyzmet with the State Center for Pension Payments to access information about individuals’ prior places of work that paid pension contributions and, hence, their employment history aimed at automating the population of the work activity section of their personal files with employment data.56

Meanwhile, the need for integrating e-Qyzmet with the “Documentologist” – an electronic document management system – and with “e-Otinish” – a portal for official appeals to government agencies is perceived by HR specialists. Such integration would enable the tracking of each employee’s workload based on the type of assignment, particularly for central apparatus employees responsible for executing presidential, administrative, and governmental directives, who often have varying workloads. Such integration would streamline workload calculations, enabling HR managers to monitor and report any uneven distribution of work to department directors. Currently, the process is performed manually, and it involves extracting data from various platforms, manually distributing it among employees, and then consolidating it into a single table for monitoring employee workloads.

The integration of the different databases is administered by the “Smart Bridge” platform of the Ministry of Digital Development, Innovations and Aerospace Industry, where various services of all government organisations are displayed along with the description of their data. Any organisation, including non-governmental organisations, can apply using their business account for services they require. Once the data provider organisation approves the application, the operator of the e-government gateway – the National Information Technologies JSC – gives access to the requester (Figure 15).

If the requested services are on the Smart Bridge, no barriers are encountered at present. In general, approximately 80% of services and related data are available on the Smart Bridge. However, if a service is not available, the relevant government agency is approached to assess whether the service can be established for the e-Qyzmet. Ultimately, this depends on the funding, readiness, and presence of suppliers within the government agency which is reached out for integration.

55 Future integration efforts entail several key initiatives. First, there are plans to exchange data with the Ministry of Finance to verify the submission status of mandatory annual declarations by civil servants, to be recorded in their personal files. Second, a two-way data exchange integration is being planned with the Ministry of Defence to eliminate the process of submitting quarterly reports on civil servants of military age, by e-Qyzmet obtaining information on their military ranks electronically. This initiative requires readiness on the part of the Ministry of Defence.

56 It is noteworthy that under the Labor Code of the Republic of Kazakhstan extracts from the Unified Accumulative Pension Fund are among the documents validating work activity. Although such statements are not the primary means of verification, they are considered the most reliable source compared to the Unified Employment Agreements Accounting System, which is not mandatory and relies mainly on data from government organisations, lacking the necessary information from the private sector.

57 The Agency for Civil Service Affairs regularly receives suggestions from various government bodies regarding changes they deem necessary in the e-HRMS. However, their feedback and proposals are considered by the coordinating authority when updates or changes are initiated. Subsequently, the Transformation and Digitalisation department shapes the actual system processes based on the established methodology. For the development and modernization of the system the collaborators involve the developers and the maintenance company of the E-Qyzmet, and a project management group established at the JSC «National Information Technology» overseeing the entire process. Thus overall, four parties work together to ensure clarity in implementation, when there is a need to address new requirements.

Training and support

Mandatory training is provided to all relevant HR Units employees with each new functionality introduced. Additionally, corresponding memos or user / administrator guidelines are developed and disseminated. Furthermore, as the system is currently undergoing extensive reconstruction, multiple in-person training sessions are already being organised to demonstrate how to effectively utilise the new system features, the skills that are required, and to provide other essential information.

The call centre is fully operational, allowing users to seek clarification on any issue, and the maintenance company is always ready to assist with any inquiries. If a proposal for modifications in the system is received from several government agencies and complies with existing legislation, it is considered for implementation to effect system changes. The duration for implementing such changes varies: minor adjustments typically take 2-3 weeks, while more substantial revisions can extend beyond a month.56
Data protection and privacy

Data protection and privacy is safeguarded through a comprehensive system. To comply with information security e-Qyzmet, just as all other state systems, it operates in an isolated protected network - the Unified Transportation Environment (UTE). The UTE, secured at the state level, serves as the secure communication infrastructure for e-Qyzmet. All interactions among state entities take place within this protected environment, as mandated by legislation. To safeguard e-Qyzmet from unauthorised access, two key tools are employed:

- A single transportation environment: This ensures that only authorised entities can access e-Qyzmet, thus preventing external intrusion.
- An e-government gateway: This secure gateway manages integration with various information systems, acting as a protective barrier to prevent unauthorised access to e-Qyzmet.

Access to information is tightly controlled at the functional level, with access granted based on specific roles. For example, only personnel management service employees have access to the database. Individual public employees have access to their own data along with their immediate supervisors. Even within HR units, each user has a distinct role; one person may handle selection, another may focus on training, and someone else on personnel affairs. This approach ensures differentiation of access to information. Along with that, the Agency for Civil Service Affairs as the owner of the system has access to full statistics.

At the database level, personal data is encrypted, with the specific encryption criteria determined by the owner of the system - the Agency for Civil Service Affairs - further enhancing data security and privacy protection. Overall, this comprehensive approach ensures the security and privacy of data within the state digital infrastructure of Kazakhstan.

The user authentication and authorisation processes vary between the external and internal portals. For the external portal, it relies on the e-Government platform’s Identity Provider (IDP), offering users multiple options for authorisation, including Digital ID, electronic digital signature, and login and password. For the internal portal (Figure 16), two-factor authentication ensures higher security, as users provide login credentials and sign in with an electronic digital signature (EDS).

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Figure 16: Authorisation page of e-Qyzmet

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58 individuals entering the civil service consent to the collection and processing of their personal data from other information systems, emphasizing transparency and consent in handling personal information. This is also the case for candidates, who are asked for their permission during registration for automatic processing of their personal data. Should candidates wish to withdraw this permission, they have the option to request the Designated Authority to cease accessing their data. Then, candidates receive a push notification or an SMS containing a code, which when entered into the system, halts any further personal data processing.

Benefits of the system

The e-HRM system’s feature highly valued by policymakers is its data analytics capability. Previously, generating the annual report on personnel in the civil service required at least a week of laborious manual work by a personnel officer to collect data on the staffing of state bodies, its qualitative composition, education breakdown by majors, mentoring, training, internships, rotation, and more. Nowadays, obtaining comprehensive data on the entire civil service workforce for the same report is taking just around 15 minutes, utilising the data analytics capabilities of e-Qyzmet.

In practice, however, errors occur due to incorrect or incomplete data. This is most probably caused partially by incorrect initial manual input of data into the system, as government agencies still rely upon numerous paper-based records for personnel management processes. These errors are also attributed to the fact that certain agencies remain unconnected to the system (Table 3) and data needed are manually collected. Additionally, discrepancies in statistics generated may arise as a result of varying methodologies employed by different organisations. For the purpose of unification, the Agency for Civil Service Affairs, in 2016, undertook the task of standardising electronic human resource management processes, which encompass the adoption of standard personnel record forms endorsed by the Agency.62

Table 3: Government agencies that do not utilise e-Qyzmet62

<table>
<thead>
<tr>
<th>Government body</th>
<th>Full-time staff positions</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive bodies of the President of the Republic of</td>
<td>454</td>
<td>≈ 29%</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prime Minister’s Office</td>
<td>696</td>
<td></td>
</tr>
<tr>
<td>Supreme Court</td>
<td>6,243</td>
<td></td>
</tr>
<tr>
<td>Ministry of Finance</td>
<td>14,647</td>
<td></td>
</tr>
<tr>
<td><strong>Total number</strong></td>
<td><strong>21,960</strong></td>
<td></td>
</tr>
</tbody>
</table>

Conversely, one may argue that the introduction of e-Qyzmet has significantly relieved HR units from routine personnel work. All HR-related requests are now processed on-line leading to a significant reduction in time devoted to paperwork. Consequently, it is assumed – as no specific evidence on such changes exists - that HR specialists have more time to focus on core HR duties rather than routine administrative tasks nowadays.64

Furthermore, the recently introduced “Selection” module, which employs proctoring technology for observation and monitoring on-line testing has proven to be beneficial in several ways. This module enables potential candidates to take tests on-line at their convenience, irrespective of their location, eliminating the need to physically visit a testing centre. Considering the size of the country and travel distance associated with it, e-testing offers such benefits, as time and cost savings for candidates who no longer need to travel. It also reduces operational costs that are not incurred by the National

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60 «Monitoring the state of personnel in the civil service of the Republic of Kazakhstan».
61 Order No 27 (2016) “On approval of standard forms of documents for personnel records management of the administrative public service”.
62 At the time this report was being prepared, the Ministry of Finance and the Supreme Court were in the process of completing their full transition to the system. The remaining government agencies are scheduled to be connected by the end of the current year.
63 These tasks are further enhanced due to the existence of an electronic archive, where all relevant files are stored and readily accessible, as the Archive is integrated with e-Qyzmet. The e-Archive is managed by the Ministry of Culture and Sports.
64 However, despite the automation of a multitude of HR processes, government bodies continue to generate and retain certain HR-related documents in paper format due to concerns about network connection stability and interrupted access to data - as observed during the events of January 2022. Additionally, legal requirements dictate that certain documents must be retained in paper form. However, these documents are digitally signed using an electronic digital signature (EDS) and are subsequently printed and archived.

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Center for Civil Service Personnel Management for administering tests at testing centres. It is also expected that corruption risks will be reduced by eliminating personal interaction. However, this needs to be corroborated, in due course.

Human resources personnel perceive the e-Qyzmet system as highly efficient in various ways, benefiting different stakeholders. One significant advantage is the reduction in administrative work. For instance, the process of creating quarterly reports for the Agency for Civil Service Affairs involved manual data collection and analysis in Excel. However, as e-Qyzmet has automated this process, significant reduction in the time and effort required is observed. Moreover, the transition away from paper documentation, physical signatures for approvals, and manual distribution of documents has streamlined the reporting process, resulting in valuable time and resource savings.

