System Change: A Guidebook for Adopting Portfolio Approaches

A Methodological Guide for Understanding and Addressing Complex Development Challenges

This guidebook codifies the principles and methods of applying systems change and portfolio approaches to complex development challenges with practical tools and examples. It is based on the empirical learning generated from the collaborative initiatives in UNDP Country Offices in Bhutan, Pakistan, the Philippines, and Viet Nam with support from Regional Innovation Centre for Asia and the Pacific.

This publication is authored by Brent Wellsch of Urban Matters CCC. The views expressed in this publication are those of the author and do not necessarily represent those of the United Nations, including United Nations Development Programme (UNDP), donor agencies, or the UN Member States. They are also not necessarily endorsed by those mentioned in the acknowledgements or cited. The mention of specific companies or organizations does not imply that they are endorsed or recommended by UNDP in preference to others of a similar nature that are not mentioned. A reference to a non-UNDP website or publication does not imply endorsement by UNDP or the accuracy of the information contained therein or of the view expressed.

Citation: UNDP (2022). System Change: A Guidebook for Adopting Portfolio Approaches. Bangkok, Thailand.

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Acknowledgement

System Change: A Guidebook for Adopting Portfolio Approaches is developed by Regional Innovation Centre for Asia and the Pacific and supported by UNDP Country Offices in Bhutan, Pakistan, the Philippines, and Viet Nam.

The publication is authored by Brent Wellsch of Urban Matters CCC who has been working closely with UNDP along the journey of exploring and testing the portfolio approaches for achieving sustainable development, with guidance and support from Alexandru Oprunenco and Shumin Liu of Regional Innovation Centre for Asia and the Pacific. The valuable inputs and feedback to this publication contributed by the following individuals are greatly appreciated: Francis Capistrano, Bishnu Chettri, Sonam Choki, Floradema Eleazar, Ehsan Gul, Justyna Krol, Rex Lor, Nguyen Tuan Luong, Javeria Masood, Gwyneth Anne Palmos, Giulio Quaggiotto, Kate Sutton, Ida Uusikyla, Kunzang Wangmo, Tshering Wangmo, and Tshoki Zangmo.

Special and sincere thanks to the leadership and hard work done in UNDP Country Offices of Bhutan, Pakistan, the Philippines and Viet Nam who are the brave and tenacious forerunners to test the portfolio approaches and learn together with us.

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Introduction

On organizational alignment

This work enables UNDP teams to achieve the greatest possible impact in their work. It seeks to complement other established thematic areas throughout UNDP, rather than compete with them. It captures a portfolio approach that can build coherence across the range of initiatives UNDP is stewarding. It is in that spirit of collaboration that this document should be read.

We hope this guidebook serves you well and you find great use in its contents. **Let's get to it!**

This guidebook presents an approach to help a broad range of development practitioners prepare for, engage in, and manage systems transformation using a portfolio approach in complex development spaces. We developed this guidebook as a way to formalize our process and learnings to date, and leverage these to support others as they initially contemplate—and eventually work towards implementation of a portfolio-based approach for addressing complex development challenges in their own context. It captures the on-the-ground applied learning from a United Nations Development Programme (UNDP) sponsored project throughout Asia-Pacific from October 2019 to September 2021.

The goal of this project was to use an innovation approach to support circular economy transition in each of these urban centers. The project team applied the approach in Da Nang, Viet Nam; Rahim Yar Khan, Pakistan; and Pasig City, the Philippines. It has also been tested in UNDP Bhutan's efforts to address youth unemployment. It was applied throughout the COVID-19 pandemic and fits hybrid delivery model.

Systems Transformation takes into account the complexities of the 21st Century and advocates for a holistic plan to provoke change. As the recent UNDP Strategic Plan 2022-2025 notes, the organization will look beyond sectoral challenges, and deliver projects increasingly as part of portfolios. For example, UNDP is already applying integrated portfolio approaches as the system technical lead on the socio-economic response to COVID-19, and in the 'Rising up for SIDS' approach which combines climate action, blue economies and digital transformation plus access to financing.

To note:

1. You do not need to be an 'innovation' practitioner to find value in this document. It is important that the whole organization be welcomed in this space and can use portfolios to pivot programmes.
2. This approach is issue-agnostic and should be applied to a portfolio of work rather than any specific instance. Any case study or practical example from our work provided is meant to illustrate an application point and to inspire you to apply this in your own case.
3. Like most method-based guidebooks, this document is designed to provide guiding principles and instructions but not to serve as something that must be meticulously followed. Feel free to adapt as necessary.
4. This guidebook should be treated as a living document. It represents our best thinking at this moment in time. We anticipate that as our work evolves, our understanding of how to shape and steward this work forward will become more sophisticated. This is particularly true as it relates to the ongoing iteration of a portfolio-based approach over time.

Finally, the portfolio-based approach for driving system transformation has embraced the large array of emerging and established innovation-based approaches. We found it beneficial to find inspiration from the range of methods and approaches that already exist, and to direct our efforts to applying them.

Background

A. Why use a portfolio-based approach?

We are currently living in a volatile, uncertain, complex and ambiguous (VUCA) world. COVID-19 pandemic management, climate change, extreme poverty, mental health and addiction, and systemic racism are just a few examples of the types of challenges that occupy the world around us. Each of these are defined by the characteristics of inherent social complexity:

- They are dynamic and inherently unpredictable.
- The root cause of the issue lacks social consensus.
- There is no way to accurately define the problem, solutions often remain elusive.

"The most extensive challenges we face today are comprehensive and systemic, which means that our response to these challenges must reflect similar principles."[1] A portfolio-based approach is a response. In its simplest form, this is a methodology that seeks to develop, test, learn and scale (where appropriate) a suite of interventions that are complementary and can shift complex systems by focusing on multiple intervention points at a given time. In this way, the portfolio is a platform for strategic learning and action: to understand the dynamics that occupy the problem space, and over time more accurately understand the aligned interventions.

This process of learning and experimentation may also help de-risk investment by offering proven evidence for the necessary types of interventions, and conversely, those that do not hold promise.

1 For additional information, see Mikael Seppälä, *Radical Uncertainty Requires Radical Collaboration: Stepping Stones Towards System Transformation with Innovation Portfolios* (Sitra, May 2021).

B. Portfolios as a platform for creating movements for change

UNDP is a social change agent engaged in human development. People must be at the heart of how the organization engages with the outside world. Developing and implementing a portfolio-based approach is no different.

While the development of a portfolio takes technical rigor, it must not be devoid of the people's lived experiences and context. The implications of this are subtle but important. Portfolio development and management must be connected to the local context. While inspiration may be drawn from other project examples, these cannot simply be replicated. Developing a portfolio is a communal process that invites citizens and stakeholders into the deliberation and design process itself.

This means two things:

First, as a project team, you must secure support and excitement from government officials early in the work. Government support is a necessary precondition for building and maintaining momentum. As champions, they have the capacity to entice stakeholders and citizens to get involved in the work. Moreover, as government, they will undoubtedly be instrumental in implementing actions/interventions surfaced in the portfolio.

Second, the lived experience of the local community must be harnessed throughout the process. This is an enduring task that cannot be borne by a single organization or coalition of organizations. Change requires being embedded in the social fabric of the local context for both initial energies, as well as sustained long-term momentum. As such, nurturing relationships with 'system' should be prioritized.

Figure 1. Methodology overview

1 Sense and frame

Why

To understand the landscape around the challenges and the gaps in the current practice and reframe the issue

What

- Initial problem scoping
- Mapping of context, assets and trends
- Framing the challenge

How

- Rapid ethnography
- Horizon scanning
- Ecosystem mapping
- Literature review

2 Engage and position

Why

To understand the drivers and their interlinking effects, develop narratives for systems change, and identify the intervening space for programming and new opportunities for partnership

What

- Deep dive into the challenge space
- Stakeholder engagement
- Narrative development
- Position UNDP

How

- Systemic design
- Problem space design
- Systems mapping
- Strategic foresight

3 Transform

Why

To enhance the coherence of programmes, demonstrate development effect, and develop distinctive service offering for governments and funding partners

What

- Portfolio co-design and activation
- Programmes implementation with partners
- Movement building

How

- Portfolio design
- Portfolio sensemaking
- Experimentation design and execution
- Advocacy

The Methodology

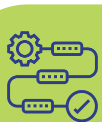
There are three phases to developing a portfolio:

1. ***Sense and frame***: This occurs before the convening of any stakeholders or citizens. This stage is about data collection and initial learning about the contextual aspects of the challenge space.

   In this phase we are interested in surfacing the predominant mindsets/world views of those in the system to establish a starting position of the challenge space. In this work we want to understand how each person's reality is framed, what informs it, and how these perspectives contribute to the complexity of the problem.

   For this to be done well, project teams should look to collect quantitative and qualitative information pertinent to the challenge space. Zooming out to surface qualitative citizen/stakeholder-oriented data around their needs, wants, hopes and fears are important in this stage. This will help in understanding the lived experiences of those on the ground, which are difficult to capture in studies or reports.

   What are the macro-trends that are established or emerging that might disrupt our current reality? What is being explored or tried elsewhere globally? What can we learn from these experiences? We want to employ various techniques that allow us to understand this macro-environment and how our discreet challenge space might be impacted by these dynamics.



Key methods in this phase: rapid ethnography
Alternative approaches to consider: horizon scanning, ecosystem mapping, literature review

2. ***Engage and position***: This is the complexity exploration phase. The project team engages stakeholders to examine the complex dynamics of the challenge space; reveal core dynamics that need to change; and articulate a preferred alternative reality to set a direction for portfolio development.

   It is critical to adopt a soft systems approach[2] for engaging stakeholders to reveal deeply ingrained cognitive biases and assumptions, and to create space for shared dialogue on the very nature of the challenge. A hallmark characteristic of a complex challenge is that it lacks a defined problem definition that is shared. This creates competing outlooks on what is wrong and what is needed. It is the role of the project team in this stage to break down these siloed perspectives and to move towards a uniform perspective (to the extent possible).

Key methods in this phase: systemic design
Alternative approaches to consider: problem space design, systems mapping, strategic foresight

3. ***Transform***: The final phase in the methodology is 'transform'. This stage is intended to tap the insights and intelligence from the previous two stages to form a coherent set of interventions through a portfolio-based approach. This portfolio is co-designed and implemented with stakeholders, ensuring this work continues to be tailored to the local dynamics of the challenge you are exploring. Doing so helps to solidify a movement in support of this work.

   It is important to note that while this is positioned as the 'final' stage, this should not be interpreted as being complete. Rather, this work is iterative, and so as a project team you should expect to continue to work through the problem space using similar approaches beyond this initial project launch.

Key methods in this phase: portfolio design, experimentation design and execution, and advocacy
Alternative approaches to consider: portfolio sensemaking

The following sections will provide a deeper dive into each of these sections. Specifically included in each is an overview of each of the methods used in each stage, outline for how to use them, and relevant examples from our work that illustrate how they can be used.

2 Maani, K. E. and Cavana R. Y., 'Systems Methodology', The Systems Thinker. (accessed on 27 January 2022).

A. Phase one: Sense and frame

While many complex challenges feature common drivers across location and population, they are also comprised of contextual challenges that resist the adoption of carbon-copy solutions. Niche local dynamics including politics, cultural traditions, the economy and demography require a tailored approach that pays close attention to local realities.

Moreover, these development challenges are embedded in human systems whose complex nature are compounded by people's lived experiences. Understanding their world views, what is behind them, and how we might shift mental models to 'reframe' the problem and how we might go about addressing this is a key component of this work.

In this section we outline a range of methods you may consider.

They are intended to support you by providing alternative data points that cannot be discovered through traditional secondary research processes and reveal insight into the complex dynamics of the challenge space.

What is reframing? Why do it?

Reframing is a core practice for innovation work. It is an attempt to see a current problem or situation from a different perspective. This helps find new ways to understand the challenge at hand, and different (sometimes novel) ways of 'solving' the problem. Reframing is less about discovering the perfect definition of the problem, and more about discovering a preferred understanding of the problem.[3]

This circular economy initiative stewarded by partner Country Offices in the region used reframing extensively. When we first engaged in this work, the problem was framed as a waste management issue with the circular economy positioned as a model for re-imagining waste management processes in urban contexts. Through our work we discovered that this framing was too narrow.

It was reframed as a growth issue, which informed how we developed and positioned our portfolio of interventions. We looked upstream at the root causes of societal production and consumption desires, something that was out of scope with a waste management framing. The portfolio was structured into two parts: one that sought to improve waste management practices in the shorter term, and the other with the longer term goal to spark a circular economy transition. This would redefine how stakeholders in an urban setting think and behave.

We also redefined who is part of the system we are exploring. A waste management framing predefined the systems we were looking at, and, in turn, the people we were looking to engage. Reframing the challenge created a wider group to engage with. This illustrates the importance of reframing. We often need to see the problem defined in a new way to unlock transformational potential.[4]

3 Wedell-Wedellsborg, T., 'Are you Solving the Right Problems?', Harvard Business Review, January 2017

4 For additional information on reframing complex challenges (including practical tools for generating a reframe) see: IDEO.ORG, 'Design Kit'. (accessed on 22 January 2022); Pecknold, K. and Sherwin, D., 'The Collective Action Toolkit Quick Start Guide', frog design. (accessed on 22 January 2022); Peterson, T., '10 ways to reframe problems… rather than challenges', Thunderhead Works, 8 August 2017; and Gray, D., *Liminal Thinking: Create the Change You Want by Changing the Way you Think* (2016).

Rapid ethnography

What is it?

At its core, ethnographic research is about learning from people. It is a qualitative research method that requires a research team to explore the natural environment by observing/engaging with people in their lived context. As noted elsewhere, this type of work is a form of 'social R&D' and part of a whole range of methods and techniques of 'applying research and experimental processes on the frontline to generate new insights and innovations that transform services, products, organizations, and—ultimately—lives'.[5]

Given real-world constraints (time, finances and human resources) we advocate for the adoption of a ***rapid ethnographic approach*** at the outset of portfolio development work. Rapid ethnography is a specific form of ethnographic work that (as its title suggests) is an abbreviated version of a traditional ethnographic approach. It generates lived experience data to surface citizen/stakeholder emotive characteristics that can help the research team appreciate the challenge in a more intimate way. Rapid ethnography is particularly useful for surfacing *latent* or *hidden* data that is often absent from decision-making and other deliberative forums around an issue, but is crucial for understanding root cause, and often, the non-rational behaviour of people embedded in an issue or challenge.[6]

In our methodology, this early work is important for developing intimate awareness of local context, and for surfacing information that can be used throughout subsequent stages of the process. An outline of how you may use a rapid ethnographic approach is below.

How to conduct a rapid ethnographic study?

While the best way to learn about how to conduct a rapid ethnographic study is to simply partake in one, we offer the following points as guidelines to assist you in preparing and conducting one.

When it happens?

- 2-3 months in advance of launching the systemic design work with stakeholders (Engage and Position phase)
  - » 1 month to form ethnography field research teams, develop interview/observation research rubrics (see appendix for example), and to set up where the teams will go and who will be engaged
  - » 1 month to conduct and document field research
  - » 1 month to analyse findings and create user personas (see Appendices A and D)

Who is involved?

- UNDP Accelerator Lab/Innovation Teams
- Project officers from UNDP programmatic units as required (We advise building field research teams from across the organization to build awareness and capacity.)

5 Ryan, A., Schulman S. and Rajasekaran, V., 'Out of the Lab and into the Frontline', Stanford Social Innovation Review, 2018.
6 Sangaramoorthy, T. and Kroeger, K. A., *Rapid Ethnographic Assessments: A Practical Approach and Toolkit For Collaborative Community Research* (Routledge, 2020).

Where its happens?