The introduction of e-Qyzmet has also resulted to increased efficiency in HR processes. For example, it simplifies and advances personnel procedures, such as the issuance of vacation requests, which “now take only one day instead of an entire week.” Additionally, the adoption of the electronic document management system has also contributed to the efficiency of HR processes, as it has eliminated the need for paper-based documentation and manual tracking. Another major benefit of the e-HRMS is the significant time savings realised in data collection and reporting. Previously, it took personnel officers at least a week of painstaking work to gather and analyse information from various government agencies. Nowadays, comprehensive reports can be generated in just fifteen minutes.

The system enhances transparency and reinforces protection employee rights. For instance, it allows employees to track disciplinary processes and access all relevant documents, ensuring transparency in the process and protecting employees’ rights at the same time. According to the view of HR specialists, the system also ensures timely leave, objective work assessments, and promotes meritocracy, arguably allowing for fair evaluations of employee performance regardless of their relationship with management.

Furthermore, e-Qyzmet, as a centralised system, facilitates comprehensive oversight and assessment of employees’ progress across territorial divisions, and it simplifies talent tracking. It also enables objective evaluations and promotions to different divisions, fostering fairness and efficiency. Moreover, it provides better control and monitoring of departmental work, particularly in cases of layoffs, where the system helps identify the reasons and comprehensively assess the situation.

Lastly, the e-HRM system simplifies job searching and the application process. It provides information on open vacancies at various government agencies, making it easier for employees and candidates to search for government job vacancies. It eliminates the need for checking multiple agency websites and it reduces the paper load associated with job applications, as it used to.

Another important insight deriving from the analysis of the interview responses is that e-Qyzmet has shown that institutions implementing the new civil service compensation system are attracting a higher number of candidates with master’s and PhD degrees, as well as individuals with foreign education backgrounds. Undoubtedly, this is a contributing factor to improving the overall quality and composition of the staff. For this reason, a memo has been drafted by the Agency for Civil Service Affairs for the President, proposing the extension of the pilot remuneration system to the entire civil service.

**Challenges and limitations**

E-Qyzmet faced several notable challenges from the beginning. There was significant resistance from civil servants to work with the system.65 This resistance led to another early challenge: a heavy reliance on personnel specialists to manage the system on behalf of all employees, even though the e-HRMS aimed at empowering civil servants to independently handle their HR-related tasks. Overcoming these challenges required a concerted effort to enhance the system’s functionalities and its user-friendliness; gradually changing the situation over time.

Another challenge is managing a list of logins and passwords for each employee, as it poses considerable security risks and administrative burdens, when dealing with a large workforce. While centralisation in human resource management has helped address this challenge, primarily at the central level, there are still instances where a designated individual within a local government entity manages system-related tasks on behalf of the staff.

E-Qyzmet system also faced several significant drawbacks and challenges from a technical perspective. First, its original architecture, designed in 2013, was monolithic and thus it lacked flexibility. Even minor updates required extensive system overhauls, limiting adaptability, and impeding efficient maintenance. However, the new version under development takes a different approach, for example, there are separate services for different new functions, e.g., a proctoring system for monitoring on-line entry test, and a separate system for test administration. Another challenge and a notable shortcoming is the absence of a hot reserve infrastructure, which enables immediate and seamless backup activation in case of a system failure. Although a cold reserve is available, manual intervention is required to restore system functionality in the event of failures, potentially causing downtime and operational disruptions during critical situations.

Furthermore, old infrastructure which has remained unchanged, despite the significant advancement of the e-Qyzmet since 2015, e.g., the introduction of the “Selection” module, that has added extra load to the system causing system freezes. Such frequent interruptions in connectivity often lead to situations where HR professionals are unable to perform transactions and complete tasks on time, e.g., arranging a business trip. As a result, they revert to paper-based documentation processes leading to subsequent duplication.66 Nevertheless, as part of the development and modernization of the system, work was carried out to transition from physical servers to virtual ones with large resources, which led to higher system performance.

Lastly, concerns regarding data reliability have also emerged. While errors were acknowledged, it was noted that they were mainly due to incorrect initial data input. In such cases, it is essential for the e-HRMS to incorporate features that enhance data accuracy, including built-in checks and validations to reduce the risk of errors associated with manual data entry.

### Notes

65 A common hurdle when introducing new technology into organisations, often stemming from unfamiliarity with the system or a perception of added complexity in their daily tasks.

66 Internet instability also remains a challenge throughout the country, a situation beyond the immediate control of the e-Qyzmet system administrators. Nonetheless, proactive steps have been taken from the Agency’s side to draw attention to this matter through written correspondence and communications, underlining the adverse impact of unstable internet and inadequate infrastructure in Kazakhstan on the advancement of information systems, including e-Qyzmet. The authority responsible for resolving such issues is the Ministry of Digital Development, Innovations, and Aerospace Industry (MDDIAI).
In addition, swift decision-making is considered essential to determine the currently required positions, necessary specialists, and competencies in demand. It would also be beneficial for HR units to identify positions with the lightest workloads or those no longer needed within a government agency for optimisation purposes. Presently, these processes are carried out manually, involving the assessment of job roles, workload evaluations, alignment of duties with the functions of a state body, and identification of potential areas for optimisation.

While overseeing disciplinary actions is considered to be a well-automated HR activity in e-Qyzmet, personnel rotation between government departments still requires facilitation. Indeed, as reported by HR heads, currently, they manually record the deadlines for each employee subject to rotation. Recognising this need there is a plan to incorporate a specific function into the system: when a civil servant of a specific category approaches their three-year tenure in their current role, the system automatically generates a notification, informing an HR specialist that the rotation time is approaching. It then provides a visual representation on a map of the state agencies where rotation is feasible.

In terms of work-life balance, there is a legal provision for flexible working hours; however, remote work is not a common practice in the civil service, and thus, not integrated into the e-Qyzmet. While a talent management function is not currently available in the e-Qyzmet, its potential introduction is viewed as potentially beneficial for HR departments. In situations where two highly qualified candidates are available for a single position, HR staff often make informal notes about the second candidate and subsequently reach out to them in the future when new positions become available. If this process could be incorporated into the system through a roster, and candidates automatically received notifications about new positions, it would lead to a more efficient workflow for HR specialists.

Additionally, the system does take into account diversity by providing an adaptation for visually impaired users. It includes a feature where users can switch to a visually impaired-friendly mode. This demonstrates a proactive approach to ensuring inclusivity and accessibility for individuals with visual impairments, making the system more user-friendly and accommodating to a wider range of users.

Currently, the utilisation of AI technologies is in an exploratory stage, mainly for recruitment and selection, rather than for facilitating other aspects of personnel management. Thus, systematic data collection is on-going to facilitate future machine learning applications that will be incorporated into the e-Qyzmet. Such applications would serve a dual purpose, assisting government agencies in identifying suitable candidates and helping candidates discover positions conducive to their career advancement.

In sum, although e-Qyzmet has notably improved many HR routine processes and has introduced certain analytical capabilities, the system appears to lack the tools necessary for HR units to evolve into strategic partners for HRM policy and implementation. According to HR department heads, certain strategic tasks demand time-consuming manual work, even for experienced HR managers. While the system does contain regulations, mission statements, and tasks for state bodies, the determination of specific departmental needs for specialists, encompassing their education, experience, skills, and competencies, is primarily reliant on the expertise and skills of HR managers and is not supported by the system. Consequently, for moving forward, future goals of the e-Qyzmet encompass advanced analytics and customised reporting capabilities to support data-driven strategic planning within the civil service and optimise policy formulation and implementation.62

Kyrgyzstan

Brief description

In 2016, the State Agency for Civil Service and Local Self-Government Affairs – hereafter the Agency – was assigned with the task to create a database of government and municipal civil servants. In 2017, the initial version of the “e-Kyzmet” – thereafter, e-Kyzmet – consisting of the first two modules – “Personnel Management” and “Organisational Structure” – were developed and piloted in four government bodies, the Agency, the Ministry of Digital Development, the Kyrgyz Patent Office, and the Jogorku Kenesh (Supreme Council).

In January 2018, the second and current version of the e-Kyzmet was released. By 2019, all government organisations were connected. First, the central government organisations followed by their subordinate ones, and territorial divisions. The next stage (2020) involved the connection of local governments – mayors’ offices, akimats, etc. The widespread transition to the “InfoDocs” Electronic Document Management System (EDMS) in 2021-2022,68 which is now directly connected with the e-Kyzmet has also enabled private organisations to begin connecting to the e-Kyzmet system for a fee.

The recently released “Strategy for Personnel Policy 2026” contains actions to modify and improve the e-Kyzmet system. For example, there are plans to create the “Electronic Employment Record Book”, the “Electronic Staffing Table,” and the “User Personal Account” modules.69 There are also plans to develop the “Analytical” module for generating and providing statistical information, so the system can also be used as a decision-making tool.70

The overall goal of e-Kyzmet is to enhance the quality of personnel management in the civil service by automating HRM processes and facilitating the collection, processing, utilisation, and exchange of personnel data based on the principles of single entry and multiple data use.71 Ultimately, the e-Kyzmet aims to digitise all data, move to a completely electronic environment for real-time reporting and serve as a decision-making tool.

Governance and Management

The e-Kyzmet is governed and managed through a collaborative effort involving various stakeholders. Ownership and coordination rest with the State Agency for Civil Service and Local Self-Government Affairs, which assumes the role of the system owner. This agency is tasked with leading legislation-

62 The allocated budget for the e-Kyzmet development for 2022-2023 is about KZT 440 million, approximately USD 100 million, constituting around 0.039% of the GDP.