- On location in the community/city/rural setting(s) relevant to the challenge you are addressing.[7] Go to where the people you want to learn from are located. For citizens, try to go to their households. For professionals, go to their places of work. Seeing people in their context aides in surfacing lived experience context.
- As a rule of thumb, choose subjects whose 'voices' are underrepresented in other engagement processes. Rapid ethnography lends itself well to capturing the underrepresented voice/user.

Inputs required

- Field research teams identified
- Methodology brief—list of who will be engaged through the process, how they will be engaged (interviews, shadowing and observation, etc.) and when they will be engaged
- Field research guide that includes predetermined questions and other critical details for interviewees (see Appendix C)

Outputs required

- Research summary including a breakdown of overall themes regarding the challenge space surfaced throughout the research[8]
- User story generation (see Appendix A)
- Persona generation (see Appendices A and D)

Tips and tricks

- The point of the interviews is to generate data by deeply understanding a broad, but limited, cross-section of people's beliefs and behaviours.
- Diversity of perspective is important. This should be prioritized over quantity of interviews.
- That said, if looking for a rule of thumb, anywhere from 10 to 15 interviews across a diversity of perspectives is preferable (e.g. if more is possible then great!)
- Interviews may range in time from 20 minutes up to 2 hours depending on your availability and the time an interviewee is willing to give. While you will have predetermined questions (roughly five to seven), please be willing to go off-script and follow the energy of the interviewee. The best results are achieved by establishing rapport, comfort and evolving the interview to a natural conversation.
- Once the interview is complete we must make sense of the information gathered. While this can be done in several ways, a general suggestion would be to create a research findings database whereby information is coded according to key themes, patterns and unique but important information that surfaced across the interviews. The results of this work can be used to produce:
  - » A research summary document (optional output if deemed useful by the project team)
  - » A persona and accompanying user story that embodies a fictional persona made up of the real-world data you have surfaced in this work. These artefacts will be critical as you move into the next stage of this process.[9]

7 Note this is not always possible. During the COVID-19 pandemic for example, research teams had to rely on virtual meetings to conduct these interviews. While this is not ideal, these types of accommodations can be made if necessary to conduct this type of research.

8 When conducting a rapid ethnographic study in Pasig City, UNDP Philippines Research team used nVivo software to conduct qualitative analysis of the data gathered in the process. This software helped the team surface thematic insights and overall recommendations that informed the approach taken in subsequent stages of the project.

9 For additional information on rapid ethnography, see MaRS, 'Living Guide to Social Innovation Labs'. (accessed on 17 January 2022); and Think Design, 'Ethnography'. (accessed on 17 January 2022).

Ethnography in action: A practical example from UNDP Philippines

In November 2020, UNDP Philippines developed a portfolio of initiatives to experiment with the possibilities of adopting a circular economy approach to address waste in Pasig City. The team committed to understanding the lived experience of relevant stakeholders in the city by conducting a rapid ethnographic research.

The field research team (members of UNDP Philippines Accelerator Lab and Climate Change Unit) spent one month designing the purpose and intent of this work before starting. They considered how to identify the range of community members and stakeholders this work would engage (with the help and support from Pasig City representatives), and the methodology that would be used for the research.

As a result, the team developed an ethnographic research field guide. This guide outlines the list of interviewees; specific guidelines in conducting the interviews; and key questions, particularly on the following:

- How individuals perceive waste, circular economy and other priorities beyond waste and environment
- Habits/views of interviewees around consumption, production (especially for manufacturers), generation, disposal, reuse/recycling, and other applicable circular economy strategies
- Positive aspects of their current practice
- Barriers and challenges as they relate to waste generation, disposal, sustainable consumption and production
- Future-focused investigation around needs/opportunities in the circular economy, including transformation and generation of businesses, jobs and livelihoods; and incentives/disincentives to shift to sustainable consumption and production

The interviewees were jointly identified by the Pasig City Hall representatives and the research team. An interview guide was prepared to facilitate in-depth interviews (see Appendix C). In-depth interviews were conducted by the research team members following the guidance from the interview guide. Interviews were approximately 60-90 minutes, audio recorded and transcribed *verbatim*. Videos and photos were also taken upon consent from the interviewees and all identifying information was removed to ensure confidentiality. The interviewees did not receive any compensation.

The research team interviewed 23 residents of Pasig City based on the following categories: a) Waste Management/Circular Economy Actors, b) Households, c) Policymakers and Government Workers, d) Civil Society Organizations/Non-Governmental Organizations/Circular Economy Start-ups/Enablers, e) Businesses/Entrepreneurs and f) Students.

Once complete the field research (approximately three weeks), the team went through the interview transcripts to discern key learnings and takeaways from the research. Data was captured in a spreadsheet and eventually resulted in the creation of seven personas with accompanying user stories (see examples in Appendix D).

Alternative approaches to consider

In addition to rapid ethnography, other methods exist that may be advantageous to explore. These methods include:

- *Horizon scanning:* Horizon scanning is often used in strategic foresight or strategic risk processes/projects which involve the collection of data and information concerning a thematic area. Horizon scanning goes beyond traditional environmental scans and sets out the full and extensive range of developments in a specific area. This includes established dynamics as well as new/emerging 'weak signals' that may represent the beginning of a novel change/disruption or may also lead to nothing.

Horizon scanning provides two important outputs for the project team:

1 It surfaces external (i.e. macro global/regional developments) drivers/trends that may not seem obvious but could have great bearing on the nature of an issue you and your team are exploring. Traditionally, organizations put primary emphasis on understanding and contemplating highly probable developments and trends but put little emphasis in examining weak/emerging dynamics.

2 It helps a research team to project what future scenarios may be possible if these weak signals become reality. This alternative futures generation is useful for challenging predominant assumptions about what the future will feature/entail that can be used when attempting to reframe the problem/challenge space.[10]

- *Ecosystem mapping:* This method features another research scan of the external environment to see what types of initiatives/solutions are being implemented in different contexts around similar challenge areas. The objective of this process is to discover how others understand the nature of the challenge in their context, and to discover the types of solutions they are implementing in response. This process can help project teams draw inspiration from the efforts of others by studying their solution responses.

  In this method, innovation ecosystem mapping is useful for both understanding how others 'frame' the challenge, the tactics they are using to advance progress, and the resources required to do so.

  To support their ethnography work, UNDP Philippines employed an innovation ecosystem scan to discover what innovative approaches and interventions other cities were employing to address plastic waste and/or to propel the existence of circular economic practices and structures. Research findings were captured in a summary report that showcased the results and lessons learned from this research. This research was used to stress test how similar interventions may (or may not) lead to desirable results in Pasig City.
- *Literature review:* A final qualitative research method is a literature review. Literature reviews seek out scholarly publications to understand and learn from established research already completed around a particular topic.

  A literature review does not simply recite what has been published. It summarizes the predominant themes, established ways of thinking, and suggested options for intervention.

  Taking time to understand established scholarly positions can help frame a problem space, as well as suggest established practice or display engrained assumptions and even biases that may exist that can be further explored.[11]

Conclusion

This sense and frame phase of the methodology is about establishing deep appreciation of the challenge space. However, this research has limited prospects for impact if it does not generate enthusiasm towards creating solutions.

The next phase explores how research can be used to mobilize system stakeholders around a problem to define the challenge and then towards a portfolio-based approach for systems change.

10 For additional information on horizon scanning, see United Kingdom Government Office for Science, *Futures Toolkit: Tools for Strategic Futures for Policy-makers and Analysts*, 1st ed. (2017) and Alberta CoLab, *There May be Zombies: A Field Guide to Strategic Foresight* (2017).
11 For additional information on literature reviews, see Jain, P., 'Why do a Literature Review', Learning Research Writing, 19 April 2019.

B. Phase two: Engage and position

This phase of the methodology is intended to transition from desk research to people-oriented and system-focused engagement. This phase of the systems change process is important because the ultimate systems transformation must be grounded in the conviction of system actors to address it; the system actors will be the ones who adopt, scale and sustain the portfolio and therefore must be involved and engaged early in leading the design as UNDP and other organizations cannot artificially hold this responsibility over the long term. What UNDP can do is create initial momentum that mobilizes system actors to take action.

'Engagement' of system stakeholders helps reveal systemic perceptions around an issue. It digs deep into the relational aspects of the challenge, exploring the nature of power dynamics, culture and diverse perspectives regarding an issue.

Two types of stakeholder engagements are critical for this phase:

1. The need to engage government (and other sectoral partners as well depending on your context) to secure buy-in and champions for the work (This is vital for the Transform phase.)
2. Broad engagement with system stakeholders that allows them as a collective to systemically explore the challenge and develop an actionable portfolio

Creating and maintaining momentum: The importance of engaging government actors

Governments at a city, regional and national level are central actors to many (if not all) of the development challenges we are immersed in.

In our experience, we advise engaging relevant actors as early as possible. Government actors need time to process what is being proposed, contemplate the issues that may surface based on their involvement, and determine how they wish to be involved.

When engaging government, the following approaches have proved to be effective in our experience:

- *Engage at multiple levels*: A system-based approach implies the need to work at multiple levels. Your team should be diligent in developing relationships with all parties deemed relevant. Failure to do so can reinforce silos.
- *Go slow to go fast*: Your work will be novel to some of the governments that you partner with. It may be difficult for some government representatives to understand why an innovation approach is required. Recognize this dynamic and take time to build this understanding. This can help set the groundwork necessary to move at a swifter pace later with government support. Use tailored one-on-one presentations or mini organizational engagements to build momentum. Try and discover their policy goals and objectives. Take time to develop the business case for them.
- *Work out loud with government*: Even after securing support, it is advised that relevant representatives from UNDP (and other organizations as necessary) meet with relevant government representatives to share progress and insights. This brings government along the emergent learning journey and aides in communicating why particular options may (or may not) be suggested. Be attuned to the specific demeanor and culture of the government organization and bureaucracy you are collaborating with. Government actors and organizations operate and respond to different incentives. Pay attention to these details and cater how you work with them accordingly.

Mobilizing system stakeholders: Creating system momentum

System change cannot occur through a siloed approach. Rather, collision spaces where system actors come together and build shared meaning are deeply needed.

In this methodology we recommend mobilizing 'system' stakeholders through a participatory and immersive three-day (in person) or five 3-hour sprints (virtual delivery) workshop format. This workshop serves as an initial convening mechanism.

Design and delivery of this workshop is inspired by the emerging discipline of systemic design.[12] Systemic design is an interdisciplinary practice that combines system thinking and design thinking.[13] Given the nature of this work, systemic design is well positioned to help guide stakeholders through a process that diagnoses the current complexity and framing of an issue, helps to reposition preferred alternatives and 'new' ways of seeing the challenge, and seeds thinking about what might be done to pursue preferred realities on the ground (i.e. experiments/interventions).

The following provides a thorough overview of how to prepare and conduct a workshop of this nature using a systemic design approach.

Step one: Preparing for the workshop

As any good facilitator knows,[14] successful participatory processes are the by-product of good preparation. Given the nature of the issues you will be exploring, these workshops are dynamic and often emergent, they create spontaneous moments of surprise which require you as a workshop team to be open to this dynamic nature. *Who you invite as participants, the platform you choose to engage them through (virtual or in-person), and the journey you take them on, are all important details that require planning prior to the convening of this workshop. Below are some guidelines for helping you to navigate these decision points.*

- **Workshop participants**: The key objective of this workshop is to create systemic awareness and discussion regarding the complex nature of the issue being explored, and to harness this collective intelligence and energy to create an initial build of a portfolio of interventions. You need to avoid group-think by following two criteria when selecting participants:
  - *Participant diversity:* What are the various perspectives/lived experience that are relevant to the challenge (e.g. professional background, age, geographic location, gender, etc.)
  - *Knowledge holders, champions and unusual suspects:* Within the issue we are looking at, identifying and inviting across a range of these categories also helps in creating systemic dialogue and exploration:
    - Knowledge holders: Those that possess technical expertise about the challenge space. They are critical for providing fact-based perspective in the process.
    - Champions: Those in a position of influence and power that can mobilize momentum or desired action in some way.
    - Unusual suspects: Those that are not usually thought of in traditional engagement processes but provide a perspective or point of view that is different and can challenge status quo or mainstream assumptions regarding certain issues.

12 While in this guide we refer to systemic design as a facilitation methodology or platform (systemic design as having a critical role in mobilizing stakeholders to explore the problem space in a systemic way), the methodology is much more than this. It is a fluid discipline for constantly engaging with, understanding, and experimenting with the complexity embedded in the world around us. For more on this see Alex, R., 'A Framework for Systemic Design', FormAkademisk, December 2014.

13 For additional in-depth information, see Systemic Design Association, 'Systemic Design'. Available at https://systemic-design.org. (accessed on 17 January 2022); and Systemic Design, 'Systemic Design Toolkit'. Available at https://www.systemicdesigntoolkit.org. (accessed on 17 January 2022).

14 For additional information on the design and facilitation of these types of workshops, see Appendix B.

  - Typically, around 25 participants is ideal. Fewer than 25 makes it difficult to attain the diversity desired/required. More than that makes it difficult to create the conditions for shared systemic perspective.
  - Be conscious of the need to tell participants about the reason for the workshop, its format, and any background reading regarding the challenge space that will be needed to make participants feel comfortable with their participation. UNDP teams that have used this approach have developed participant guides that provide context to make participants feel comfortable.

- **Workshop platform**: This work can be delivered both in person and through a virtual platform, each having pros and cons to consider:
  - *In-person delivery:* This should be the preferred medium for engagement. It allows participants to connect on a deeper/more personal level, and delivery of the workshops can happen over consecutive days. Drawbacks of in-person delivery include a demand on participant time (this in-person workshop is recommended to be a multiple-day engagement.), and requires additional logistics planning including securing a venue, catering and navigating participant travel (if applicable).
  - *Virtual delivery:* While this is not preferred, given pandemic realities/restrictions or other variables that may be present for you in this work, delivery of this workshop may be preferred via virtual delivery. This type of workshop can be convened using a reputable video-conferencing platform (e.g. Zoom, Microsoft Teams, Google Meet, etc.) and virtual tools that enable participant collaboration (e.g. Mural, Miro, Google Whiteboard, etc.). This delivery mode allows for much greater flexibility in terms of time (do not need to secure a physical venue, and participants are not required to travel). Drawbacks of virtual delivery include it is more difficult to generate personal connections amongst participants, and as a facilitation team it is more difficult to be flexible with the process and 'pivot' as needed to follow the nature of the exploration. That said, if gathering in person is limited in any way then the virtual delivery is a viable alternative.
    - For more information regarding the similarities and differences between in-person and virtual delivery, see Appendix B.