68 «InfoDocs» is an electronic document management system that automates processing of documents – external and internal – in government agencies, their territorial divisions, and local governments, as well as to manage and maintain an electronic document archive.

69 The “User Personal Account” module is designed to provide access to civil servants’ personal profiles where their information is entered by employees of personnel management units on seniority, wages, paid taxes and deductions, the expected amounts of pension. They will also be able to access an application to enrol for participation in open competitions for the internal personnel reserve of state and local government bodies. The “Electronic Employment Record Book” module is designed for users to enter data on work activity, and summary information about their work experience; all without maintaining a paper version. The module “Electronic staffing table” will introduce limits on the number of staff positions, i.e., the number of appointments cannot exceed the maximum number of employees determined for an organisation. The development of this module is almost complete; however, its main user – the Ministry of Finance – have submitted some proposals for improvement. Moreover, no piloting of the module has begun, as the accounting systems have not yet been developed.

70 The terms of reference for the “Analytical” module were being finalised in May 2023, when interviews were taking place.

71 This approach ensures that once data is entered, it serves multiple purposes, thereby increasing processing speed and enhancing the relevance and integrity of the information.
based policy decisions, setting objectives, and coordinating with the developer company. The development and maintenance of the e-Kyzmat system are overseen by the “Infocom” State Enterprise, a subsidiary of the Ministry of Digital Development. Infocom’s team, including programmers, analysts, and system administrators, collaborates with the Agency in preparing terms of reference, describing business processes, and developing new modules or refining existing ones.

The development team within Infocom comprises 35 software developers. In routine operations, a smaller team of six individuals, including software developers, analysts, and a designer, is engaged. Task distribution is managed by the chief developer, with roles assigned for front-end and back-end development, API preparation, and design improvements. Infrastructure management, including hardware needs, falls under the responsibility of Infocom’s Infrastructure Management Unit (IMU). The system servers are housed at the Data Centre at Infocom and managed by Infocom. The system operates within a closed network, utilising VPN channels and specific certificates for communication. External modules, such as the “Qistant Learning” module, communicate through the government gateway.

**Functionality**

The e-Kyzmat system primarily functions as a unified database of civil servants handled and managed through two fully operational blocks—the “Personnel Management” and “Organisational Structure” modules. The former comprises personal information about each employee, including personal data, education qualifications, orders, and awards. This module tracks records of all changes regarding public servants from the time of their appointment. Information is entered by employees of the personnel department based on an order of appointment and the personal sheet (file) of each employee, if previously stored on paper. Over time, any awards received by employees are also documented in the system, along with other orders associated with business trips, vacation, etc. The “Personnel Management” module also records and tracks working time, work location, whether at the office or on a business trip, vacation time, sick leave, etc.

The “Organisational Structure” module contains the names of the state organisations, their divisions, departments, positions, overall staffing numbers, including those of their territorial subdivisions, if applicable (Figure 17). Thus, the module serves as a structural framework for the organisation, playing a vital role in the seamless operation of the InfoDocs Electronic Document Management System, which is closely integrated with e-Kyzmat; data from the “Organisational Structure” and “Personnel Management” regarding employees’ presence or absence at work is immediately transmitted to InfoDocs. If, according to the e-Kyzmat system, an employee is on vacation, the ability to send them documents for execution in the EDMS will be promptly disabled with a respective notification to the management. Moreover, any changes in personnel status, such as dismissals, reassignments, or transfers to another government body, are instantly communicated. Therefore, e-Kyzmat ensures an accurate and real-time information flow for uninterrupted documentation update of InfoDocs.

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However, the e-Kyzmat system support for administrative HR activities is somewhat limited, as all processes are carried out on paper, and only the conclusive data is subsequently entered into the system. For example, when employees request vacation a paper-based application is filled and submitted to their manager, who after approval sends it to the HR Unit, where one of its staff enters the necessary details such as the date, number, and “on vacation” status, into the system (Figure 18). A similar process is followed for sick leave. While the current approval process for business trips also relies on a traditional paper-based approach, there are plans to transition to an electronic format. However, it has not been decided yet whether it will be part of the e-Kyzmat system or the EDMS.

The e-Kyzmat system has also automated human resource management policy activities but only partially. For instance, the “Competitive Selection” (Synak testirlou) module handles the three-stage selection process: (1) review of documents; (2) testing; and (3) interview. The first stage comprises paper-based applications collected by state bodies’ personnel departments, which, in turn, submit electronic requests to the Agency transmitting the data to the “Synak testirlou” module. The system automatically identifies candidates for the next stage, and results are emailed through this module three tests are administered: knowledge of legislation, subject matter, and logical A compulsory test of the Kyrgyz language is also taken separately. It is conducted by a private organisation that issues a certificate upon a candidate successfully passes the test.
to them, while the relevant Personnel Officers may view the results in the “Competitive Selection” module. The subsequent interview stage is performed manually, with results later entered into the e-system. The ultimate goal is full automation of this activity starting with an electronic application form for candidates to eliminate human intervention and ensure unbiased selection.

Performance appraisal used to also be administered through the e-Kyzmat “Performance Evaluation” module. However, a 2021 Law abolished performance evaluation, replacing it with attestation of public employees. Attestations are conducted biennially by utilising the existing “Competitive Selection” module, due to similarities in procedures, with some modifications. Nevertheless, the “Performance Evaluation” module remains in the e-HRMS – in disabled mode – in case there are further legislative changes that may reactivate performance evaluation.

Another HRM policy activity facilitated by the e-Kyzmat system is training and development supported through the fully operational «Distant Learning» module, which is based on the Moodle platform. This module, accessible by all civil servants as trainees, underwent an upgrade in 2022 to address previous challenges encountered in on-line learning.

The system provides basic statistical data, i.e., number of public employees, education qualifications, age, gender, ethnicity, etc. (Figure 19). Yet, here is no filtering function currently available to generate only the required information. Another issue with the statistics module involves errors in data and missing data, which can occur due to system changes. For this, statistical data are currently generated through the use of a Google Drive application, where all necessary data are entered manually. When summary statistical reports are requested, the required information is generated separately, and the data has to be downloaded to an Excel or Word file in order to proceed with the necessary analysis manually.

Figure 19: Statistics module of e-Kyzmat

When the “Analytics” module becomes fully operational (Figure 20), then each e-HRMS module will have its own component for analysing data. This module is also expected to be a tool for the country’s leadership, and for the heads of the government agencies to make decisions pertinent to career related issues of employees, i.e., promotions, rotations, re-assignments, layoffs, etc. In its final form, when all modules are completed, this tool will provide information and create summary reports drawing data from across the entire e-HRMS.

Figure 20: Analytics module of e-Kyzmat

In 2023, there were 1,218 government organisations connected to the system - state and municipal organisations, and subordinate organisations to the central and municipal government – all coordinated and managed by the Agency. Nowadays, commercial organisations are also connected to the system. In 2023, the number of users was 4,120 approximately, all employees of personnel units. Other users of the e-Kyzmat are the leadership and management of government organisations, however only for viewing information.

The data of 122,745 public employees – 100% of all state and municipal organisations employees – have already been digitised. The database also includes the data of public sector employees, such as teachers, doctors, etc, although they are not necessarily civil servants, as there is a need for Personnel Units to generate reports. However, the data of Law Enforcement officers are not included, as a separate database is maintained for them.

Integration

The e-HRMS is integrated with several databases of other government agencies (Figure 21), i.e., the Ministry of Internal Affairs database for passport information, residence registration (address), and criminal record (absence/presence) data, the Registry Office for marital status and family composition (children) data, or the Ministry of Education database, so that authenticity of degrees and diplomas may be validated, and the Social Fund database that provides information on a candidate’s work activity.

The e-Kyzmat also has an inverse relationship with other government databases. For instance, it receives information from three databases of the Ministry of Digital Development. Data from the InfoDocs system, data from the “Personnel Management” module (employee personal data, work experience, reports, order), and data from the “Organisational Structure” module (name of state organisation, the departments it consists of, the positions it has, its staffing plan, etc). At the same time,

76 Moodle is a Learning Platform or course management system (CMS) - a free Open-Source software package designed to provide educators, administrators, and learners with a single robust, secure, and integrated system to create personalised learning environments.

77 Their numbers may vary depending on the number of employees working for a state organisation.

78 Some law enforcement officers are represented in the system – the clerk, the head, and personnel departments – as this is necessary for the EDMs workflow process. In other words, law enforcement agencies are connected to e-Kyzmat, for exchanging documents and for signatures, etc as “InfoDocs” does not work without e-Kyzmat.

79 Such integration, however, does not exclude the need for paper-based documentation submitted by newcomers to the civil service. The regulations still require notarised copies of the original documents, including a passport, a marriage certificate, and others.
Training and support

When the system was introduced, some training was provided in the form of presentations. Training was also provided to all public employees during roll out by the Agency. Nowadays, training takes the form of working meetings. Furthermore, if some questions arise users communicate among them by text messages. Requests for service can also be submitted through the Training Departments, and their curators. There are a few curators specialising in various areas and being responsible for specific government organisations.

In terms of system support, a dedicated support team is in place. Infocom’s support team provides training to HR specialists at the Agency headquarters, and subsequently, the Agency conducts training sessions for users, including those in regional departments. Infocom also manages the connection of private organisations to e-Kyzmat, offering them training and support services for a fee.

The Agency constantly collects reports on problems and issues from all government agencies, along with suggestions, comments, and requests. Proposals received are implemented, and the system is updated with the changes. It usually takes one week for a request to be processed by the maintenance provider.81

There is no call centre as such. There is a general call centre in Infocom – 119 – providing reference services that are available throughout the republic to any citizen. Calls to 119 by e-Kyzmat users are re-directed to the Requests Processing Unit (RPU). The RPU also has its own software to communicate with users, the “Introdesk”, through which users can fill in a form with the type of request and for which system - as there are about 80 systems currently in use. No record of changes is kept. However, changes may be tracked by looking at the version control of open-source software features, such as Git.

**Data Protection and Privacy**

Security and access control are integral to the system. The system’s security includes the creation of separate domains in the e-Kyzmat databases. One for public/municipal employees, another for private traders. A third domain is planned for law enforcement agencies, but there has not been an agreement yet from their side.

E-Kyzmat is not open to all. It is a closed system. It has its own network using VPN channels for communication, configured with specific certificates.82 Overall, access to the system is restricted. The number of individuals who can be users is determined by the management of a government organisation. Usually, if there are five employees in a Personnel Unit, only two may have access. Access to the system is granted to two types of users – HR Managers and Management, namely the Director and the Deputies of an organisation – the latter restricted to a review function only. Heads of Departments do not have access to e-Kyzmat. Central offices enjoy privileged access to viewing all subordinate units’ databases since Kyrgyzstan has adapted a centralised personnel department system in which one division manages personnel for all others. Conversely, subordinate units can only access their own databases.83

The e-Kyzmat system is on-line, and it is accessed through an authorisation window using a username and password (Figure 22). This is the first step in ensuring system security. The second step is the use of closed (encrypted) channels on the Internet. Issuance of authentication credentials for the e-Kyzmat system is the responsibility of “Infocom”, the developer and maintenance operator of the e-HRM system. The single authorisation system – the Unified Authorisation Centre – was developed by “Infocom”. But there are other systems too, such as “InfoDocs”. Authorisation is done according to the Google Principle, when a single authorisation is planned.

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80 The delay is usually noted at the legislative level. It takes time to enact the necessary regulations for the changes to come into effect, i.e., preparation of draft regulation and coordination with the legal department.

81 Modules that need to communicate externally, i.e., the “Distant Learning” module use the government gateway.

82 In practice, however, it also happens that each division has its own personnel department. In this case, each personnel department will only work within its own division, without any connection to other personnel departments in other divisions. The rationale for this, is protection of personal data.
Managers and employees of personnel department enter through a cloud-based authentication system (electronic signature). This system is currently being removed due to security considerations. It will become operational again when the two-factor authentication system is rolled out. Until then, all users will enter the system through e-Kyzmat authorisation procedure. The system is developed using STEP technologies. The back-end of the system is developed with PHP programming language, and the database is using MySQL. The front-end is developed using JTS.

Benefits of the system

The unified e-HRMS in place – the e-Kyzmat – is a big breakthrough as all public employees have an electronic record of their personal files, thus making moves or transfers from one government body to another easier. There is no need to re-enter their data in a new personal file. The e-Kyzmat has also contributed to keeping the number of personnel officers’ positions low, as Kyrgyzstan management practices entail a centralised personnel department by one division managing personnel matters for all other divisions. For example, the personnel department of the central office is the personnel department for all other subdivisions of the organisation.

HR specialists perceive e-Kyzmat as convenient and helpful because it is an electronic version of employment record books and public servants’ personal files; all in one electronic system. Certain features of the e-HRMS system make the job easier. For example, the system can generate a “Reference” (an employee’s resume), who is considered for receiving an award. Some personnel department employees claim that their efficiency increased by about 50% in preparing reports; it now takes one day to prepare instead of two. Overall, it is suggested that this system works well mainly in organisations not exceeding 200 employees.

Furthermore, the e-Kyzmat data assisted in some strategic decisions in the re-organisation of government departments with respect to the number of vacancies and corresponding reductions in their numbers. Knowing the number of vacant positions helped in adjusting the number of employees in an organisation during re-organisation, by reducing the number of positions to equal the number of existing positions minus the vacant ones.

With the advent of the system, transparency has been enhanced. For instance, there is no longer the possibility to add more candidates or accept required documentation later than the designated deadline for a competition.

Challenges and limitations

The biggest challenge in implementing necessary changes to enhance system functionality is associated with insufficient resources, both financial and human. For the e-Kyzmat to become fully operational, approximately twice as much financial resources must be spent from what has been spent to date. Furthermore, the funding process exacerbates the issue, as funds are not allocated swiftly, and unutilised balances by the year-end must be returned to the Ministry of Finance. To circumvent this, tasks are labelled as urgent, and an unscheduled task status is achieved through a Presidential Administration instruction. Moreover, as modules are developed separately and their progress is heavily dependent on the availability of funding, there are cases where updates required in the system do not happen fast enough or happen only partially.

Equally, the pace of progress in developing the system is impeded by the shortage of essential human resources, mainly programmers. When no big changes are introduced to the system, the current team of six people is sufficient. However, during the development process of new modules, there is no sufficient number of individuals to perform and complete the required work. For this reason, many tasks are postponed, and they are not implemented. Analysts are in short supply too.

Another challenge is the frequent change in the legal framework. For instance, in 2021, there were many organisational changes and restructuring of government departments and agencies. Thus, the e-Kyzmat “Organisational Structure” database had to be updated; otherwise system reports would be generated with incorrect information. The change in the performance assessment method for public employees in 2021 also serves as a notable example. The Law came into effect immediately, and the Agency worked urgently to make functional changes in the “Competitive selection” module, so it can perform the Attestation process. For this, there was no time for piloting; it was tested within the Agency only. As a result, many mistakes were noted during deployment.

Furthermore, the e-HRMS operation is significantly impacted by frequent government reorganisations, particularly the «Organisational Structure» module. Personnel departments spend a lot of their working time to make changes in e-Kyzmat, that is to re-assign positions of all employees. This is done manually, and it is rather time-consuming. The process is needed and must be completed in the shortest time possible, as without proper identification of positions in the organisational structure, the electronic document flow stops. “InfoDocs” cannot provide access to authorisations sequence procedures correctly, i.e., assign electronic signatures for documents to different hierarchical levels.

84 STEPS stands for «Standard for the Exchange of Product model data; informal.
85 JTS Topology Suite is a Java library for creating and manipulating vector geometry.
86 Conversely, when employees are transferred, retire, or resign, their data is not kept in their former employers’ databases. This practice creates difficulties for HR departments in case former employees request any document or statement related to their prior employment.
87 For the development of the “Human Resources Management” and “Organisational Structure” modules about 4 million Soms were spent (USD 46,000 approximately). For the development of the “Competitive Selection” / “Personnel Reserve”, “Distance Learning” and “Performance Evaluation” modules about 6 million Soms were spent (USD 68,000 approximately). For the development of the “personal account” in the e-Kyzmat system and the creation of the “electronic employment record book” (employment history), the budget amount allocated is 5 million Soms (just over USD 56,000 approximately). In total, the budget allocated for the e-HRMS development in Kyrgyzstan to date represents approximately 0.001 per cent of the country’s GDP.
88 This is another reason why paper-based documentation is still required.
89 Three to four software developers, two analysts, and a designer are usually involved. There are no Quality Assurance Engineers thus far.
90 This lack of programmers in “Infocom” is not due to salary levels but to the lack of programmers with the knowledge, qualifications and skills needed, e.g., not everyone can work remotely.
91 As mentioned earlier, the “Performance Assessment” module is still in place, but de-activated. In case there is a reversal in policy.
The large and rapid turnover of personnel department employees / system users is also a burden. Training new users is a process that does not always work fast enough. Due to high workloads, there is limited time for training, resulting in providing training for new users through video recordings, with infrequent in-person sessions. Inadequate training may lead to workflow problems and incorrect system usage.

In addition, in the absence of a digital document repository, the e-HRMS has increased the workload for HR personnel, as current legislation requires maintaining both paper and electronic records. This complexity is heightened in organisations that employ a large number of people. Yet, a Government Plan exists that indicates the need for the creation and transfer to a fully Electronic Database System. The development of a digital document repository – “Archive” – is the task of the Ministry of Digital Development.

By continually changing the functionality of the system, issues also arise that cause operational problems. For instance, recent attempts to modify certain modules resulted in incorrectly displayed reports due to altered or replaced fields. In addition, reorganisations impose ID-addresses change frequently, but there is no automatic update of the change in the reports of the other modules, as each module generates reports independently and it is not integrated with the other e-Kyzmat modules.

The system does not provide summary statistical data on the number of public employees, length of service, education qualifications, age, gender, etc automatically. Statistical data are currently generated through the use of a Google Drive application, as the reporting system of the e-HRM does not generate accurate reports. Hence, the same data is entered twice in order to obtain accurate reports.92

In addition, it seems that integration has not reached a satisfactory level yet. This is evident in cases when an e-Kyzmat registered user applies for participation in a competition through the Personnel Reserve. All his/her data have to be entered manually, as there is no compatible level of interoperability with the Personnel Management module, where such information resides. Another issue is if a person quits a position, there is no record about this person in the system. The person’s records cannot be seen. Hence, the need to maintain a paper-based archive, in parallel.

Uzbekistan

Brief description

The electronic human resource management system in Uzbekistan, referred as hrm.argos.uz is a relatively recent development, initiated in 2022.93 It is an electronic platform created to simplify the process of personnel management at both the national and local levels by replacing paper documents with an effective and modern digital system for monitoring the work of civil servants. One of the underlying ideas of creating hrm.argos.uz is to make personnel management in government agencies easier and more efficient by automating complex tasks related to human resource management. The system is also expected to serve as a platform for information exchange between different organisations on employee issues.