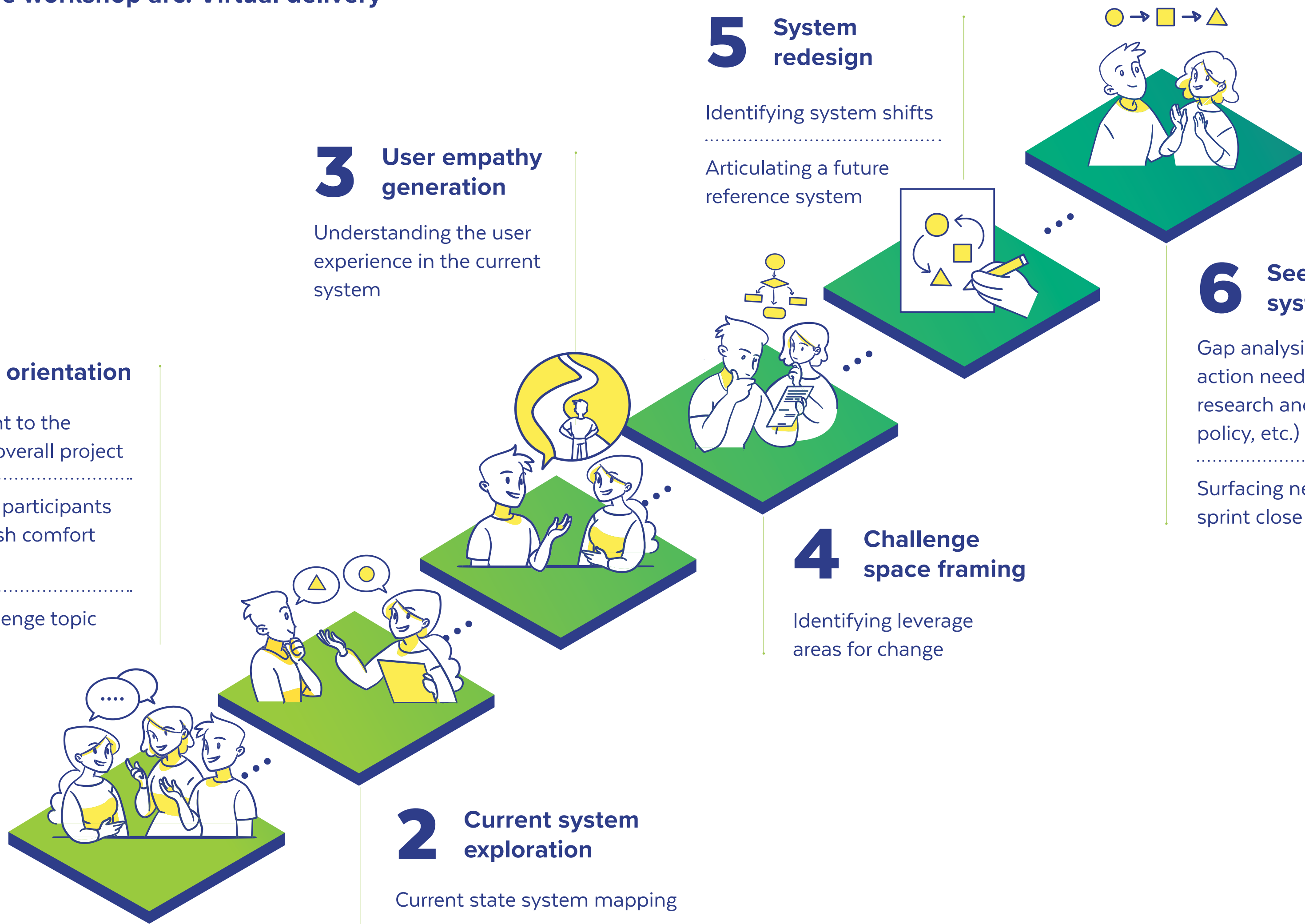
- **Workshop journey**: The overall workshop should be grounded in one to two specific objectives (what you as a team want to achieve) and guided by an initial question designed to prompt exploratory discussion and 'what-if' thinking (consider using a "how might we" question formulation to develop your initial question).
    - As a guideline, three full days (in person) or five 3-hour sprint workshops (virtual) are required to go through a full workshop journey. With less time you will have to find spaces to accommodate time constraints.

Step two: Conducting/facilitating the workshop

The type of environment you want to create for participants is contrary to traditionally minded participatory processes. Creating a space for innovation requires breaking free of deeply held facilitation practices such as the need to remain committed to the facilitation plan, driving to core outcomes, and remaining an objective 'third-party' facilitator. Rather, as a facilitator/facilitation team harnessing systemic design to drive new thinking, perceptions and eventually action, the task is to create an environment whereby participants can liberate their thinking and deeply held assumptions, and together co-explore the nature of the problem space.

A combination of the methods you choose and the arc of the workshop itself can help to create these conditions. Appendix B provides a general framework to consider when designing a workshop of this nature. To provide a tangible sense of the impact of these workshops, we provide two examples.

Figure 2. Sample workshop arc: Virtual delivery



1 Participant orientation

Orient lab participant to the purpose of the lab/overall project

Create space for lab participants to meet and establish comfort with each other.

Introduction to challenge topic and surfacing initial perspectives.

2 Current system exploration

Current state system mapping

Identifying current state system tensions and pockets of brilliance/bright spots.

Understanding the legacy system.

3 User empathy generation

Understanding the user experience in the current system

4 Challenge space framing

Identifying leverage areas for change

5 System redesign

Identifying system shifts

Articulating a future reference system

6 Seeding systemic action

Gap analysis and where is action needed (behavioural research and innovation, policy, etc.)

Surfacing next steps/lab sprint close

▲ Participants in System Mapping-Systemic Design Workshop in Da Nang
Photo: UNDP Viet Nam

The systemic design workshop in action: examples from Viet Nam and the Philippines

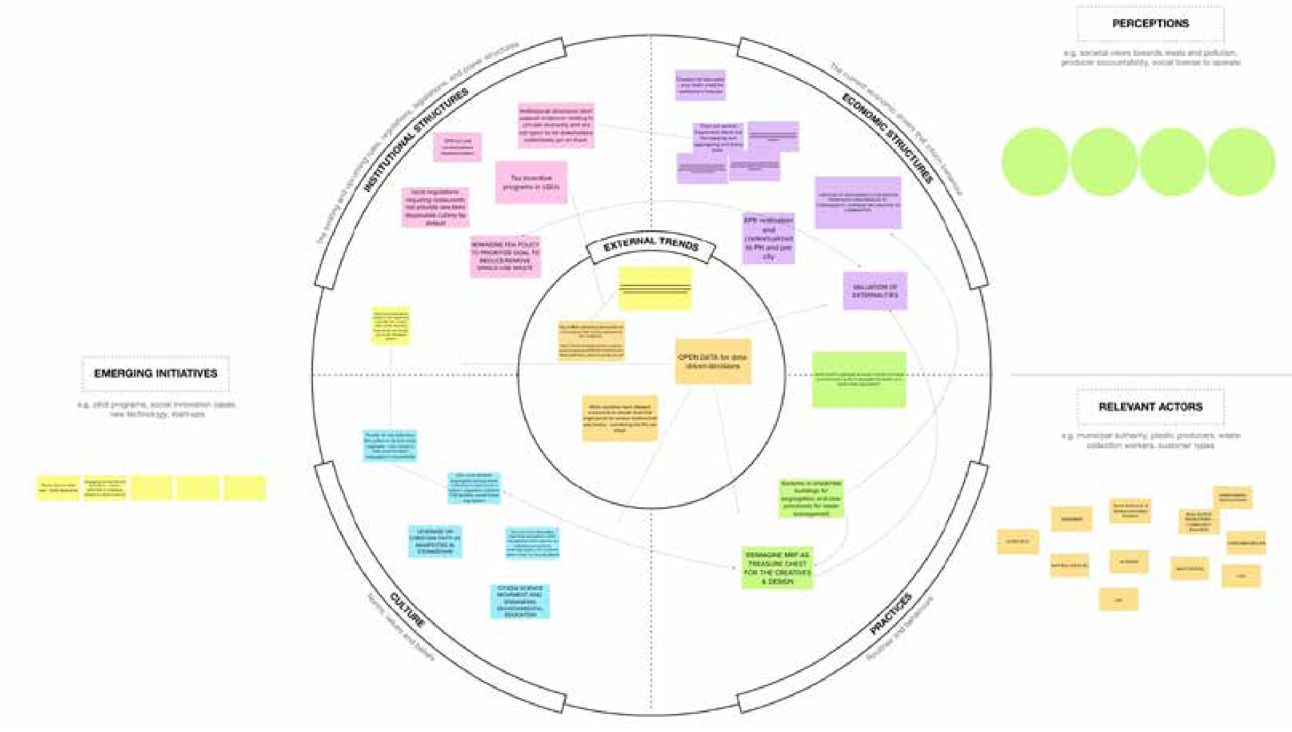
A. Viet Nam: In-person workshop example

In December 2019, the Accelerator Lab and members of the Climate Team at UNDP Viet Nam, in collaboration with the Department of Environment from Da Nang City, convened stakeholders for three days to systemically understand and explore the waste management system, and to assess the potential and merit a circular economy approach would have for the country. Knowing that an inclusive approach is required, they targeted workshop participants that held representation within the City's waste management company, predominant private sector/industrial representatives, environmental non-profit organizations, the City of Da Nang, university researchers, and tech start-ups.

This workshop occurred over three days. It was kicked off by a local expert from the City Government's Department of Environment who provided essential context around the nature of the challenge and the issues the Department was facing relevant to plastic waste and waste management efforts. Following this, participants spent 1.5 days engaging in a system mapping process to surface dynamics across a range of perspectives, immersed themselves in the ethnographic research prepared by UNDP Viet Nam team, and understood the lived experience of those embedded in the problem space.

Participants were guided through a process of identifying key shifts required to create desired system changes. Participants then used Lego as a medium to create physical maps that showcased how the system would behave and act differently if these shifts occurred. With models of a preferred system designed, participants spent a half day going through a design sprint whereby they brainstormed and developed initial mock-ups of possible experiments/ initiatives that could be seeded to begin to act.

This workshop was foundational for building rapport amongst these diverse participants as well as a spirit of collective enthusiasm and responsibility for moving forward. It also set the strategic context for identifying underlying drivers that reinforce the status quo and contribute to the challenge space that may allude more traditional problem-solving processes. This time spent on building social energy, systemically understanding the problem space, and crowdsourcing ideas for action was instrumental for setting up the core project team to have meaningful working sessions to purposefully develop a portfolio of initiatives capable of responding within this context. This workshop generated early momentum with stakeholders who participated, and surfaced information that was used to develop a prototype portfolio of interventions (this step is outlined in phase three).



▲ Systemic Design Workshop: mapping the system, Philippines 2021

B. The Philippines: Virtual workshop example

In May 2021, the Accelerator Lab and members of the Climate Team at UNDP Philippines launched a systemic design workshop in support of Pasig City and their efforts to examine the concept of circular economy and its potential application as a driver of new value generation for city stakeholders. Similar to the approach taken in Viet Nam, this engagement sought the participation of a wide range of stakeholders to examine the challenges, pressures, and drivers of current realities facing not only waste management but also overall socio-economic development for the city.

Given the risks associated with in-person gatherings from COVID-19 pandemic, they decided to hold this workshop virtually. To maximize engagement and mitigate engagement 'burnout' the facilitation team decided to adopt a sprint methodology to the workshop structure by hosting five 3-hour workshops over five weeks. The workshop objectives and overall design arc was like that of an in-person approach, however, these were simply stretched across five weeks. To maintain a co-creation approach, they had to make additional key accommodations. These include:

- ***Use of multiple virtual platforms***: To maximize participation but simplify workshop process, a variety of platforms were used to engage participants in the workshop content. Zoom was used as the main convening platform and Mural was used as a digital collaboration space where activity stations were created for participants to work through. Design templates were used to facilitate activities including system mapping, persona mapping, system redesign, and idea generation/brainstorming. Together, this combination of platforms allowed for quality participant engagement with one another, and in the content itself.
- ***Hands-on breakout group facilitation***: To maximize process efficiency and create a quality overall experience, the facilitation team assigned roles to specific individuals to serve as virtual break-out group facilitators. Their role was to troubleshoot technology issues and help navigate participants through activities. One individual was dedicated to maintaining overall vision and guidance throughout as well. Unlike during an in-person session, virtual conditions allow for less flexibility and nimble maneuvering. As such, having a dedicated facilitator was incredibly important to guide participants in a supportive manner.

The facilitation team was diligent about holding a reflective debrief after each session and meeting prior to each session (one to two days before). This teamwork approach allowed the team to share what was working or not working in reference to the workshop delivery and allowed time for reflective learning and needed adjustments.

Step three: Workshop analysis and preparation for portfolio design

The systemic design workshop should be thought of as simply the beginning of the portfolio design and execution effort. The workshop is a means for creating initial social momentum and energy around an issue, and to gather systemic intelligence. We want to harness the intelligence and momentum to build towards the next steps.

Post-workshop checklist

1. ***Document the workshop experience**:* To capture themes, issues and breakthrough thinking that emerged in the workshop, the facilitation team is advised to produce the workshop report. This report does not have to follow a standard 'reporting' format and should be composed in a way that is authentic to the nature of the workshop. In some cases, this could be a video recording that captures the critical aspects of the workshop. In other cases, this may be a written artefact that captures the essence of the workshop in a written story-like format. Whatever medium is chosen, the overall objective of this reporting mechanism is to capture and share the information generated in the workshop in an intriguing way (e.g., current state dynamics, the case for change [possible reframe can be included here], from-to shifts, desired state description, leverage points for intervention, proposed interventions). This can be shared as a version of an intelligence report with those that were in attendance, as well as those who were not in attendance but will be engaged in further steps.
2. ***Identify gaps in knowledge**:* Chances are that given the purposeful divergent and emergent format that systemic design invites, a range of questions about the challenge surfaced in the workshop. In the spirit of emergent learning, go through these questions as a facilitation team post-workshop. Assess which of these questions may be in or outside the scope for you right now, and if any are in the scope, are they critical for seeking additional information now.

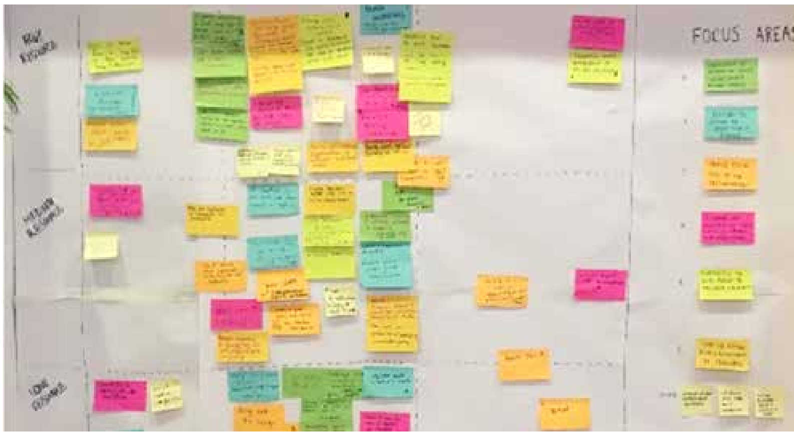
   Assess the quality of the initiatives that surfaced in the brainstorming phase of the workshop. As a team, how do you feel about these ideas? Are there enough overall? Is there a wide enough cross-section between their level of ambition (i.e. how the incremental changes in the transition contributes to the disruptive changes with a more long-term goal), areas of focus (e.g. policy, behavioural, technological interventions, etc.). Do they interplay with the existing interventions? If you determine there are deficiencies, strategize how you may fill these gaps.

   Finally, conduct a scan of current initiatives already underway: how do these align with identified areas of intervention (leverage points)? How might your proposed ideas complement what is already underway? If nothing is addressing a specific intervention point, what more work might your team need to do to address this gap?

   You may also consider convening some participants for an additional brainstorming session. You may also determine that these gaps are best filled by your team itself through research or internal brainstorming.

Step four: System engagement and positioning

It is advised that, following this workshop, key representatives from your team seek time with project sponsor(s) or key system stakeholders to debrief about key outcomes from the workshop, and to seed their support and involvement in identified next stages of the project. As mentioned in the introduction, social buy-in and momentum is critical throughout the entire project life cycle. Following this workshop, whereby great momentum is likely to be gained, this energy should be harnessed to create more momentum through additional one-on-one or small group meetings dedicated to sharing outcomes of the work to date and designing a path forward.



◀ Brainstormed interventions from Maldives workshop

Photo: UNDP Maldives

Following the workshop, while you will have an architecture of the challenge space, and range of actions, you will need to make sense around this in the pursuit of developing an initial portfolio narrative.