The implementation process of the e-HRM system involved comprehensive piloting and testing procedures. At the end of 2022, the e-HRMS was initially tested with the Agency for the Development of Public Service under the President of the Republic of Uzbekistan (hereinafter referred to as ARGOS) and Uzinfocom.94 It was conducted to identify and address any initial issues. Subsequently, in January 2023 testing was expanded to include all government agencies until August 2023, allowing for the refinement of the system and addressing specific nuances of each agency. In May 2023, Presidential Decree 76 mandated that all state bodies must exclusively adopt the electronic personnel management system.95 In September 2023, the Cabinet of Ministers issued a resolution specifying that all information and documentation related to human resource management in central and local executive authorities should be exclusively generated and recorded on the electronic platform «hrm.argos.uz» starting from 1 November 2023, excluding however paramilitary structures and law enforcement agencies.96

In 2023, a significant administrative reform initiative resulted in a 30% reduction in the number of civil servants and the consolidation of numerous organisations, departments, and ministries from 61 to 28 independent state bodies. It significantly increased the workload of HR managers who had to navigate through these changes and adapt to the evolving demands of their roles.97 In retrospect, in addition to automating the system for improved accuracy and efficiency in maintaining records of civil service personnel and associated processes, the primary objective of the system was to streamline the work of personnel officers. Nevertheless, the system does not only handle routine operational/administrative functions but also it liberates HR managers to focus on more strategic and value-added responsibilities, ultimately contributing to the organisation’s overall effectiveness and long-term success.

Governance and Management

The coordination and management of the e-HRMS fall under the scope of the ARGOS,98 as the primary government organisation overseeing the HRM in civil service and reporting directly to

92 HR specialists need to enter data into three separate systems – the e-Kyzmat, InfoDocs, and Google Drive.

93 The e-HRM system is aligned with the country’s overall HR strategy embracing digital innovation and modernising HR management, emphasising efficiency, transparency, and enhancing employee experience to meet evolving needs. https://hrm.argos.uz/ It is based on the Decree of the President of the Republic of Uzbekistan “On the Development Strategy of New Uzbekistan for 2022–2026”. The roots of this digital transformation trace back to the Presidential Decree 6079 of October 2020, which articulated measures to implement the «Digital Uzbekistan 2030” strategy, setting the stage for development until 2030. Subsequent documents draw from this framework, shaping medium and short-term programmes for advancing digital technologies in Uzbekistan. https://mdc.uz/news/3680; https://lex.uz/ru/docs/5030348

94 https://uzinfocom.uz/uz

95 https://lex.uz/en/pdfs/6472630

96 Resolution No. 492 (22.09.2023); https://lex.uz/ru/docs/6615596

97 Moreover, the transformation was also empowered by a shift from a personnel specialist to a Human Resource manager concept.

98 https://www.argos.uz/en/about
the President of the Republic of Uzbekistan. ARGOS takes a central role in governing the entire development, implementation, and management of the e-HRMS in the country, making it the focal point for digitising HR processes in the civil service. The responsibilities assigned to the ARGOS are multifaceted. They include ensuring the e-HRMS complies with legal requirements, upholds data security, and seamlessly integrates with other government systems; as well as liaising with ministries and other government departments to facilitate the system’s smooth operation.

The e-HRMS is developed and maintained by the Unified Integrator of Uzbekistan (Uzinfocom), a subordinate organisation of the Ministry of Digital Technologies. Uzinfocom operates under the authority of the Agency, which provides guidance and supervision. The current team of Uzinfocom working with the e-HRMS comprises three developers, four analysts, and one UX designer. Plans are in place to expand its membership as the system progresses and eventually create a department. Maintenance and support for the system are provided by the same Uzinfocom department responsible for the development of the e-HRMS.

**Functionality**

The e-HRMS is specifically tailored for HR units and management, aiming to streamline various administrative HR functions, including personnel profile management, document management, and time tracking. The employee profile encompasses a comprehensive record for each civil servant, complete with personal details, job appointment, employment history, length of service, and time tracking. The employee profile encompasses a comprehensive record for each civil servant, complete with personal details, job appointment, employment history, length of service, and time tracking. The e-HRMS is developed and maintained by the Unified Integrator of Uzbekistan (Uzinfocom), a subordinate organisation of the Ministry of Digital Technologies. Uzinfocom operates under the authority of the Agency, which provides guidance and supervision. The current team of Uzinfocom working with the e-HRMS comprises three developers, four analysts, and one UX designer. Plans are in place to expand its membership as the system progresses and eventually create a department. Maintenance and support for the system are provided by the same Uzinfocom department responsible for the development of the e-HRMS.

**Figure 23: Employee profile in HRM.argos.uz**

![Employee profile in HRM.argos.uz](image)

Furthermore, an attendance tracking function is enabled mainly through integration with the Access Control and Management System (ACMS) which tracks the time when employees enter their office through the turnstile or via Face ID. Moreover, integration with the Ministry of Health’s system enables the system to promptly register sick leave on the very first day, which is then recorded in the timesheet. Importantly, the system also has the capability to monitor working time of employees engaged remotely. This was made possible by recent changes in the Labour Code. Despite these electronically streamlined processes, the timesheet form is still manually completed and submitted to the accounting departments which operate their own separate UzASBO system. However, technical work is on-going to integrate HRM.argos.uz with the payroll system of the Ministry of Finance.

HRM.argos.uz facilitates the management of personnel-related documents, although only partially, allowing HR officers to create different orders for actions such as dismissals, vacations, and business trips in the system, but the statement from an employee or a memo from a head of department – the

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101 It is in the employees’ best interest to be included in the database to ensure that details such as length of service and vacation days are accurately reflected. Keeping up with this trend proves beneficial for civil servants as it simplifies various processes, including career development and retirement. For example, personnel officers no longer require hard copies of training certificates; civil servants can directly upload them through my.argos.uz.

102 When an employee activates their laptop/computer, the integrated Unified Interdepartmental Electronic System for Performance Discipline “ijro.gov.uz” tracks the start and end times, automatically transmitting this information to the e-HRMS. https://mf.ijro.uz/#/welcome

103 It is the electronic compensation system for civil servants developed by the Ministry of Finance of the Republic of Uzbekistan. http://main.uzasbo.uz/
preceding step in the process - is submitted either on paper, or in edo.ijro.uz. Once approved, the document is then forwarded to the e-HRMS where the respective order is issued. Subsequently, the order undergoes a round of approvals in the edo.ijro.uz system before the final document returns to the e-HRMS for record-keeping purposes (Figure 25). In this manner, all orders related to personnel records management such as hiring, firing, sick leave, vacation, business trips are reflected in the system.

Figure 25: Personnel-related orders in HRM.argos.uz

Although there are no legal requirements mandating that employees’ statements or memos are to be submitted either on paper or electronically, the files are kept in hard copies. Thus, a mixed system is currently in place, with an anticipated transition to a fully electronic document management at the central government level in the second half of 2023. This shift is facilitated by the edo.ijro.uz system, which features a digital document repository. In fact, the document repository has been developed, but it is not yet in use, as data has not been consolidated in full. Guidelines for archiving have also been issued by presidential decree.

While it is technically feasible to connect individual civil servants to the e-HRMS through the integration with the MyArgos application, allowing them to electronically submit their requests for leave and business trips, the authorised body has not set such a task yet. Nonetheless, a comparable feature to be included in MyArgos is under examination, through which employees can access state body-specific application templates uploaded by HR officers for easy completion and submission. After employees sign such applications using their Electronic Digital Signature (EDS), the documents are forwarded to HRM personnel officers for further processing. However, the regulatory framework for this function is currently undefined, and testing is on-going, particularly for potential expansion in private organisations.

The e-HRMS maintains and manages the National Personnel Reserve, a database containing information on qualified personnel, which ensures filling leadership positions of the state civil service with qualified personnel. Complete information about a candidate, from his personal file to his performance assessment results, is available in this electronic system. Candidates’ potential is studied in order to determine their knowledge, personal characteristics, and leadership skills. Assessment of the potential of the candidate includes tests, psychometric tests, 360-degree review and assessment methods.

As part of HRM policy activities, the e-HRMS system utilises data from employee’s personal profiles (T2 form) to generate comprehensive personnel statistics for a government organisation, or department, including factors like age, gender, and education. The system also displays data on the number of employees However, while such statistics seem to be error-free, the available data is somewhat limited, and statistics are not presented as a standalone module in the e-HRMS. Nevertheless, HR units are required to submit different reports quarterly containing various statistics, including open vacancies, rotations, staff turnover, and others.

The system facilitates the extraction of reports with customisable filters. For instance, one can filter employees based on their tenure, like those working for 3 or 5 years in a particular position or identify women with an education in economics. While the reports are error-free, it is important to note that push notifications are not operational yet. In total, there are more than 18 types of reports typically needed by personnel officers. Although these reports are not currently integrated into the e-HRMS system (as this function is still under development), the primary analytics are available in a separate system operated by ARGOS. For instance, an annual labour report for the statistics agency, in their specific form is accessible on the ARGOS website, allowing organisations to fill it out on-line by using their personalised accounts. This process has replaced the previous use of Excel for data submission.

Overall, the HR functions and processes available in the e-HRMS are organised into the following primary modules:

- Organisational structure: staff positions, staffing table, distribution of employees, organisational structures.

- Employee account: list of employees, business trips, sick leaves, vacations.

- Documents: personnel-related orders, job instructions, application forms, documents for new employees, references (files), T2-form (personal profile), etc.