At the same time, this moment is a great opportunity to position your organization and this work even more strategically. On the one hand, the work around reframing of the challenge space shows your unique value around more robust understanding of the challenge and gaps in existing interventions, the case for change and possible first ideas for fulfilling that. Often, this case for change transcends the initial challenge space you worked on (e.g. moving from waste management perspective towards circular economy perspective) and allows your organization to be among the pioneers who shape new, more impactful and strategic programmes altogether. On the other hand, this helps mobilize a very different configuration of alliances, build social capital around this work and bring in much more diverse contributions—another critical added value for key stakeholders, decision makers and funders to be part of this space.

Alternative approaches to consider

Throughout the course of the systemic design, participants delve into the current system to navigate the challenge space and identify the entangling driving factors, socialize with each other to collectively frame the problem and envision the desirable future, and brainstorm ideas to redesign the system that can advance to the future state. The process can be customized based on the workshop objectives. Accordingly, other approaches can be considered to integrate into the workshop.

- Problem space design: an approach to develop a distinctive multidimensional representation of a complex problem through a strategic conversation with a relevant and select group of internal/external participants.[15] This approach is being tested in UNDP Nepal, Maldives and Thailand to rethink and transform the tourism sector.[16]
- Systems mapping: During the problem exploration, we seek to understand the driving factors, relationships and power dynamics in the ecosystem. We visualize the connections by using systems mapping tools such as a cluster map[17], interconnected circles maps, iceberg diagram, rich picture and causal loop diagram.[18]
- Strategic foresight: UNDP in Asia and the Pacific is exploring and experimenting with applied systems foresight. This anticipates possible futures to ensure our strategies are robust and agile across multiple scenarios. It pushes us to move beyond thinking in linear ways and helps us to navigate uncertainty.[19]

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16 Hamid, K. and Shihab A. M., Bajracharya, P., Suwannakarn, P. and Chen T., 'Rethinking Tourism in the Wake of COVID', UNDP, 12 January 2022. Available at https://medium.com/@undp.innovation/part-2-rethinking-tourism-in-the-wake-of-covid-nepal-maldives-and-thailand-35a0230bfc83.
17 Acaroglu, L., 'Tools for Systems Thinkers', 8 September 2017. Available at: https://medium.com/disruptive-design/tools-for-systems-thinkers-systems-mapping-2db5cf30ab3a.
18 Damabi, R., *Follow the Rabbit, a Field Guide to Systemic Design*. Version 3.0 (Government of Alberta CoLab, 2018).
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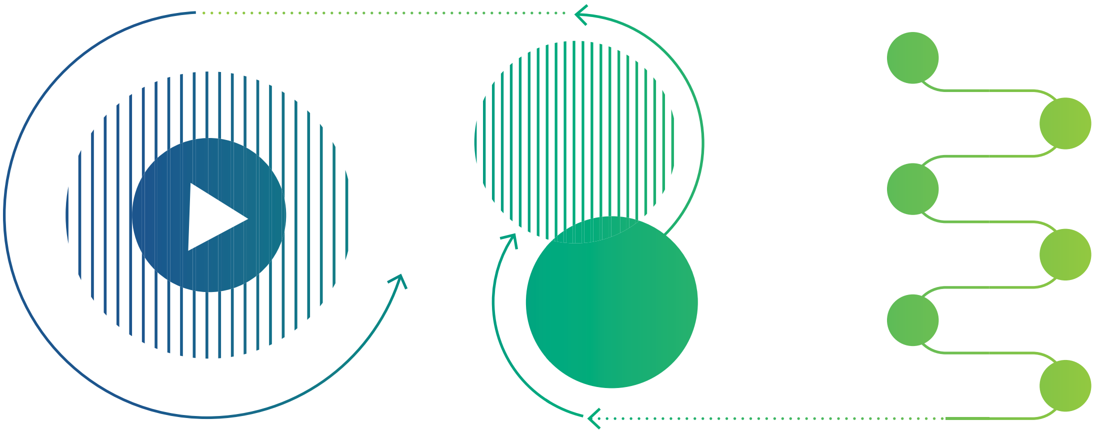
C. Phase three: Transform

We position this phase as 'transform' as it involves pivoting from the assessment and analysis of the problem space and the initial building of momentum to the design and implementation of a portfolio interventions by a collection of system actors. The portfolio will work holistically to generate rapid learning about pathways to impact (both incremental and transformational). Portfolio design and implementation are iterative acts meaning they are not something to simply address today's challenges, the portfolio should change over time as new dynamics emerge.

Moreover, the portfolio may work at different scales. In the context of the challenge you are exploring, you may find it beneficial to design a portfolio that focuses on improving conditions of a pressing issue right now. Also, you may have another aspect of the portfolio that is more experimental and looks towards long-term transformation over short-term innovation.

Portfolio architecture



North Star

North Star articulates the vision of what the portfolio aims to achieve and conveys the value it appreciates, providing a sense of directionality, alignment and coherence for portfolio formulation.

Example from Pasig

Pasig is a model circular city that adheres to economic growth that is inclusive, resilient, and delivers prosperity with and for its residents while respecting natural environmental boundaries.

System outcomes

System outcomes are the holistic development effects from multiple dimensions (governance, culture, society, and environment) that the portfolio need to generate in order to reach the North Star.

- Mission-oriented government
- Shared responsibility
- Equity & inclusion
- Redefined economic model
- Circular living

Portfolio interventions

Portfolio interventions is a suite of well coordinated interventions to address complex development challenges, with alignment and coherence to the system outcomes and North Star.

- Social behavioural campaign
- Innovation for circular economy hub
- Data for circular economy
- Green product catalogue & exchange
- Localized green procurement

Step one: Codifying and converging on the portfolio's strategic narrative

To effectively establish a portfolio approach, a project team should consider the overall change and suite of outcomes desired, this is based on the findings from the initial research and the 'from-to' ambitions uncovered in the systemic design workshop.

- What desirable change are we after?
- What would a positive difference look like?
- Where do we need to seed effort (areas of focus) to effect change?
- How might we activate these areas of focus (specific interventions)?
- How will different aspects of our portfolio sequence, work together or corroborate?

By working through this logic, the project team can establish a strategic narrative: a compelling description of the desired outcomes, what is required to achieve those, including the types of interventions needed and where they should target. The strategic narrative has two purposes:

- To create a well-crafted story that captures the importance of a specific change initiative. This story should connect with audiences intellectually and emotionally. This connection helps to foster understanding and buy-in for the work your team is pursuing.
- To create an orientation point or 'North Star' that gives the portfolio a sense of directionality and alignment. Put another way, the narrative helps to suggest what actions are needed, why they are needed, and what they need to work towards.

This may seem abstract or difficult, but if you have worked through the previous phases, you as a project team will already have a lot of the information needed to create this narrative:

1. Ethnographic research provides a human-oriented understanding of the hopes, fears, aspirations of those affected by the problem space in some way. This information can be mined to understand desirable change and the needs of system stakeholders.
2. The systemic design workshop provides an articulated 'frame' of the current system, another framing of a preferred system, and articulates the shifts required to go from what is (the current) to what it could be (the preferred). This framing is rich in information that can be leveraged to create a compelling description of the problem space, and the purpose and intent of a portfolio approach for change in the strategic narrative.
3. The engagement you have committed to in the pursuit of creating social energy around this work will also give your team a sense of the dynamics at play, and what this work should seek to achieve.

You may co-design this narrative with a range of stakeholders you have engaged in previous phases of this work. Having them assist your team in surfacing the overall goals and objectives of this work and the required commitments needed to get there, is a fantastic way to add rigor to this narrative development process and will enhance the relationship building with stakeholders in this work.

Step two: Establishing the portfolio's working framework

With the narrative set, your team is now in a position to develop the portfolio. Note that portfolio development is an iterative process that requires transparency and testing with relevant stakeholders throughout to provide it with the buy-in and legitimacy required to sustain it through to implementation. The portfolio is an instrument for change, and as such, should be co-designed and implemented with people, not for them. As such, at this initial point your goal as a team should be to develop an initial portfolio structure that can be tested and iterated with others. Doing so checks the *inherent bias* of your project team and liberates the voice of local population(s), a core intention of this approach.

- We have found that time is required upfront to develop a portfolio framework that is tailored to the challenge space you are exploring. No complex challenge is the same. The range of stakeholders involved, systemic barriers, and opportunities for intervention all vary. As such, how we intervene cannot be replicated from one challenge area to another. The implications of this unfortunately mean that there is not one template that we can provide to develop the portfolio. However, in our experience we have surfaced guidelines we recommend following as you develop it.
- *Developing the framework structure:* We have found it useful to create portfolio frameworks using a two-dimensional grid that maps interventions against two different but compatible intervention criteria. We use a standard graph model with one set of intervention criteria along the y-axis, and another set of criteria along the x-axis. Interventions are then mapped in this framework according to where they best align. We have applied this portfolio framework in five different settings, each time using it as a structure but letting the specific project dictate what elements populate the x- and y-axis.
- *Populating the framework structure:* Determining the correct variables to anchor the framework structure is important (i.e. the content used to anchor the x- and y-axis). From our experience a range of possibilities are possible to do so. These include:
  - » The system shifts identified in the systemic design workshop
  - » System stakeholders relevant to the challenge space
  - » Sequence of stages related to a challenge space (e.g. the waste management process stages including production, consumption, waste collection, recycling/disposal, stages of education, levels or stages of poverty, etc.)
  - » Levers of change (e.g. policy, technology, human behaviour, etc.)
  - » Time horizons (e.g. short-term, long-term interventions)

We provide two examples to practically demonstrate the thinking and process we went through to develop the portfolio framework.