- Time tracking: working time planning, attendance, timekeeping sub-section.

- Employee planning: awards, training, punishments, personnel reserves.

Performance assessment processes are not currently incorporated into the HRM.argos.uz functionalities because of the existence of non-standardised performance evaluation practices across the civil service. Yet, the unified Samaradorlik system designed for assessing the effectiveness of administrative heads at various levels is reported to be in the process of integration into the e-HRMS. Current practice implies that KPIs for higher-level officials also apply
to all subdivisions, and subsequently to each employee, following a top-down structure. Regular reports on performance delivery are then submitted by individual civil servants to HR units, either on paper or via email. These reports are evaluated, and bonus payments are determined, as the performance assessment is directly linked to the pay system.

**Coverage**

The HRM.argos.uz system is being implemented consistently across all government organisations and departments that fall under the purview of legislation pertaining to public civil service. While in a testing mode, the platform has achieved significant connectivity, with all ministries and departments, along with over 4,000 organisations that are part of their system, being successfully connected. This constitutes around 95% of the government apparatus. Such extensive coverage ensures that HR processes are digitally streamlined not only at the central governmental level but also at the local administration levels, contributing to the overall efficiency and uniformity of HR practices throughout the country. However, the Presidential Administration and the law enforcement agencies are not part of the system. Nevertheless, the Cabinet of Ministers is in the process of implementing the system, with information entry underway (September 2023).

The system’s scope extends beyond the central and local government levels, as there are plans for further expansion. The government envisions extending the system to encompass all state organisations, even those not directly under the civil service, such as educational institutions and hospitals. This expansion reflects a forward-looking approach aimed at digitising HR management across a wide spectrum of public sector entities. Such plans are indicative of the government’s commitment to the widespread adoption of digital HR practices.

**Integration**

HRM.argos.uz is being integrated with various other HR systems and databases. To date, approximately 15 systems have been integrated with varying degrees of data sharing (Figure 26). The e-HRMS exchange necessary information with some of them, while for others it serves as a data source, or vice versa. For instance, the platform automatically shares the structure of government agency, employment contracts, additional agreements, and information on vacant positions with the Unified National Labour System (UNLS) “my.mehnat.uz.” In return, HRM.argos.uz retrieves employment records from the UNLS, although for newcomers from the private sector, some information may be missing.

The platform is currently undergoing full integration with the Unified Open Portal of Vacant Positions for civil servants, known as “vacancy.argos.uz.” This integration aims to establish a comprehensive chain, ensuring that candidates cannot be accepted for a job without successfully passing the competitive selection process. Presently, upon hiring, the e-HRMS retrieves three parameters — personal identification number, date of birth, and passport number — from vacancy.argos.uz. Subsequently, the system obtains the remaining required data for newly hired individuals from other data sources through the «State Personalisation Center» system, which maintains information about all citizens of Uzbekistan. For example, the e-HRMS receives sick leave certificates from the Ministry of Health, information about higher education from the Ministry of Higher and Secondary Special Education, and details about family composition from the Civil Registry Office.

Meanwhile, from the moment an application is submitted to the portal of hiring, prospective employees’ personal data may undergo changes, and in such instances, access to up-to-date information is crucial. Currently, information is not automatically updated in the e-HRMS, however efforts are being made to transition from a request-response approach to a push notification system. For instance, if there are changes in the data of a particular individual in the State Personalisation Center, notifications will be dispatched automatically to all organisations where this individual is registered, prompting the necessary modifications. In cases where an individual transitions from one government agency to another, an update request is initiated.

In general, the process of integration with other state organisations typically involves two steps: (i) Signing a General Agreement: at the initial stage, an agreement is signed to outline the terms and conditions of the integration; and (ii) Signing a Tripartite Technical Instruction: a tripartite technical instruction is signed by ARGOS, Uzinfocom, and the data provider organisation. This instruction serves as a detailed technical framework for the integration process.

Overall, the integration of the e-HRMS with other government systems shapes the development of Business Process Reengineering (BPR), which is, in turn, influenced by three factors: (1) the evolution of legislation, (2) internal changes implemented in systems of other government agencies, and (3) the digitalisation process revealing unnecessary steps. For instance, previously, employees had to manually provide information about their family and close relatives. However, through integration with the single portal for interactive public services, this process has been streamlined, eliminating the need for separate requests. The required information is now automatically filled and stored in the personal files of employees. In essence, the BPR has led to the development of a more efficient HR system.
User participation and involvement

Prior to commencing the development of the system, ARGOS conducted consultations with HR specialists and government agency heads to identify essential functions to be included in the e-HRM system, as well as to consider other features suggested by the various stakeholders. This inclusive process involved convening focus groups with representatives from seven ministries. In addition, Telegram chats were activated to collect and rationalise ideas and suggestions from all potential stakeholders. Through these collaborative efforts, HR specialists actively contributed valuable insights, for further shaping the desired functionalities to be included in the e-HRMS. Such proactive engagement by stakeholders demonstrates a commitment to meeting the needs and preferences of system users.

Training and support

After the development of a test version of the system was completed, in-person training sessions were organised for HR managers at central offices, subsequently extending to the regional level and beyond. In addition, consultations were arranged via telephone and Zoom meetings to address users’ questions, while they were familiarising themselves with the new system. Nowadays, guidelines, handbooks, and eight short tutorial videos are provided for the introduction of newcomers to the system and for supporting existing users. Plans are in place for creating training videos to be uploaded directly to the system; when on-going changes in legislation have been completed, and training videos are up to date with the legislative and regulatory framework.

In May 2023, a dedicated troubleshooting group was formed - a test-mode call centre - to receive feedback and collect suggestions, as well as to provide continuous support. Call centre specialists received training to respond through various communication channels provided by UZINFOCOM and ARGOS (primarily its Digitalisation Department). Overall, users are supported 24/7 through multiple communication means, including a call centre, email, Telegram channel, and chatbots. Requests for support are categorised into three types: (i) critical; (ii) non-critical; and (iii) others.

For now, ARGOS and UZINFOCOM operate as a unified working group, with two responsible individuals from ARGOS overseeing the project. Requests for system improvement may originate from both ARGOS and UZINFOCOM. The working group holds discussions for prioritising requests and identifying solutions. Requests are individually assessed. The time required to execute a request can vary; some tasks may be completed within 2 hours, while others may take up to 2 days. To maintain transparency, all changes are tracked using Trello, a cloud-based project management tool. Code versioning is also used, i.e., developers document changes within the code, including when the changes were made and their nature.

Data protection and privacy

The e-HRMS employs robust measures to ensure data protection and privacy across various aspects of its operation in accordance with the legal foundation established by the Law on Personal data (passed in June 2019). The system operates within an open network throughout the territory of the Republic and remains in place for preventing external access from other countries. Users, particularly those from HR departments, undergo a strict authentication process to gain access to the system. This involves submitting a corresponding letter and a public key of the Electronic Digital Signature (EDS) to ARGOS, which is then attached to the organisation for access. Access is exclusively permitted through the assigned EDS, and any transfer of this right is legally prohibited, ensuring the system’s security.

For information security purposes, users enter the system through a gateway, and access is granted only if authorised. Access privileges are role-based. Theoretically, HR specialists can initiate access from home using their EDS, which can be downloaded to any computer. Heads of organisations appoint responsible individuals, and the EDS access code is sent via SMS. Regular confirmation is required to maintain access. This is achieved by forcing access codes to expire every six hours.

In addition, the system does not allow full data transfers to mitigate the risk of a significant data leak if the Application Programming Interface (API) is compromised. Limited data is received from vacancy. argos, that is, passport number, date of birth, and personal identification number. Then, the system sends requests independently to various other systems to obtain other required data. Data visibility is strictly controlled, with each organisation having access only to data relevant to its own operations. Ministries, as central authorities, have visibility into their subordinate organisations’ data but lack the capability to make changes. Horizontally, ARGOS has visibility across all organisations; but it cannot modify any data.

HRM.argos.uz prioritises data backup and redundancy, with a daily backup occurring at midnight and additional backups throughout the day, copied to different servers. Developers contribute to data redundancy by regularly copying codes to the corporate GitHub. Currently, all servers are located in the same physical space, but the Ministry of Digital Technologies is actively working towards establishing geo-distribution. Operating within a cluster featuring numerous virtual servers storing system data, there are separate backups and combat servers. Plans are underway to geo-reserve the entire cluster in another data center, enhancing overall system resilience and disaster recovery capabilities.

Benefits of the system

Policymakers, developers, and the maintenance provider view HRM.argos.uz as a transformative tool that aligns with the broader goal of digitalisation and administrative reform. They perceive it as a means to modernise HR management in Uzbekistan's civil service. The system reflects a commitment to open governance, equal opportunity, and transparency, making it a key tool in the government’s framework for HRM policy.

The e-HRM system was designed with a microservices architecture, allowing for ease in making changes and accommodating evolving requirements. Presently, the focus is on the transformation of the front-end segment into a modular structure. This will enable organisations to tailor their main page to their specific needs by selecting the relevant functions from the available modules. For example, one organisation may choose to highlight the attendance function on its main page, while another may give precedence to displaying order-related statistics.

The e-HRM system has had a notable impact on HR management in the civil service, with a remarkable 80% reduction in staff turnover reported by HR managers. This reduction signifies the system’s role in streamlining and optimising HR processes, notably diminishing administrative burdens. Key automation of recruitment and interview processes has significantly expedited candidate hiring, reducing the timeframe from 2-3 months to 2-3 weeks. This enhancement not only bolsters efficiency but also augments the quality of HR decision-making by offering data-driven insights.