Figure 3. Sample portfolio x-axis and y-axis framework

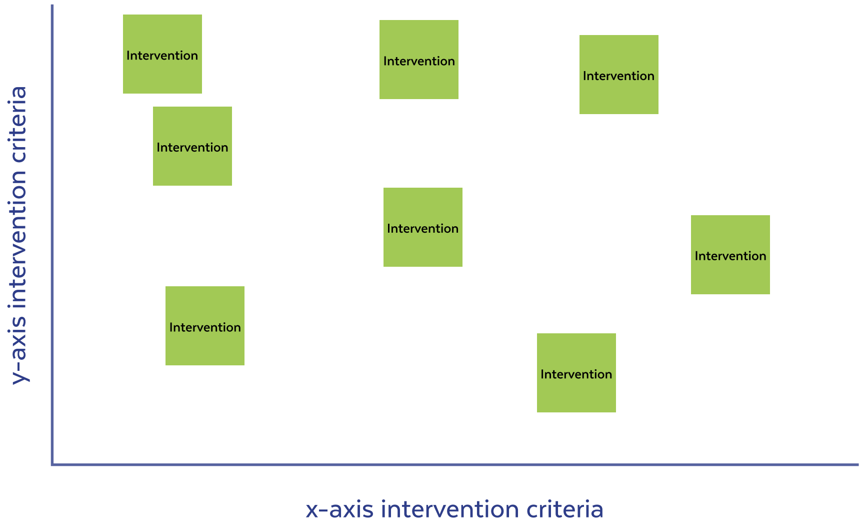


Figure 4. Da Nang portfolio overview

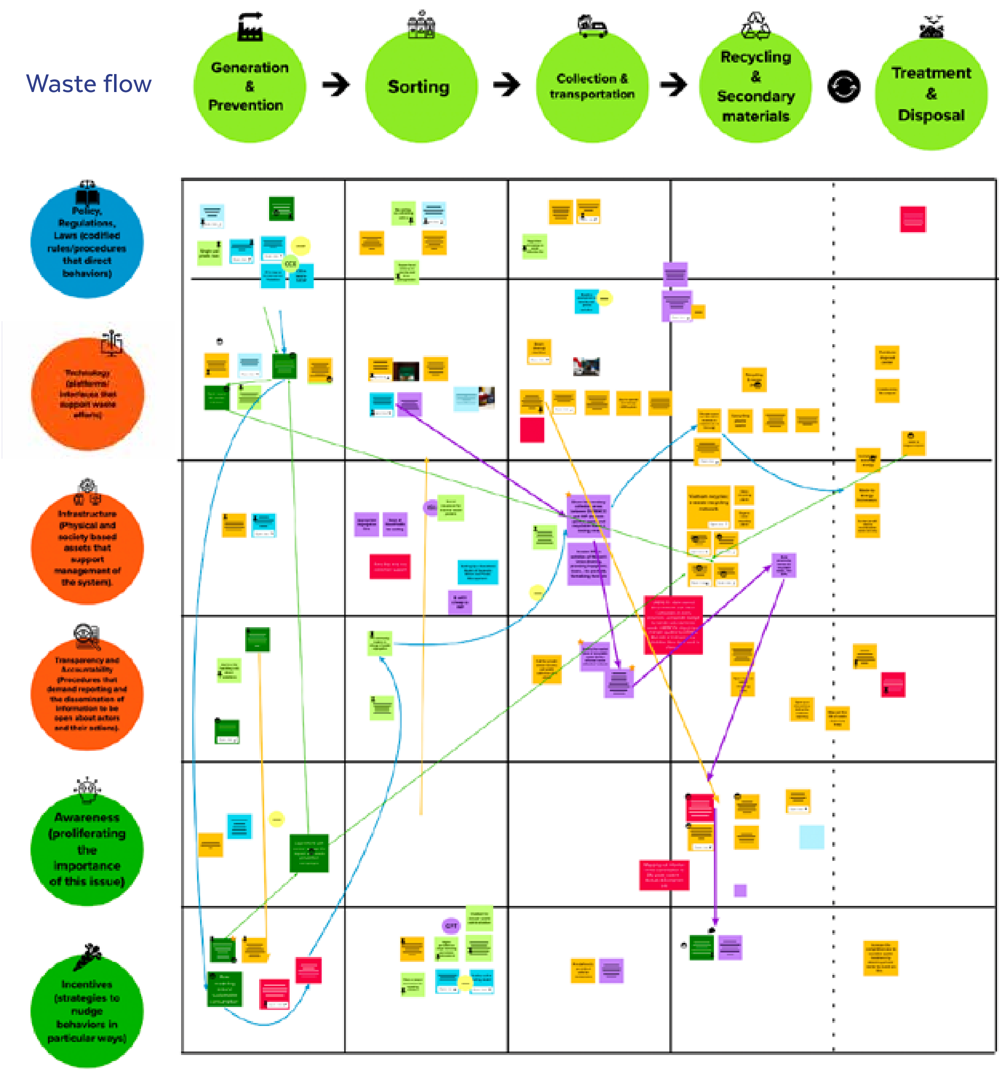


Figure 5. Transformational portfolio

Green consumption portfolio

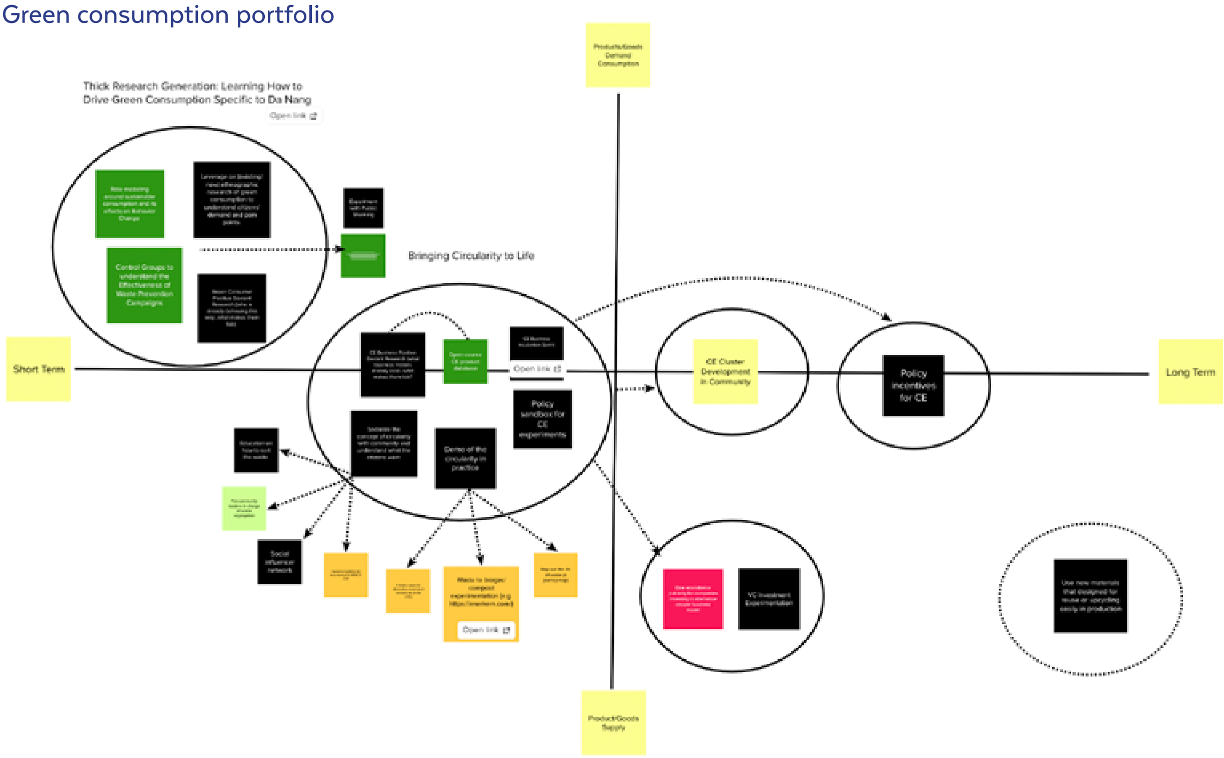
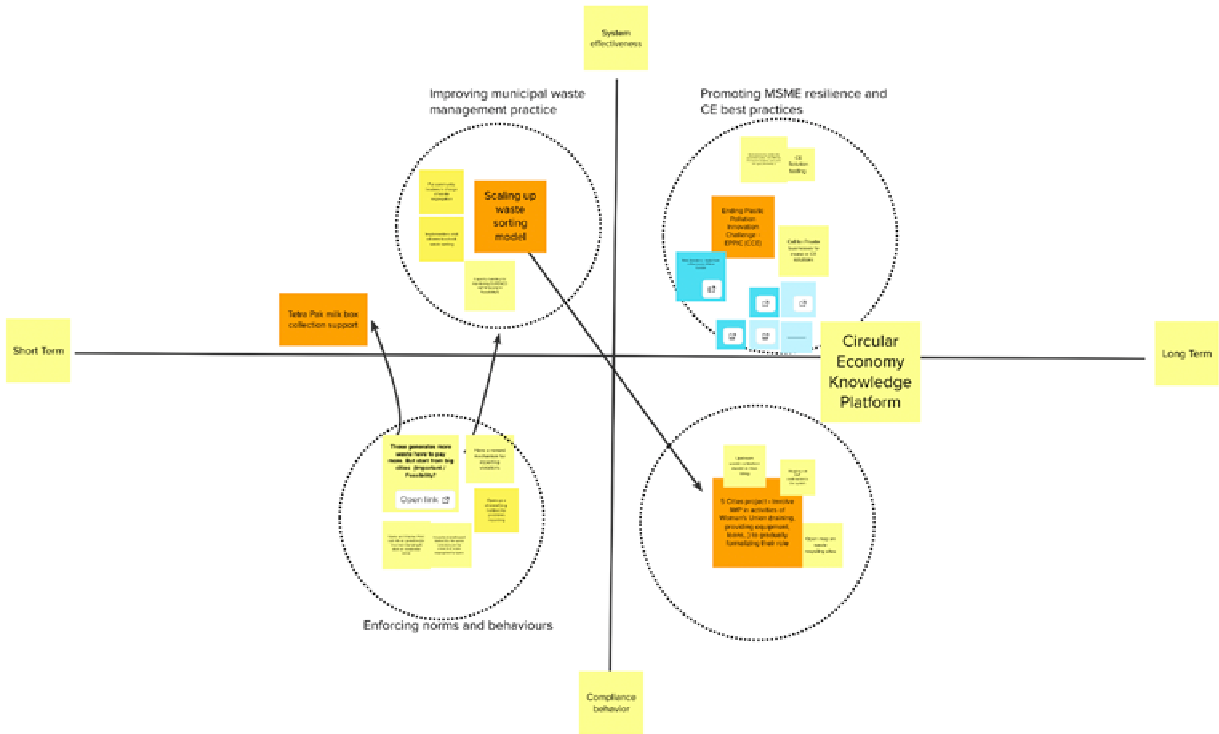


Figure 6. Incremental portfolio

Compliacne portfolio



Example one: Portfolio framework development in Viet Nam

To develop a portfolio framework to support portfolio development following a systemic design inquiry, the project team in Viet Nam met consistently over a four-week span to design a framework.

Over this time, it became clear that a portfolio of interventions needed to be situated across two continua:

1. Throughout the various stages of the waste management and circular economy chain (pre-waste production, consumption, management and disposal/reuse)
2. Throughout the various levers of change—specific areas to initiate interventions for change (policy, infrastructure, technology and behaviour).

Building off this breakthrough thinking, the project team used a simple matrix approach (with the waste management value stages occupying the x-axis, and levers of change occupying the y-axis) and began to plot possible/potential options. The team proceeded to filter through the series of solutions surfaced in the systemic design workshop (as well as others surfaced through a research scan of relevant initiatives performed elsewhere) and plotted these throughout the matrix in the intersection points where they seemed most relevant (e.g. an intervention targeting the behavioural practices of people and waste).

The final piece of this assessment was applying a critical lens to the portfolio matrix to embed coherence and complementation for how unique interventions could be sequenced together to create joint impact: the fundamental essence of a portfolio approach. The team used the portfolio framework to look for diverse intervention placed in different parts of the matrix itself that could be sequenced together in a portfolio-based logic.

What eventually emerged from this effort was the articulation of two initial portfolios: an incremental portfolio dedicated towards improving the realities of the current system and a transformational portfolio dedicated towards disrupting the current system and promoting new practices and economic models to emerge (in line with circular economy principles).

These two portfolios became the foundational work that the team began to move forward with. Key steps taken by the team to develop the portfolios were:

- A team approach to assess and discover the critical points that emerged from phase one and two to develop a framework that reflects the nature of the challenge space and what is needed to affect change. The team eventually landed on the need to seed action throughout the entire waste management chain as well as action across different types of levers of change.
- A curiosity and commitment to map interventions into this framework to create an initial framework.
- Application of the principles of coherence and complementation to eventually develop the two portfolio approaches which emerged.
- Realization that the interventions mapped in the portfolios need to reflect actions that broader network of stakeholders can lead, not simply a discreet capture of initiatives that UNDP is capable and prepared to lead.

Upon development, the project team began to socialize these portfolios with stakeholders to solicit input and seek buy-in for action.

Figure 7. Bhutan portfolio framework

Example two: Portfolio framework development in Bhutan

In spring 2021, UNDP Bhutan, in partnership with the Royal Government of Bhutan, joined together to take an innovation-focused approach to systemically address the youth unemployment challenge in the country. Following a four-month process whereby the team committed to the first two phases of this methodology (sense & frame and engage & position), the project team proceeded to the portfolio development stage.

To help support this work, UNDP team convened a portfolio development task team comprised of representatives from relevant government ministries. This diverse membership was intentional and helped to foster shared responsibility and accountability for the development and implementation of the portfolio across government. The first step for the task team in the pursuit of creating a portfolio of interventions was to develop a strategic narrative that established a suite of strategic outcomes that would guide the portfolio's focus and efforts.

To do this the team committed to an extensive stakeholder engagement process asking youth, private business owners, educators and government representatives including local government to share the critical elements that they would consider as indicators of success in relation to youth employment. Being a system-oriented inquiry, the information received from the ethnographic research and systemic design workshop was deep and recognized the critical linkages among skills training, socio-economic development, and the power of mindset and world views. This reframing of the challenge space zoomed out and recognized this to be a challenge informed by more than supply/demand dynamics. It is deeply rooted in social complexity and maintained by patterns of behaviour, and thinking that reinforce the status quo.

In the end, this input was condensed into a compelling two-page narrative statement that outlined the opportunities and challenges in this challenge space and made a business case for why a portfolio-based approach for intervention was required.

In this example, the strategic narrative provided the task team with the context required to develop their portfolio framework. As illustrated in Figure 7, an initial framework with system stakeholders (youth, government, private sector, education system and society at large) mapped across the x-axis, and transition spaces (skills, economic and mental model transitions) mapped across the y-axis resulted in a framework whereby the task team could start to plot and make sense of interventions using a portfolio-based logic.

Another key element of this portfolio development was due diligence in reviewing the current interventions: what is already being attempted to respond to the challenge, who is leading, who are the target audiences, and in this context, which transition space it is targeting. This data collection and mapping process, while time-intensive, allowed the task team to visually understand not only what is currently underway but also where the primary areas of focus are, and where operational and thinking silos may be in this approach. This resulted in a firm sense of the gaps in the current approach where new interventions could be conceived and implemented to help enhance current efforts.

This was an important learning milestone for the team and surfaced a fundamental principle for the role of UNDP in portfolio design. *The creation of a portfolio approach is not only about 'creating new interventions' but also about creating something that offers new policy options by catalyzing, cohering and redirecting (e.g. reframing and giving a new strategic narrative) what is already being done in the system, and seeding effort or attention towards critical gaps.* While UNDP plays a crucial role in convening and sponsoring efforts towards developing a portfolio approach, not all efforts should be led or implemented by UNDP alone.

(cont. next page)

Example two (cont.)

The task team engaged in a process of developing a series of interventions that could respond to critical gaps identified through the current approach assessment. A portfolio logic for these interventions was embedded at the beginning, meaning that the team examined how these interventions are related, complement one another, and reinforce each other.

What resulted through this assessment was the development of four portfolio streams: distinct thematic areas where a cluster of interventions share a common purpose and pursuit. These portfolio streams included:

1. Career and skill development
2. Governance
3. Dignity
4. Social safety and embracing new opportunity

These portfolio streams were finally aligned with targeted areas of intervention and the system transitions all oriented towards the pursuit of a vision statement established in the strategic narrative. Together, this act of alignment finalized the portfolio-based framework for action (illustrated in Figure 8).

While this description is a simple capture of this dynamic process, a few principles from the Bhutan experience are relevant for the establishment of a portfolio in your context which includes:

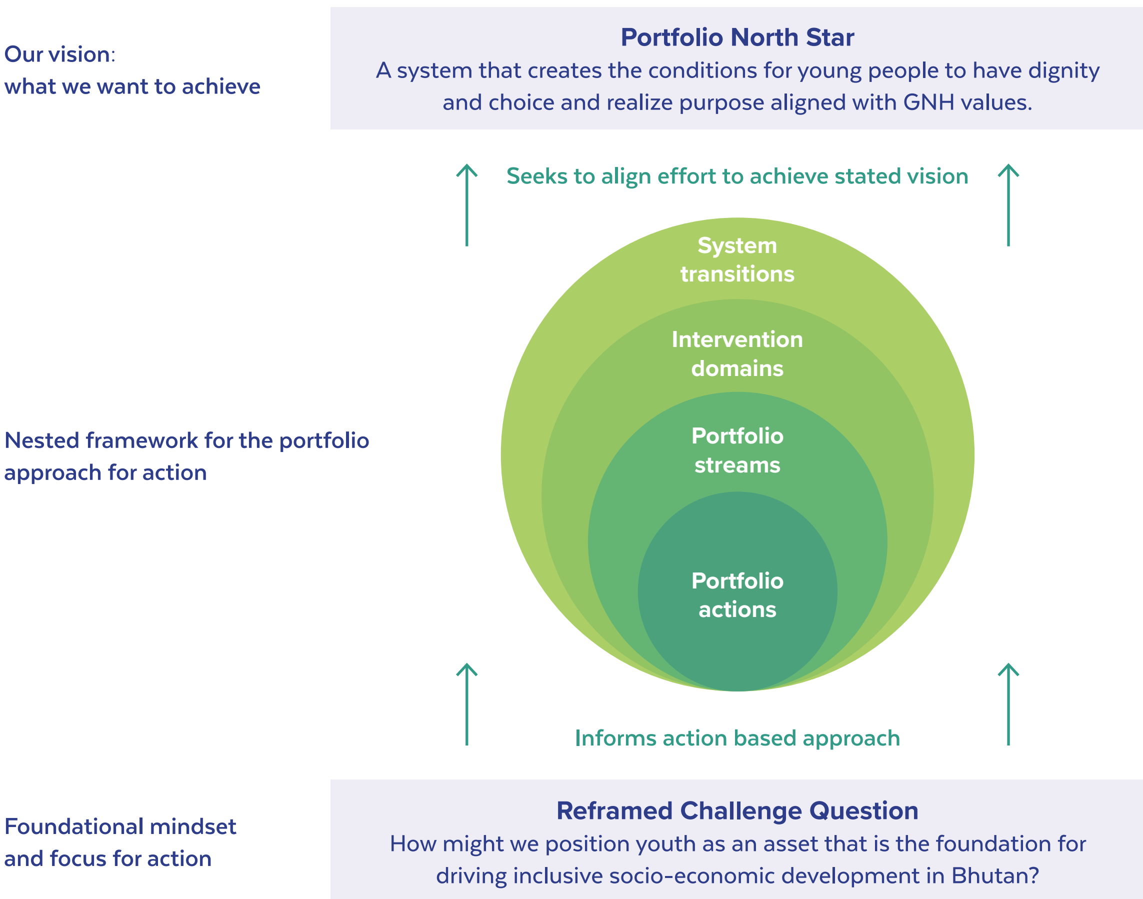
1. **The established strategic narrative provides rational for the portfolio**: As the team developed the portfolio, they were diligent in stress testing its structure against the narrative. Questions the team focused on were: Are the two aligned? Is the portfolio structure, as it is taking form, a logical mechanism for acting on the dynamics as outlined in the narrative? If not, what is needed to better align these?
2. **Time as a key variable**: Aspects of the portfolio created in this process were framed around affecting short-term change. Other aspects held a longer-term focus. Recognizing this the project team sought to not only recognize this difference but also determine how focus on success in the short-term space could help catalyze movement towards the long-term dynamics. Put another way, the team recognized this as a transitionary space which will inform implementation, monitoring and iteration as this work progresses.
3. **Humility and openness to the contributions and lived experience of system stakeholders**: The underlying thinking that went into the development of this portfolio approach was fundamentally grounded in the experiences of those living and working in this challenge space.
4. **Openness to trial and error**: While the development of this portfolio was guided by a sense of what was required to complete the work, the process itself embraced possibility thinking and an openness to let the framework emerge naturally. A preconceived design cannot be forced, only suggested, and evolved as required.
5. **Recognition of the current suite of interventions**: Recognizing that a portfolio needs to not only align new efforts but also bridge these efforts into an existing ecosystem of efforts is important. This is admittedly a task of imperfection: one cannot fully know about everything that occupies a challenge space. However, a concerted effort to try to understand the current landscape can accelerate the knowledge of the project team regarding where effort is being targeted, where it is not, and what the highest and best use of a suite of new interventions will be. This process also helps align stakeholders regarding desired objectives and understanding what interventions are needed, who needs to be involved, and how they can be implemented.

(cont. next page)

Example two (cont.)

6. **One entity or organization cannot be responsible for implementing an entire portfolio**: The amount of effort, time and resources required is simply too immense. Rather, an ecosystem approach should be embraced with different entities taking leadership and effort in different spaces. Similar to an approach advocated in collective impact circles, a backbone support comprised of one or a consortium of organizations that provides oversight and creates space for collective action and learning will likely be needed, particularly in the initial stages of this work. However, it is unrealistic to expect this backbone to have complete responsibility and autonomy over the portfolio itself. The work by UNDP Bhutan demonstrates the added value in recognizing this dynamic.
7. **The Importance of Quick Wins**: There are real constraints that confine systems transformation work. There will likely be measures of curiosity and perhaps even skepticism as you work through the development of the methodology towards implementation. One way to build momentum quickly is by seeding effort into interventions surfaced in your portfolio that are high impact and hold clear mandates and scopes of effort. The point here is to show value early on to create the buy-in for bolder, perhaps riskier and more comprehensive efforts at a later date. Applying a portfolio approach for system change should be thought of as a long game whereby you as a team will have to create the conditions and buy-in early on to gain the support necessary to seed effort in spirit of this long-term potential. Again, UNDP Bhutan was keenly aware of this dynamic and diligent in embedding this thinking into their portfolio.

Figure 8. Bhutan portfolio alignment



Additional examples

While we have outlined two practical examples 'from the field' demonstrating how teams have proceeded to develop a portfolio of interventions, there are many other examples available for study. Being a leading-edge approach for intervening and experimenting with systems change, practitioners globally are experimenting with how to do this in their own context. Some additional examples and stories you may wish to explore include:

- **UNDP Indonesia**: Complex Development Agenda needs Non-linear Interconnected Solutions – How Indonesia is Building Forward Better from the Village Level[20]
- **UNDP Pakistan**: UNDP Innovation-Accelerator Lab Pakistan | Reimagining Development Solutions[21]
- **UNDP Serbia**: In Serbia, New Approaches to Tap Talent and Tackle Depopulation[22]
- **UNDP Thailand**: Unlocking the power of local food markets: Promoting smart, sustainable, and inclusive development in Southern Thailand[23]

20 Sopacua, J. and Duong, P., 'Complex Development Agenda needs Non-linear Interconnected Solutions: How Indonesia is Building Forward Better from the Village Level', 31 March 2021.
21 UNDP Pakistan, 'UNDP Innovation-Accelerator Lab Pakistan | Reimagining Development Solutions'. (accessed on 27 January 2022).
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Step three: Experimentation design and portfolio implementation

> No amount of experimentation can ever prove me right; a single experiment can prove me wrong.
> —*Albert Einstein*

Once you have landed on a portfolio design that has been co-designed with relevant stakeholders, your team will be positioned to begin to implement your initial portfolio of interventions. Your portfolio will feature initiatives that share a common logic and complementation. It will also be composed of initiatives that share not only commonalities but also key differences in their make-up, purpose and intent. Being a portfolio, some will be focused on different aspects of the challenge space, and some will be designed for expected impact (solutions) while others will be more learning-oriented in their nature (experiments).

Experiments	Solutions
• Discreet exploratory interventions designed to surface new or validating information about the merits or potential of an intervention or unknown information about the challenge itself. Innovation experiments are necessary to test assumptions, hypotheses and approaches at low scale to see what works, in what context and why.	• Specific interventions that are implemented in spaces to address an issue (or suite of issues) embedded in the challenge space.
• Experiments are best reserved for exploring spaces that remain unknown or ambiguous. They help us to reveal information that previously alluded us, therefore making subsequent decisions regarding how to intervene are evidence-based. Experiments can be thought of as learning-oriented interventions.	• Solutions are implemented in spaces where context around what the issues are, including key reasons for why they exist are known. As such, solutions are designed to remedy these known issues and to achieve impact.
• Experiments are one-time interventions designed to explore certain hypotheses/ assumptions around the challenge.	• Solutions are more permanent interventions that should be expected to be tweaked for optimal impact, but because they are being implemented in spaces of relative certainty, they are expected to endure for a particular amount of time (knowing all things have a shelf life of some kind!).

Why experiment?

In complex development challenges where rational cause and effect dynamics often defy possibility, we need to approach problem-solving in a different way. Experimentation is a valuable method for doing so. It allows for the discovery of new context and information that can help decision makers comprehend and make appropriate decisions around how to address specific challenges.

This is particularly the case in innovation spaces where we are attempting to break through old patterns and ways of thinking and drive new conceptions of how to address issues. Experimentation can challenge deeply held assumptions and beliefs by surfacing empirical evidence that can confirm or refute these issues and help steward ways of thinking that more accurately fit the real versus perceived challenge space. Experimentation therefore should increase a sense of agency for change makers by offering data/information that they can act on to make things better.

Experiments are also an appropriate type of intervention for the pursuit of systems change. They help to surface alternative perspectives on a complex issue, furthering our understanding of what is going on and what to do about it. They may also offer opportunities of 'quick wins' and building credibility of the team in the challenge space.

Guidelines for experimentation

In many ways, the general procedures for conducting an experiment are like those espoused by the scientific method and taught to us in primary and secondary school. Emilia Saarelainen succinctly outlines these guidelines in her blog titled Why there's no innovation without experimentation. In short, critical steps for preparing an experiment include:

- Define the experiment's purpose: Why are you conducting this experiment? What are you trying to learn or discover?
- Document your assumptions: Which aspects of what you are testing, and which are you unsure of? Identify the most critical hypotheses you have listed and curate your experiment to test the validity of these hypotheses.
- Run your experiment: Keep it simple, try to collect as much information as possible with a little effort that is possible.
- Collect data: Document as much information as you can. Be diligent about this.
- Review results and decide on next steps: What are the results of your experiment and what do they suggest about what you should do next?[24]

Adopting a bird's eye and worm's eye experimentation mindset

The one critical difference between conducting an individual one-off experiment versus an experiment attached to a portfolio approach is the necessity to be aware of cause and effect dynamics at multiple levels. This metaphor of bird's eye versus worm's eye view effectively communicates this point. An experiment attached to a portfolio-based approach is concerned with surfacing information about a niche/specific issue or dynamic and concerned with examining how the outcomes of this experiment affect other behaviours, initiatives, emergent events in other domain areas and aspects of the portfolio.

24 For additional information on how to set up an experiment, see Innovation Growth Lab, 'IGL experimentation toolkit'. Available at http://toolkit.innovationgrowthlab.org/home (accessed on 17 January 2022); Nesta, *The Experimenters Inventory.* (Nesta, 2020); Rye, S., 'The Experimentation Field Guide', Monash University, 2019; and Richardson, A., Regulators' Experimentation Toolkit – A guide to running regulatory experiments, Nesta Challenges, (Nesta, 2021).

Adapted to this mindset, the principles take on a slightly different scope:

- Identifying purpose: The scope of the purpose of your experiment takes on a new focus through a portfolio-based approach. You should search to identify the purpose of the experiment for exploring a niche aspect of the portfolio, as well as why it is important for the portfolio overall. How does this experiment align with positioning of other initiatives in the portfolio?
- Identifying hypotheses: In preparing the experiment you should explore not only your hypotheses around its effects on the specific area you are testing but also how you think it will affect other elements of the portfolio. What other initiatives is it connected to and what possible effects might it have on these? What are your most critical assumptions and how might you build in aspects to your experiment that can reveal insight into its effects across the portfolio itself?
- Data collection: Be mindful of your data needs for assessing effects on the broader portfolio. What are your assumptions on this front and what data/evidence would aide in confirming or refuting those assumptions?
- Asking 'so what': Because of your experiment, what are the implications of the result for the portfolio overall? What do these results suggest you should do next?

Example: Experimentation by UNDP Pakistan

UNDP Pakistan Accelerator Lab Team has been developing a portfolio-based approach for addressing plastic waste in the country for the past one and a half years. In that time, the team has engaged the system in the process and leveraged the wisdom that has been surfaced to help curate a series of interventions that have come to populate their initial portfolio.

Experimentation plays a central role in their portfolio-based approach moving forward. As described by Ehsan Gul, Head of Experimentation at UNDP Pakistan Accelerator Lab, the team has designed and is employing: "Multi-factorial experiments to test hypotheses and leads identified by our Solutions Mapper addressing the issue in a portfolio manner. In easy terms, that means putting the problem in the center and throwing experiment bets across multiple factors to generate systemic change, rather than taking a one-solution approach."

The team has surfaced hypotheses and developed experiments to test these hypotheses through several mediums: rapid ethnography, solution fests and innovation design sprint challenges. The team has used the experimenter's design canvas to further refine these experiments, to understand the fine detail involved with each, and how they fit together as a coherent portfolio.

Experimentation requires humble curiosity. Part of the art in implementing experiments as part of a portfolio-based approach is sequencing a team's inquiry that positions experiments as learning blocks: one experiment asks and answers a question that is needed in the immediate and can open pathways for asking and testing the next question. We say art because this is not meant to be an act of perfection. We don't know what we don't know. That said, triaging your questions up front to determine the most pressing question can aide in prioritizing where to begin to dedicate effort. As you proceed, allow the results of the experiments to guide your team to be open to where to focus effort next.

Movement building

Systems thinkers must engage with all actors from the local ecosystem, ranging from potentially enthusiastic public sector officials to community organizers, start-ups founders and the informal sector because ownership must come from across the network.

Our reflections on the experience in Da Nang City, Viet Nam have surfaced for us the power of movements and systems work. This approach to engagement has helped us to build social capital around our portfolio. There are four key principles for supporting movements around portfolio work:

- Establish a local presence and show value: Establish credibility for the value of applying an innovation approach to address time-sensitive development challenges.
- Include the right people: Have a combination of people who are committed to invest time and resources, have local credibility and an open mindset.
- Stir the movement: Implement local pilot projects that are co-owned and shared across a network of actors.
- Let go of control: Open up to serendipity and be comfortable not having all the answers.[25]

Alternative approaches to consider

It is important to build on existing narratives when creating a portfolio approach. This requires an approach to understand the work that is already ongoing throughout the system.

Portfolio Sensemaking is a process that enables understanding of the current work in a specific area or domain. It is a process that extracts insights, induces learning and creates meaning from experience. During the process, participants are guided to look for patterns and connections between initiatives or projects. They are asked to consider new connections between their approaches, and gaps that can be filled. This helps form a coherent portfolio with a clear strategic narrative.

Conclusion

We hope that this guide provides a roadmap for how you can develop your own systems transformation process. We advise applying elements of this guide in principle but not as a strict set of prescriptions for what must be done. In doing so, we hope you draw inspiration from other sources and people in your networks and iterate as necessary to meet your context.

We hope you are inspired by this approach and feel confident to try something different. We are excited to hear your stories from when you experiment within your own context. If you are interested in knowing more about the approach and testing it in your context or have ideas to share, please feel free to reach out to brh.ric@undp.org. We are keen to learn and grow with you.

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Appendix A

Compiled resources for references

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- Ben Weinlick, 'Iceberg systems mapping tool to identify leverage points for change', Think Jar Collective.
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C. Transform resources

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Appendix B

Additional guidance on virtual workshop delivery

With the COVID-19 pandemic disrupting how we live and work, we have had to become adaptable and resilient within these trying circumstances. In the context of this work, where relationship building and stakeholder engagement is critical to the viability of the work itself, we have had to find new ways to convene people in ways that generates the same momentum and outcomes.

Engagement through 'virtual' platforms has been a necessary reality for this work to continue during the pandemic. Through this we have experimented with how to best create a virtual environment that brings diverse stakeholders together to examine obstacles and possibilities using the process outlined in this field guide. This may seem difficult, however in our experience is very much a possibility. We offer a few general principles and words of advice as it pertains to the delivery of this work over a virtual platform to assist you in your planning and execution of this type of engagement. This is the virtual collaboration space with canvases that can be used to facilitate the process.

Engaging stakeholders using a virtual platform: General rules of thumb

Through our experience, and observing the experiences of others, several best practices have emerged regarding how to best plan for and create the conditions for a successful virtual engagement. These can be thought of as general rules of thumb that should be applied to any virtual engagement, regardless of methodology or approach taken.

Rule of thumb #1: Prepare, prepare, prepare

Preparation is key for any engagement, but particularly holds true when engaging stakeholders over a virtual platform. There are variables at play when conducting a virtual engagement that are not present or can be troubleshooted easier when engaging people in a live in-person setting. Key things to contemplate when preparing for a virtual engagement include:

- **Establishing a clear purpose**: Having a clear purpose and intent for your virtual engagement is the first critical stage of preparation. Participants should have a clear sense of what the workshop purpose is, and why they are being invited to participate. Providing this clarity to participants helps them prepare for the engagement as well.

  A clear purpose also allows a facilitation/host team to design the engagement in a way that delivers on this purpose. How the workshop is staged, and the activities chosen should all be in service of this articulated purpose.

  In our work we establish two purpose statements for each engagement we deliver:

  - » A business purpose: The specific goal/objective you need to reach at the end of the engagement. What must be achieved to move forward with your project/work?
  - » Emotional purpose: How must participants be engaged to get the most out of their involvement? What is your goal/objective for group dynamics? Note that we sometimes short-change the importance of the emotional objective, however, in complex domains where participants have different points of view and lived experience, focus on driving an emotional outcome might be a prerequisite for making progress on the formal business objective.

- **Developing the plan/approach**: With the purpose statements you and your team should build a detailed facilitation agenda that outlines the key stages of your workshop, the purpose and intent of each stage (why it is needed), and process details for the activity you are delivering. This detail may seem like it is not required, but in a virtual environment you and your team are less nimble/able to make easy adjustments on the fly. Knowing what you are doing, when you are doing it, and how you propose to run the activity will give you and participants confidence during the activity.

  To be extra prepared, you and your team may even want to consider backup plans: envision what may not go according to plan and what you and your team may do to adjust in the moment if those dynamics surface.

- **Think about technology supports**: Consideration of core technology supports is critical for the success of any virtual workshop. At the very minimum you will need video conference software to convene stakeholders. In our opinion, Zoom provides the best range of engagement functions (breakout rooms, polls, surveys, etc.) as well as the most stable platform (not prone to crashing). That said, other options exist as well including Microsoft Teams and Google Meet. No matter what platform you choose, be sure to test it prior to your engagement to ensure you are familiar with its functionality and how it works.

  Often, an additional interface is needed to assist with participant collaboration and co-design (this is certainly the case with this methodology). You may also want to prepare virtual workshop spaces using virtual whiteboard canvases that can be created using Mural, Miro, Google Jamboard, etc. These platforms allow a facilitation team to create a virtual workshop space full of activity templates and instructions. Permissions can be given for all participants to join these spaces in a collaborative sense.

  If interested in using these platforms, we suggest that you as the facilitator (or an assigned breakout facilitator) share your screen via the platform you are using so that participants can focus on the same element of the board. As a facilitator, you are there to not only guide the activity but also help troubleshoot any technology or activity challenges participants may have in using this interface. Planning for some of these issues ahead of time is also a critical aspect of success.

- **Creating an engaging environment**: One of the biggest challenges with virtual delivery is creating a context and environment that sparks and maintains participants' interest. There can be a relational deficit when conducting engagements over a virtual platform. Time and attention should be spent determining how you will peak and maintain participants' interest throughout your engagement. Some practices you may choose to enhance participant engagement include:

  - Invite participants to keep cameras on: Not being able to see fellow attendees can be counter-productive to creating an environment where personal connection is important for building momentum and understanding. Gentle persuasion for participants to keep their cameras on at the beginning and throughout an engagement can help nudge willing participants to do so. Feel free to be transparent in your reasoning for this. Often participants are more willing if they recognize the value and importance of doing so.
  - Create micro-spaces for participants to connect: Creating space for participants to contribute to dialogue and be a full participant can be daunting in a virtual environment. One way to encourage participation is by using small breakout group structures for smaller and more intimate spaces for participants to engage each other through dialogue. When designing your session, think about what activities or conversations need to occur as an entire group and would be best completed through a smaller group setting. As a rule of thumb, exploratory conversations or collaborative activities are best done in a small group setting while conversations that seek to close or summarize group findings should be done as one large group.