Furthermore, this impact is reflected in the transformation of HR specialists’ roles within district divisions. They have been redesignated as Human Resource Development Specialists. Future plans within one of the ministries are geared toward prioritising staff training and development, leading to the potential consolidation of administrative tasks from six personnel to just two, thanks to system improvements. This realignment enables remaining personnel to focus on developmental and strategic aspects. ARGOS has even recommended renaming the Personnel Departments to Human Resources Management Departments. This shift has led to a change in perception as well.

While it is premature to quantify significant cost reductions due to the system’s recent implementation, there are already notable benefits. The partial elimination of paper documentation has resulted in substantial savings, cutting expenses associated with physical storage and manual processing. The reduction in HR process time has a cascading effect, reducing the resources required and leading to cost savings.

Evidently, the e-HRMS offers substantial benefits for HR professionals, facilitating the management of personnel records and streamlining HR operations, and reducing the reliance on traditional paper-based processes. Policymakers, developers, and system users have reported improvements in efficiency, accuracy, and transparency. The system has been instrumental in enhancing the government’s digitalisation efforts and administrative reform, laying a solid foundation for future developments.
based documentation. The work of HR managers is greatly facilitated by the system, as monthly and quarterly reports must be submitted to various departments and ministries, agencies. Such reports can be generated through the system. Various statistics can be extracted from the system, using such data as the number of employees aged 30, the number of women, or the number of people of retirement age. Such analytics are useful to HR managers, in planning the number of open positions (vacancies), personnel changes, etc.

The e-HRMS has had a noticeable impact on corporate culture, particularly in terms of fostering transparency. It allows for decisions to be more transparent, e.g., which employees will participate in advanced training or go on overseas trips. This feature has been well-received, especially as it helps overcome obstacles some employees might face in terms of promotions or trainings.\(^{115}\) Additionally, it has positively influenced work-life balance, as the system tracks vacation scheduling diligently and displays when an employee must go on vacation.\(^{115}\)

The positive perception of the HR departments has also improved, largely due to their elevated status in a government organisation. As one of the HR managers aptly expressed it, "if they used to be feared of us (of HR managers), now we are respected." Furthermore, employees are also taking a more proactive approach, for example, by uploading training completion certificates to their system profiles. This reflects a culture of continuous learning and development.

**Challenges and limitations**

Policymakers, developers, and the maintenance company acknowledge that the implementation of the e-HRMS was not without its challenges. One of the significant challenges faced were objections from some ministries and departments that already had in-house systems. This necessitated reaching a delicate balance between the e-HRMS integration and maintaining the autonomy of existing systems. Another challenge was the existence of different technological approaches and disparate systems adopted by different ministries and departments and the decentralisation of information systems, identified in 2017. Some systems were even imported from foreign countries, and they lacked the necessary provisions for modernisation and integrity with each other. This fragmented posed a considerable hindrance to data consolidation and efficient operations.

The introduction of the Single Identifier of Citizens of Uzbekistan, a 14-digit Personal Identification Number (PIN) was a pivotal turning point. This technique enabled the formation of databases and systems utilising these unique identifiers, offering a conducive environment for database integration. At this time, numerous government agencies are still working on the PIN implementation, which requires major changes in their own in-house systems, and thus complicating the integration process further.\(^{116}\)

Prevalent business processes in the civil service further complicate the integration challenge. The process of appointing civil servants involves multiple stages, including selection, approval for appointment, and dismissal, often requiring more than one signature for validation. Additionally, the ARDS system, for example, mandates comprehensive procedures for hiring, such as testing, interviewing, and announcing vacancies. These processes, though essential for legal compliance, contribute to the complexity of the overall business process.

Handling historical data, particularly the archiving and accessibility of diplomas dating back to the Soviet era, has also presented a unique and intricate challenge. The process of consolidating data from diverse government agencies and databases, especially those established before the year 2000, has been time-consuming and intricate. While the unified system promises substantial benefits, its effectiveness hinges on the complete integration of all government bodies, a task that remains on-going.

\(^{117}\) In compliance with the Civil Service Law, the system ensures that advanced training is an annual requirement.

\(^{116}\) This is based on an interesting point made by one of the interviewed heads of HR unit.

\(^{115}\) For example, the system can generate Help-objective documents and portfolios for employees or job candidates automatically. However, the collection of requisite data is impeded by the lack of precise identifier-based connections to other databases and the system.
human and technical capabilities, flexibility, and capacity to swiftly implement changes of private companies. However, the maintenance of the system in Kazakhstan is entrusted to a quasi-public organisation operating under the Agency's jurisdiction. In Kyrgyzstan, the State Agency for Civil Service and Local Self-Government Affairs is the owner and manager of e-Kyzmat setting the e-HRMS objectives and coordinating the work performed by the developer company. In this case, the developer and maintainer of the system is a state-owned company – a subsidiary of the Ministry of Digital Development. Conversely, in Uzbekistan the coordination and management of the e-HRMS falls under the Agency for the Development of Public Service (ARGOS), an agency directly under the president of the republic. The e-HRMS is also developed and maintained by a state-owned company – as in the case of Kyrgyzstan – which is also a subsidiary of the Ministry of Digital Technologies.

As far as the functionality of the e-HRMS is concerned, the e-Saram seems to encompass a multitude of administrative and policy related activities and a fully functional statistical module generating statistics on demand for administrative purposes and policy related decision making. However, e-Saram does not handle recruitment, as this task is undertaken by the Ministry of Personnel Management through comprehensive national examinations. The most recent version of e-Saram is also flexible and scalable to accommodate changing needs and future growth. The system provides tailored services to various user categories ensuring that different categories of civil servants receive services optimised for their respective roles and responsibilities. Conversely, in Kazakhstan, e-Qyzmet has automated a range of administrative HR activities, including recruitment and selection processes. E-Qyzmet is also capable of generating HR related statistics although it cannot yet provide graphical presentations. In Kyrgyzstan, e-Kyzmat is mostly used as a comprehensive repository and authoritative source of information for various HR related personnel. In Kazakhstan, training is mandatory for all HR Units employees with each implemented new functionality introduced to the system. In addition, user and/or administrator guidelines related personnel. In Kazakhstan, all new public employees undergo comprehensive orientation training of e-Saram that is correctly executed, and data are handled accurately and in a secure manner. Hence, in this regard, drawing from the Korean experience could prove invaluable, given that the e-Saram system has effectively incorporated payroll functionalities despite encountering initial resistance from various government agencies hesitant to embrace such integration.

Proactive user participation and involvement in the development and enhancement of the respective e-HRMS emphasises the importance of user feedback in shaping a system’s design, operational capacity, and functionality. It also clearly demonstrates a commitment to meeting the needs and preferences of its potential users. In Korea, the Ministry of Personnel Management conducted a series of interviews involving HR managers and a comprehensive survey among all e-Saram users to inform the development the second-generation e-Saram. It also involved HR divisions during the development phase. This holistic approach aimed at fostering a conducive environment for a seamless implementation and integration of the new version of the e-HRMS. In Kazakhstan, the e-Qyzmet was developed and proposed by the Ministry of Internal Affairs and the Agency for Civil Service Affairs; thus, participating in the system development process indirectly. Similarly, in Kyrgyzstan, the feedback, and suggestions from the primary users are collected and addressed following the implementation of a newly introduced function. In Uzbekistan, focus groups consisting of HR managers and heads from various ministries, representatives of civil service agencies, and developers were formed on social media platforms, e.g., Telegram for sharing ideas and suggestions for improving the system.

For proper implementation of the e-HRMS users need to be trained initially, as well as when changes and improvements in the system are introduced, in order to ensure that processes are correctly executed and data are handled accurately and in a secure manner. Hence, in Korea, all new public employees undergo comprehensive orientation training of e-Saram that lasts three to four weeks. Such training is complemented by instructional videos on how the system works, and booklets containing supplementary information. In addition, the Ministry of Personnel Management holds two-day training sessions on e-Saram twice yearly for HR related personnel. In Kazakhstan, training is mandatory for all HR Units employees with each new functionality introduced to the system. In addition, user and/or administrator guidelines

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are issued and disseminated. Furthermore, since e-Qyzmat is currently undergoing extensive reconstruction, multiple in-person sessions are organised to demonstrate the new system features and processes. In Kyrgyzstan, when e-Qyzmat was introduced, some training was provided in the form of presentations. Training was also provided to all public employees during rollout. Users can also resolve issues they are concerned with through a messaging system in place for them. As private entities are also users of the system, they may receive training for a service fee. In Uzbekistan, when the test version of the e-HRMS was rolled out, training was provided, first in person and then on-line, to HR managers from central and regional government organisations. Eight instructional videos are also available designed to introduce newcomers to the system, which will eventually be further enhanced when the system is fully operational.

Conversely, users of the e-HRMS require support for properly and correctly operating the system. In all four cases, support is provided usually through the entity responsible for the maintenance of the e-HRMS. For instance, in Korea support is provided through a call centre, and a website for submitting queries typically resolved within a work day. The website also includes a searchable FAQ section for users to retrieve relevant information. In Kazakhstan, a call centre is fully operational providing users with clarifications on issues they are concerned with. There is also an option to address system-related issues via email. In Kyrgyzstan, there is no specialised call centre. However, calls through a citizen support call centre are redirected to a specialised unit that handles the resolution of issues that e-HRMS users are concerned with. In Uzbekistan, a dedicated troubleshooting group has been established to provide support and feedback to users through a multitude of communication channels, e.g., call centres, social media platforms, chatbots, emails and zoom calls.