Rule of thumb #2: The power of team

Having others to lean on and support a facilitator is important. From focusing on overall process to managing breakout room discussions and activities, capturing notes, managing technology issues, and attending to ad-hoc participant needs, this is often too much to manage for one individual.

Building a team that can support you in meeting all these needs is crucial. In our experience, a well-rounded team to support a virtual engagement is included in the following table.

Role	Key responsibilities
Lead facilitator	• Responsible for the overall design and execution of the engagement. • Serves a 'Master of Ceremonies' function by hosting the overall engagement, procedurally moving through the agenda, managing overall time, and facilitating conversation and activities where needed.
Co-facilitator	• Can be a co-lead or backup lead for engagements. This role supports the lead facilitator in their functions plus usually takes on a stronger facilitation function by helping to support specific small group activities and facilitating dialogue amongst participants. • If needed, this person can also help manage technology issues or concerns as they surface and manage 'chat' dialogues between participants as they occur in your meeting (most platforms like Zoom or Microsoft Teams have a chat function that allows participants to silently communicate with one another). • A co-facilitator is nice to have when there are more than 10 participants.
Breakout group facilitators	• It is advisable to use breakout group design throughout your virtual engagement to allow for more intimate spaces for participants to explore a given question/issue or engage in a deep-dive collaborative exercise. If possible, it is nice to have a designated individual to be with breakout groups to help guide conversation and troubleshoot any issues that arise. • Breakout group facilitators can be avoided if the breakout group activities are very simple (e.g. simply discuss a certain question) but participants tend to be more open and forthcoming when there is someone present to help guide the process. • Having breakout group facilitators is also beneficial as you have a roster of individuals ready to step in if someone else on the team falls ill, or if extra support is needed that was unforeseen.
Dedicated technology support (optional)	• This is not required but if it is an option you may want to consider having someone available to solely manage technology. Doing so frees up other individuals to focus on their specific functions and simply allows for a more seamless workshop experience for participants.

Engaging stakeholders using a virtual platform: Advice pertinent to this methodology

In addition to these general rules of thumb, we also want to provide some advice in preparing a workshop using systemic design as the guiding methodology.

Rule of thumb #1: Embrace complex dynamics through simple processes

In an in-person workshop, participants would be asked to explore the systems using a variety of system mapping methods that require teamwork in building a system of elements or parts of the problem and identifying how these parts interact with one another to create elements of the challenge space. This work requires participants to work closely with one another, usually ’mapping‘ on the same canvas of paper or other visual (see photo for an example of an in-person system mapping exercise). As mentioned earlier in this guidebook, the process of mapping is critical for not only visualizing the systemic nature of the problem but also creating a process whereby participants engage one another in a way that allows them to understand each other, and how they see or think of the problem.

This intimacy is difficult to replicate in a virtual setting for two reasons: lack of sharing a physical space and the difficulty in creating a shared system map. As we have attempted to carry on this work despite pandemic realities, our goal has been to maximize the systemic experience while limiting the complicated factors of specific activities like system mapping. In our work we used the power of breakout groups to create four to five teams that would ‘map’ the system from different perspectives. Each team was paired with a breakout facilitator, and they mapped the system using the rich context map template that can be found in the Systemic Design Toolkit (see Figure 9).[26] The template was effective for having participants identify key cultural, economic, institutional and political dynamics relevant to the problem space. It also allows groups to surface key perceptions, emerging initiatives and trends around a given issue.

As participants brainstormed, the facilitator simply used the sticky note function available in Mural to place concepts in the correct spot of the template. At the end participants were asked to identify key connections amongst the parts (using arrows) and ’zoom-out‘ to consider what they surfaced and how these items holistically effect the overall dynamic of the problem space.

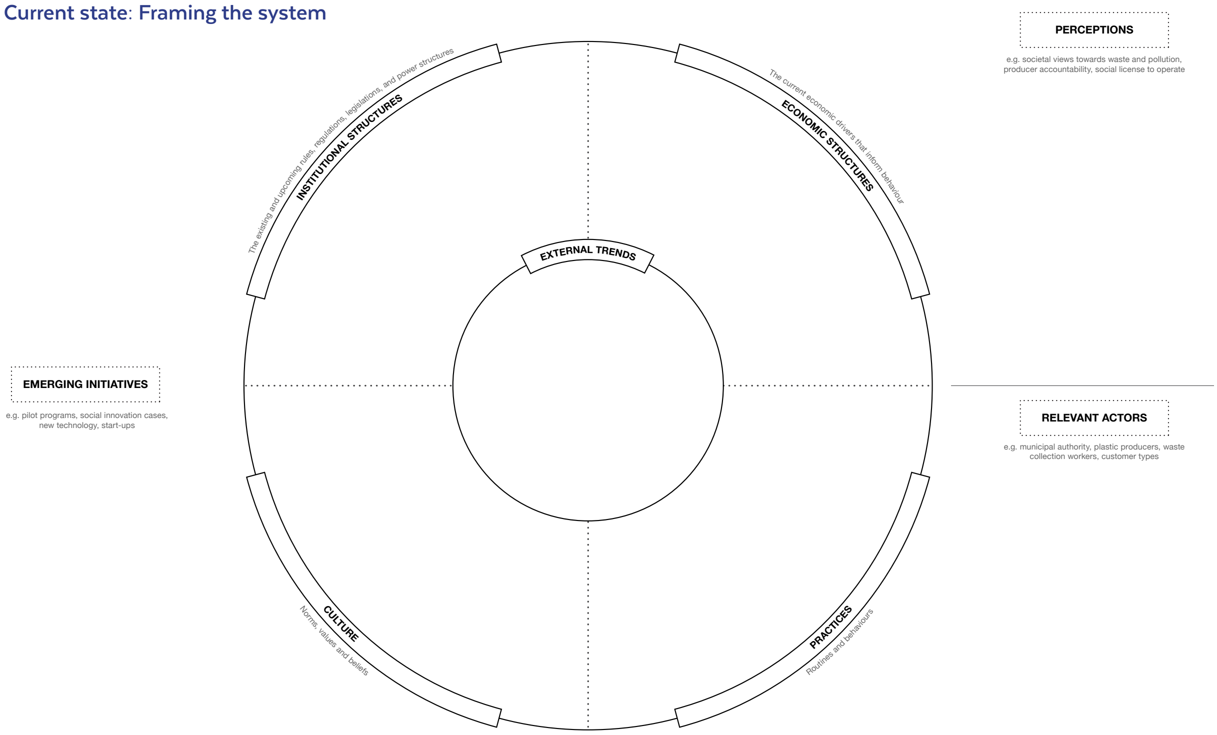
As you see, while not as thorough or involved as a typical system mapping exercise, this was still effective in creating a systemic experience for participants by requiring them to think about the problem space, and to illustrate how discreet elements, as they brainstormed, affect one another. From a facilitation process, it was a process that was manageable given the constraints of conducting this work in a virtual format.

▲ In-person system mapping exercise, UNDP Maldives, December 2019
Photo: UNDP Maldives

26 It is encouraged to research other templates (or build your own) to help facilitate mapping exercises virtually. For other possibilities, see Systems Innovation, ’Canvases‘. Available at www.systemsinnovation.io/canvases. (accessed on 22 January 2022).

Figure 9. Rich context template

Current state: Framing the system



Rule of thumb #2: Do not short-change debrief and build in time for reflection

Systemic design at times can surface information that challenges participants in different ways, surfaces a variety of insights, and even creates more questions. It is by design a disruptive methodology and supposed to create these dynamics. A main tactic we use to create deliberate time for exploring these types of dynamics is by holding significant time for debrief following exercises, as well as periods in the agenda that prompt participants to reflect on things that are surfacing or resonating.

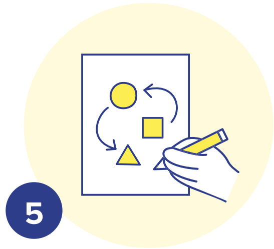
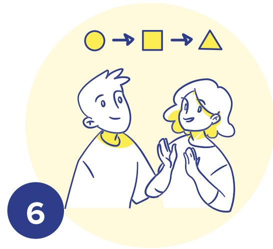
In a virtual environment, where participants are not physically co-located and have random chance opportunities to connect and share what they are experiencing in the workshop, holding deliberate space for these debriefs and reflection is critical. As a facilitation team, you may be pressed for time and feel compelled to borrow time from these debriefs or reflection spaces, however, our recommendation is to resist this. Doing so short-changes the important spaces for participants to share and learn from each other.

In terms of making space for debriefs and reflection, we suggest the following (based on a four-hour engagement plan).

- Reserve 15–30 minutes (depending on importance and time available) for participants to share the outcomes of a specific activity and contemplate the main insights and implications of the information that surfaced for the work moving forward.
- Reserve 15 minutes at the end of the engagement for a closing reflection on the session itself. You can do so very easily by asking participants to identify top things that stand out to them from the session and why. Note if you are stewarding a process that is over the course of days or weeks, you can start each session with a reflection asking people to reflect on what is resonating from last time and what is important from the last session for the one that they will engage in.

Workshop stage

	Participant orientation	**Current system exploration-system mapping**	**User empathy generation**
	4 hours for an in-person gathering or 13 hours for a virtual delivery.	3-6 hours for an in-person gathering or 2-3 hours for a virtual delivery.	3-4 hours for an in-person gathering or 2-3 hours for a virtual delivery.
Purpose	▪ Orient participants to the purpose of the overall project. ▪ Create space for participants to meet and establish comfort with each other. ▪ Introduce initial perspectives.	▪ Create a visual map of the portfolio. ▪ Display system dynamics including power, influence, siloed aspects and areas of collaboration. ▪ Enable understanding of participant experiences.	▪ The intent of this stage is to leverage the ethnographic research completed in the Sense and Frame stage to showcase and immerse participants in the lived experience of others. ▪ Doing so helps participants see the challenge from a different perspective and brings different perspectives to the challenge space.
Process considerations	▪ Prepare participants for the work. ▪ Establish relationships and trust. ***Methods to consider in this stage:*** *Icebreaker methods work well here. See the Liberating Structures Library for specific methods re: fostering relational connections.*	▪ Participants work in small groups, each mapping the system using different methods or ways of assessing the system. ▪ Use the iceberg diagram to map the system. For more information about the iceberg diagram, see The Think Jar Collectives Iceberg Diagram Primer. ***Methods to consider in this stage:*** *There are many different system mapping methods, each with a different purpose and intent. When preparing for a workshop like this, familiarize yourself with the various system mapping methods that exist and determine which make the most sense for your context. For a list of system mapping methods to choose, see:* 1. Follow the Rabbit: A Field Guide to Systemic Design 2. The Systemic Design Toolkit	▪ If in-person, break participants up into small teams and set up the user stories/personas in various stations throughout the workshop space. Have groups go through a gallery walk from station to station immersing themselves in the user and document what they are learning. If virtual, create virtual breakout groups (each with a breakout room facilitator) and provide each group with copies of the user stories and personas to go through. Depending on the time you have, you may opt to give each group only a few to work through. ▪ Bring participants back to a plenary at the conclusion of exercise to debrief what they have learned. ***Methods to consider in this stage:*** *Showcasing the ethnographic research can be done by creating user stories and/or personas to humanize the research and communicate it in a way that is accessible in a workshop format.*
Why is this stage important?	▪ Participants are from diverse backgrounds and will need to gain comfort with each other. ▪ The workshop requires active engagement and candid discussions. ▪ It is a good time to set core objectives.	▪ Establishes a collective baseline understanding. ▪ Allows participants to surface their different experiences, perceptions and world views, and to appreciate different perspectives. ▪ Prepares the group for collectively framing of the problem space.	▪ Humanizes the challenge space by deliberately bringing in lived experience stories around the challenge space. This can challenge assumptions and call out biases individuals may have about the challenge itself, and others impacted by it. ▪ Can surface information around gaps that create issues for people and seed ideas around needs and wants. This information is useful for engaging in the system redesign, and intervention brainstorming parts of this workshop.

	4 — Challenge space framing and identifying leverage areas for change	5 — System redesign	6 — Seeding systemic action
	1-2 hours for an in-person gathering. 2 hours for a virtual delivery	3-4 hours for an in-person gathering. 3-4 hours for a virtual delivery	2-3 hours for an in-person gathering. 3-4 hours for a virtual delivery
Purpose	■ This stage is meant to start having the group converge on a problem space definition: a concise one that diagnoses the challenge based upon the information participants have surfaced in their deliberation. ■ With the problem statement established, you can also now have the group explore what needs to change to drive desired system change, and how this change might be instigated.	■ Pivot participants' thinking from 'what is' (the focus of the workshop inquiry to this point) to 'what can be'—a preferred state that is grounded in the current reality but imagines how certain systemic aspects can be leveraged to drive different behaviours and realities. ■ Have participants come up with an articulated expression of what a preferred reality looks like. This model helps to develop the portfolio of interventions required to take systemic action.	■ Leverage the information that has been surfaced in the workshop and prompt participants to think about the range of actions necessary to start seeding change.
Process considerations	■ For developing the challenge problem statement, you can get the group to: » Re-use the "how might we" question process (as outlined in the 'preparing for the workshop' content included in the previous section) by assessing whether the initially positioned question accurately frames the challenge, or it needs to be re-developed to ask a better and more accurate question (i.e. reframe the question). » Use other problem framing methods. Examples can be found in: • IDEO Design Kit; • Frog Design Collective Action Toolkit ■ To prompt dialogue of 'what needs to change', have the group articulate five-seven system 'from-to' shifts: things that need to change in order to drive a preferred reality (e.g. from exclusion to inclusion). These shifts provide design criteria that needs to be expressed in the preferred system mapping exercise. ■ You will have to require the group to reflect on the current state and identify where there is leverage for change: where effort can lead to the type of change desired. ■ To aide in identifying areas of leverage, it is often useful to go back to the created iceberg diagram and have participants reflect on its content. Where throughout the various levels (events, patterns, structures and mental models) are there opportunities to provoke and experiment with intervening in the system? Have groups identify a range of three to five of these opportunities. For more on identifying areas of leverage in systems, see: » Donella Meadows: Places to Intervene in a System » David Ehrlichman: Identifying Leverage Points in a System	■ This requires participants to reflect on the systemic challenges/opportunities surfaced in the current state assessment and to imagine what an alternative preferred system would be. They use the same system mapping tools to create a visual artefact of this reality. ■ Have participants focus on exploring the 'to' elements that were surfaced in the from-to shifts exercise. What would the system look like if these 'to' elements were a reality? What would be the parts of the system? How would they interact/influence one another? What would the by-product of their interactions be? ■ This can be a difficult exercise for some participants to work through as it requires them to think about alternative realities that can be quite different from what we know. Having a breakout facilitator work with groups as they design this desired state system map is helpful in supporting the group in developing a useful artefact. ***Methods to consider in this stage**: Use similar system mapping methods that were used during the current state mapping.*	■ A rapid brainstorming process should be adopted whereby participants are given a general theme on which they are required to think of as many ideas as possible within a fixed time constraint. If you have brainstorming stations, consider having participants rotate in stations to create variety in what surfaces. ■ An approach of quantity breeds quality is appropriate for this section. ***Methods to Consider in This Stage:** Brainstorming methods for idea generation coupled with using a template like an innovation-ambition matrix for sorting through ideas is an example of initial methods you can use to go through this stage.*
Why is this stage important?	■ Pivots participants' focus from the problem space to the solution space. Stages after this will have participants increasingly move towards developing a portfolio-based approach for intervention.	■ Inspired by Russel Ackoff's Idealized Design whereby groups of individuals are required to reimagine how a system would need to operate to drive preferred outcomes. ■ Critical for establishing a baseline expression of what is desired. With this step completed, ideation and further development of interventions that may be captured in a portfolio approach can be pursued. The desired state maps provide a framework for exploring HOW to take action to transition the system from what is (current state assessment) to what is desirable (desired state assessment). ■ Process for ideation is included in the next step.	■ These actions form an initial database of items that may be considered in developing the portfolio of actions that will occur after this workshop.