Special attention is paid to data protection and privacy across all four countries. However, a notable contrast exists in the perception and subsequent implementation of data privacy and personal data protection principles among the four countries. This divergence became evident through a compelling case shared by an HR department head in one of the three Central Asia countries. This HR department head took pride in describing a case where he arranged welfare assistance for an employee based on personal information indiscriminately obtained through the Ministry of Health database, which is integrated with the e-HRMS:

“In the system, you can even see the diagnosis of an employee who is on sick leave. For example, I noticed that one of my employees had a diagnosis that required financial aid from the management, that is, this can also be tracked.”

In another Central Asia country, another HR department head held the view that the integration of the e-HRMS with the Ministry of Health database is crucial for accessing employees’ medical records during sick leave, as such integration would greatly enhance operational efficiency, enabling HR to proactively access information for timesheet management, rather than waiting until an employee presents a medical certificate, albeit without placing significant emphasis on the privacy of personal information:

“I would also like to have integration with medical institutions. Currently, employees bring medical certificates after their sick leave, as these certificates are issued retrospectively, at the end of the sick leave period”.

These cases illustrate the varying perspectives on data privacy and the extent to which sensitive information is accessed and utilised within e-HRMS systems across countries in question. In any case, as the e-HRMS handle a substantial volume of personal information and data, stringent access controls and security measures are imperative in protecting the privacy of public employees. Thus, first and foremost, accessing personal data requires prior consent by the individual. This is the case in all four countries. Public employees are asked to submit a personal consent form before anyone can access their data. However, unlike in Korea, where a separate consent is required for accessing different data, in the Central Asia countries a single consent form covers all data required by the HR units to complete their records. Yet, there have been no concerns raised by individuals in this regard. In general, access to data involves a comprehensive security clearance process aimed at restricting access to authorised personnel only. In all cases, user authentication and authorisation to accessing data requires registration with the system for obtaining entry credentials, i.e., username, password, etc. Furthermore, access to data is selective in congruence with specific roles, i.e., relevant departments and/or designated individuals have selective access granted to access data pertaining to their specific domains. Exclusively, Korea has established specific security protocols for accessing information in e-Saram and compliance with these measures is crucial to ensuring the protection of sensitive information and privacy of individuals. Data access is only allowed over a secure private network accessible by public officials only. Korea has also established a personal information protection commission as a watchdog safeguarding personal information and preventing breaches. Kazakhstan has also established a policy pertaining to personal data protection and access. Data access and exchange operates on an isolated and protected network. Access to information is tightly controlled at the functional level, with access granted to specific roles, who perform specific tasks and thus have access to data relevant to their work only. User authentication is required, specific processes vary however, between external and internal users. A similar situation exists in Kyrgyzstan, where security and access control to data is an integral part of the system. The e-HRMS operates on a private network utilising VPN protocol for communication – a standard in place in all four countries. Access to the system is restricted to two types of users, i.e., HR management and general management. In Uzbekistan, the e-HRMS also operates with strict adherence to data protection regulations and standards. User authentication involves multiple security layers utilising electronic digital signatures.

Undoubtedly, the introduction of e-HRMS has been beneficial overall in many different ways. For instance, a significant impact has been on streamlining HR processes and reducing reliance on paper-based documentation. As shown in the Appendix 1, key HR administrative and policy-related processes have transitioned to the respective e-HRMS. Furthermore, the deployment of e-HRMS are transforming the scope of work of human resource management entities. HR personnel, having been freed to a considerable extent from repetitive and time-consuming tasks that have been automated, they can now focus more on strategic and qualitative aspects of HR management thus contributing to the betterment of the public workforce most suitable for the needs of the 21st century. This surely has elevated their role from the organisational perspective as they have moved away from administrative work per se to performing more strategic level tasks of the HR function. The capability to generate statistics that provide insights into proactive decision making in HR related matters has helped in that direction. This is a feature that is highly valued by policy makers since they can base their decisions using data analytics.

Another important insight deriving from this analysis is that the introduction of e-HRMS is having a significant impact on corporate culture and organisational outcomes in government organisations. As processes have become more transparent and there is reinforced accountability in the system, trust has also increased. Conversely, although one would also think of cost reduction occurring through automation of processes, it may be premature to quantify such reductions as it will take time to assess the financial benefits stemming from the introduction of the e-HRMS. Additionally, the magnitude of financial and other resources devoted to the development and operationalisation of the e-HRMS will surely take considerable time to offset the benefits derived over time.

The introduction of an e-HRMS denotes a fundamental change in operational processes and information management, the scale of which precludes a number of challenges initially and on the way. A major challenge faced at the beginning stages has been resistance from civil servants to work with the new systems and/or their concerns about confidentiality when electronic versions of disparate paper documentation were consolidated into a single system. Overcoming such a challenge required a concerted effort to enhance e-HRMS functionality and user friendliness coupled with information provision campaigns gradually changing attitudes and perspectives of users over time.
In sum, the study findings and conclusions acknowledge the dynamic nature of digitalisation related reforms and practices. As such, the situation regarding electronic personnel management systems has evolved between the time the data was collected and the time this report was prepared. To bridge this temporal gap, specific notes have been incorporated where relevant, providing updated information to the reader regarding the current status of the e-HRMS development in the selected countries.

Another challenge faced from a technical perspective, is that the original architectures of the e-HRMS proved to be rigid and inflexible, which led to obsolete and non-functional systems that could not cater to the ever-changing personnel administration and management needs, while also considering rapid technological changes. The current versions of e-HRMS in the four countries have taken a different developmental approach, one of flexibility and expandability, which allowed for an assessment of their current status and future development plans. In this context, it was observed that the features and functionality of the e-HRMS are continually expanding in the selected Central Asia countries.

CONCLUSIONS

This study has been an interesting exercise in exploring the e-HRMS in four different countries, their evolution, governance and management mechanisms, their functionalities, degree of integration, and development plans. It has provided us with a substantial volume of information regarding the level of openness among participants, allowing for an assessment of the insights gained during the study too. Another constraint of the study is associated with the exclusion of certain perspectives, specifically those of civil servants at all levels and especially those of civil servants at central government level. The interviews, although varying across countries, have affected the completeness of the data collected, potentially leading to gaps in capturing a complete snapshot of the e-HRMS design, development, and deployment stages in the respective countries. Conversely, limitations identified through this study are important for future research. Namely, some government bodies are not adequately equipped with the capacity to handle the influx of new technologies, while also considering rapid technological changes. The current versions of e-HRMS in the four countries are being resolved as the evolution of integrated systems progresses. This is primarily because of the need for seamless expansion and integration.

In terms of the future development plans of the e-HRMS, it is anticipated that the focus will be on improving the level of openness, flexibility, and expandability, allowing for the creation of a more integrated and user-friendly system that caters to the needs of civil servants as individual users.

The study findings also highlight the importance of involving civil servants from all government bodies in the development process, ensuring that their views and perspectives are included, allowing for the creation of an e-HRMS that is comfortable expressing their views openly in the presence of their colleagues and/or partners. This has been observed that the features and functionality of the e-HRMS are continually expanding in the selected Central Asia countries.

Furthermore, during integration of the e-HRMS, various other systems of different government organisations remain a primary objective.

Finally, it is important to acknowledge the dynamic nature of digitalisation related reforms and practices. As such, the situation regarding electronic personnel management systems has evolved between the time the data was collected and the time this report was prepared. To bridge this temporal gap, specific notes have been incorporated where relevant, providing updated information to the reader regarding the current status of the e-HRMS development in the selected countries.

APPENDICES

Appendix 1: Features of the four e-HRMS at a glance

<table>
<thead>
<tr>
<th>Elements</th>
<th>Korea</th>
<th>Kazakhstan</th>
<th>Kyrgyzstan</th>
<th>Uzbekistan</th>
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<td>e-Kyzmat</td>
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<td>2016</td>
<td>2017 (2 modules)</td>
<td>2023 (multi-funded)</td>
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<tr>
<td>Current version</td>
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<td>2022-2023 (modernised)</td>
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<td>Private company</td>
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<td>State company Uzinfocom Ministry of Digital Technologies, ARGOS</td>
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### Functionality

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<th>Personal data records</th>
<th>Education qualifications</th>
<th>Certificates</th>
<th>Leave requests</th>
<th>Awards / penalties</th>
<th>Entitlements</th>
<th>Benefits</th>
<th>Generation of statistics</th>
<th>Payroll / compensation</th>
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<th>Recruitment</th>
<th>Selection</th>
<th>Performance assessment</th>
<th>Compensation / benefits</th>
<th>Training</th>
<th>Career development</th>
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<th>Central and local government civil servants (65,000)</th>
<th>Central and local government civil servants (2,274)</th>
<th>Other public employees, i.e., teachers, doctors</th>
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<td>Agency for the Development of Public Service (ARGOS)</td>
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### Functionality

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<th>Certificates</th>
<th>Leave requests</th>
<th>Awards / penalties</th>
<th>Entitlements</th>
<th>Benefits</th>
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<th>Retirement</th>
<th>Recruitment</th>
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<th>Central government civil servants (400,000)</th>
<th>Central and local government civil servants (65,000)</th>
<th>Central and local government civil servants (2,274)</th>
<th>Other public employees, i.e., teachers, doctors</th>
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APPENDICES

Appendix 1: Features of the four e-HRMS at a glance

<table>
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<tr>
<th>Elements</th>
<th>Korea</th>
<th>Kazakhstan</th>
<th>Kyrgyzstan</th>
<th>Uzbekistan</th>
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<td>Name</td>
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<td>2002 (machine-based)</td>
<td>2016</td>
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<td>Current version</td>
<td>2020 (web-based)</td>
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