Rule of thumb #3: Judging time and its role for session design

Expanding on the points included in the main part of this guidebook, time is a main distinguishing variable when conducting a systemic design workshop in-person versus virtual. Things simply take longer virtually than in person. Moreover, 'virtual fatigue' is also very real and therefore, you cannot convene participants for the same amount of time as you can in person. As such, to run the full sequence of the systemic design methodology as outlined in this manual you will need 15–18 hours of participants' time. To best sequence this, we suggest running five 3- 4-hour sessions with participants over two to three weeks. Doing so avoids virtual fatigue, allows for space in between sessions to reflect, and allows the full arc of the systemic design methodology to be explored.

Appendix C

Example rapid ethnographic research guide

Below we provide a real artefact from the ethnographic research led by UNDP Philippines Accelerator Lab team in early 2021. This is the user interview research guide that was compiled and helped the team conduct interviews and gather data during their Phase one: Sense and frame.

Guidelines

A. Mindset

To gather data ethnographically, we say we need to use ourselves—our bodies and our minds—as the tool of data collection. Ethnographers use their five senses to observe human behaviour and write about what they observe, however, they need to develop those senses to help them collect accurate data. Part of this process is developing what is called the 'ethnographic mindset'.

1. **Openness**: Openness is about being honest, open-minded, and curious. This way, one can attempt to really step out of all one has assumed or been taught throughout one's life and just see things for what they are.
2. **No judgment**: Involves focusing on not passing judgment about what we observe and instead simply observe and describe it. This allows one to step outside of one's culture and develop the perspective of an 'alien' looking in without judgment to understand what motivates and drives them.
3. **Optimism**: Optimism is the ability to embrace the possible and is characterized by hope and confidence in success and a positive future.
4. **Awareness**: The ethnographic mindset includes a heightened sense of awareness about what is happening in the community. Being aware of one's surroundings, the context of what is going on around and how people are considering and affected by one's presence is an important piece.
5. **Empathy**: To understand another person, it is valuable to develop empathy for that person. You can do this by trying to put yourself in that person's shoes and consider their choices from their own perspective, not from yours.

B. Process

1. Personal introduction and greetings.
2. Short introduction about our research and how it is relevant to them. Introducing to interviewee about waste situation in Pasig City and our ethnographic research.
3. Give opportunity for the interviewee to ask any questions or feedback at this stage.
4. Thank participants for taking the time to share their insights.
5. Technical set-up: check audio recorder status and have a note taker.
6. A reminder that the interview is being recorded through phone recording.
7. Confirm their consent for us to proceed with the interview and consent for phone recording.

C. Safety tips

Walking along the streets of Metro Manila is truly an incredible experience. But it also comes with risks that will lead to potentially dangerous situations if you are not careful. Follow these tips to avoid common problems in the Metro:

1. Prepare extra clothes and a bottle of water.
2. Always walk together in pairs or in groups.
3. Always be on your guard when walking the streets.
4. Study the map provided to you and be aware of where you are.
5. Be wary of overly friendly strangers. It is okay to say "No, I'm not interested." to people. They will not hold it against you.
6. Dress simply and wear comfortable clothes. Do not wear expensive jewelry or clothing.
7. Wear your body purse across your shoulder having the purse right in front of you. You may also place your wallets in front pockets.
8. Do not accept any food or drinks offered to you. Instead, buy sealed bottled water, bottled soft drinks with sealed caps or in aluminum cans.
9. Take as less money as possible and do not flash your cash. Leave non-essentials: passports, IDs and credit cards.
10. Blend in and act like a local.

Interview questions

A. The interview rubric

Important note: Questions here are meant as guides and are used to jump-start the conversations. Try to elicit stories from the interviewees and deep-dive on their knowledge as well as their emotions.

1. In engaging these audiences, the research should seek to surface insights into the perceptions, behaviours, and beliefs that these individuals hold concerning waste. This is to put towards how the study may naturally seed questions/exploration of circular economy with individuals. For individuals who are unfamiliar with circular economy, the interviewer can position the dialogue in a more accessible way and provide easily digestible concepts.
2. Place emphasis on understanding:

   The emphasis of the interview is the 'why' drivers of behaviour: Why do they think about/not think about it, why do they perceive things the way they do, etc. Some people may naturally go there, others will have to be invited to go deeper.

   i. How individuals think about waste and the circular economy:

   - Is it something that they think about? If yes, how do they think about it? If no, why is it not something that crosses their mind? Are they conscious of their consumption, disposal, reuse, recycling and other practices?
   - If waste is not a predominant issue, a sense of what is important to these individuals that is ultimately connected to waste practices:
     - » Money/economic considerations
     - » Environmental concerns
     - » Water quality issues
     - » Air quality issues
     - » Others
   - What are their mental models around waste? Do they hold predominant world views?

ii. Barriers and challenges as they relate to waste generation and disposal:

- Events:
  - » What happened?
- Trends:
  - » What trends are noticeable over time?
- Underlying structures:
  - » What has influenced these patterns or trends?
- Mental Models:
  - » What are the assumptions of people about circular economy?

iii. Positive aspects of current practice:

- Do these individuals see positive things around waste consumption and disposal currently? If so, what?
- Are they economically driven to do what they do? Does this drive value judgments they have as regards eco-consciousness?
- Is their environment and/or upbringing a factor that left a lasting impression on them?

iv. Habits (both positive and negative) around current practice:

- Habits of interviewees in terms of consumption, generation, disposal, reuse/recycle (depending on the aspect of waste that most suits the interviewee)

v. Future-focused investigation around needs:

- What opportunities are there around the circular economy in terms of generation of new business models, jobs and livelihoods?
- What incentives/disincentives would allow these individuals to shift how they approach waste consumption, generation and disposal?

B. Sectoral interview guide questions:

For all these lenses, the interviewer should have targeted questions about circular economy: What do they think of the concept and its specific elements? Do they see these present now, and what would it take to create the conditions for them to be possible?

1. Manufacturers/producers
   - What is their understanding how they themselves and their company think about the waste they produce (are they conscious of this) but also tangible things they have in place to innovate or at least manage waste streams?
   - Are they aware of circular economy? (Ask them to explain how they understand the concept.) If they are aware, have they experimented or implemented projects on circularity?
   - Concretely, what serves as enablers and barriers for them? What can unlock this potential?

2. Waste generators (consumers and business establishments)
   - How do they see or perceive waste? Are these just plain trash or do these provide value? Are they apathetic? Why?
   - How do their mental model lead to action or lack of action for generators?
   - Are they aware about circular economy? Explain circularity in digestible and understandable way, especially those who are not aware, and ask them what they think about this? Do they want to see change in the system? What can motivate them to do so?
   - What concrete things are they doing that contribute to the challenge or are seeking to fix it in some way?

3. Waste collectors and processors
   - This is a good lens for system observations and breakdowns.
   - How do they see or perceive waste? Is this just about livelihood or do they see this as a way to help the environment? Do they care or just apathetic?
   - In their line of work, what do they see others doing, what practices are predominant? How do these observations affect their actions, or do they?
   - In terms of managing waste—what is working well in terms of handling, sorting, disposal/recycling? Is it a fluid system or is it clumsy and feature breakdowns? What could be done better?
4. Policymakers and supporters
   - Some things from this lens could be how policymakers see the root causes of the problem and what is the role of government in addressing this? What informs this opinion? Also, the promise and limitations of policy in addressing current waste challenges and system transformation. Finally, do they see promising practices emerging in how governments are responding to this issue? What is being tried now and the opportunity/challenges they see?

Data collection and initial processing

1. Data collection
   - Raw Data is best collected using an audio recorder or through the voice recorder function on your mobile phone.
   - Aside from the audio recorder, the interviewer should also take notes to capture key messages or highlights in the interview.
   - The interviewer may use either a notebook or the provided empathy map (printed in A3) for note-taking.
2. Initial processing of the data
   - Archiving: Raw data collected are recorded in a collaborative spreadsheet.
   - Processing: A form is also provided to structure the raw data for analysis. (Use the iceberg model as a framework of the form.)
   - Coding: Code the processed data in the spreadsheet provided; the spreadsheet will also contain the persona maps as individual tabbed worksheets.
   - Abstraction: Transforming into user stories via Miro Board

Appendix D

Sample user personas

Below are the examples of the user personas that were developed to support participant engagement through the systemic design process led by UNDP Philippines to support their circular economy portfolio development.[27] Persona development is a technique to bring ethnographic research alive by creating fictitious archetypes that represent real-world sentiments and lived experiences of people gathered through a rapid ethnographic process. These personas are used in a workshop format to prompt participants to see the problem space through another perspective. If done well, they can be a useful tool for bridging empathetic divides that exist between different stakeholders in the problem space.

The user personas

The waste manager

Demographics

Age	40-50 years old
Education	High School Graduate
Family	Married with Kids
Location	San Miguel, Pasig City
Job	Waste Manager

Techographics

Internet	
Social Media	
Messaging	
Games	
Online Shopping	

Media

Internet · TV · radio · neighbourhood news · local government news

The waste manager

The waste manager is a middle-aged family man who works for the solid waste management office of the Pasig City Environment and Natural Resources Office (CENRO). He is married, has children, and is proud that despite his work in the waste sector, he was able to send his kids to school and provide for his family. His main motivation to keep on doing what he does is his family—this is what drives him despite the many challenges he encounters in his work. As a waste manager, his goal is to ensure the city's cleanliness because this is also the city where his family resides. His biggest frustration, however, is that people are not sorting their waste properly and are not disciplined enough to enable waste sorting.

The waste manager understands that his work involves a lot of risks, but somehow, he has developed resilience despite the challenges he encounters daily. He recounted an experience where trash bags were

27 UNDP Philippines, 'Circular Economy in the City: A Rapid Ethnographic Research on Circular Economy in a Philippine Urban Setting', 28 February 2022.

thrown in their direction when the residents missed the scheduled waste collection. He hopes people would not leave their trash everywhere for easier collection and would respect designated points and pick up schedules. Coordination between them and local community leaders play a crucial role in ensuring proper waste collection. He observed that the pandemic has changed the mindset of people—to value what we have and buy only what we really need; but he recognizes that the experience can be used as an excuse to consume more, as a diversion from stress. In addition, the waste manager is worried about his health as a waste manager because of the facemasks and syringes mixed with normal household waste.

He perceives waste as something that has value; especially when this is segregated. According to him, this can easily be turned into money by selling it to junk shops who consolidate these to be sold to a wholesale buyer or consolidator. He mentioned that in the past, it was from the reselling of scrap or recyclable materials that he was able to earn additional income to augment his family's daily expenses. But since this has been outlawed by the city, he now only relies on his monthly income as a waste manager.

The waste manager understands how interconnected the cities insofar as waste is concerned. To prove this point, he recounted that it is particularly difficult to collect trash in inter-city borders because residents from the other side would usually take their trash to the Pasig side as their waste collection schedule is erratic.

The curious civil servant

Demographics

Age	30 years old
Education	College Graduate
Family	Single
Location	San Antonio, Pasig City
Job	City Hall Employee

Techographics

Internet	
Social Media	
Messaging	
Games	
Online Shopping	

Media

Internet

local government news

The curious civil servant

The curious civil servant is an employee of Pasig City Hall. His stint at City Hall started with the fresh term of the mayor, believing in his call to reform Pasig City. The curious civil servant is a single, 30-year-old college graduate and is passionate about public service. He is curious, open, innovative and readily explores novel creative ideas.

While he is aware of waste management initiatives, the curious civil servant admits that he is not yet familiar with the concept of circular economy. However, he is curious and interested to learn more. His particular interest in circular economy is that this promotes a cleaner city while providing new job opportunities. The curious civil servant is pragmatic and acknowledges that there will always be challenges when you implement projects like waste segregation, proper waste collection, urban gardening and the like. He also supports the recycling of plastics and encourages barangays (villages) and Homeowners' Associations (HOAs) to participate in local recycling competitions and the plastic incentive programme.

The curious civil servant observed during the pandemic that there is an increase in the use of single-use plastics primarily due to the use of PPE equipment and the rise of grocery and food delivery services. He laments the fact that citizens need to be more disciplined and should have proper education and awareness of the city programmes for these to be successfully implemented. Despite this, he is a firm believer that when the community comes together, a lot can be achieved. He observes that the close-knit HOAs can encourage the neighbourhood to be self-disciplined and participate in clean-up, segregation and urban gardening. He also believes that to turn good practices into habits, there should be a sustainable incentive programme, especially targeting the informal sector.

Already, the plastic collection and exchange programme, initiated by some fast-moving consumer goods companies, has encouraged people to segregate. He further explained that in gated communities, residents are more disciplined and therefore only need proper education and awareness to ensure that they follow the policies.

He believes in inclusive economic growth, discipline in the community and sustainable green initiatives in Pasig City. His main goal as a public servant is to have a livable, clean and progressive Pasig City where no one is left behind. He believes that this can be done by collaborating closely with the local community.

The social innovator

Demographics

Age	50+ years old
Education	Master's Degree
Family	Married with Kids
Location	Bagong Ilog, Pasig City
Job	Manager/Director

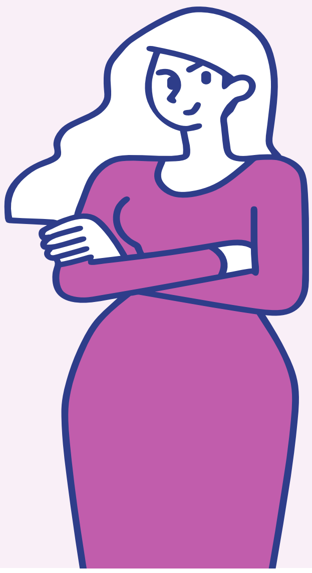
Techographics

Internet	🗑🗑🗑🗑🗑
Social Media	🗑🗑🗑🗑🗑
Messaging	🗑🗑🗑🗑🗑
Games	🗑🗑🗑
Online Shopping	🗑🗑🗑🗑🗑

Media

Internet

local government news



The social innovator

The social innovator is a start-up/enterprise/community enabler who organizes and invests in social impact projects. The social innovator is married with children, well-educated from the top universities in the country, and holds a top position in her social innovation institution. It is her personal as well as her organization's mission to create value for marginalized communities through innovative solutions, social innovation and social enterprise pursuits.

The social innovator observes that there are two types of communities in Pasig: the gated communities that includes both upper and middle class and the informal communities that include HOAs. They have different characteristics and should have different approaches. She feels that the government should provide a strong support system (i.e. ethical, economic and environmental) through proper policy implementation. In working to promote circular economy and other social innovation pursuits, she realized that there is a need to have an ecosystem approach and to focus on a combination of technology, business, and policy. As waste is a community issue, the social innovator sees culture as a way to encourage people to make solutions matter for them.

The social innovator observes that some national policies implemented at the local level are stale. In addition, mechanisms like segregation-at-source and material recovery facilities are not being widely implemented and, in some places, not present at all. Recycling and recovery of plastic waste is also a gap she observed. While these are mandated, these are highly fragmented because the capacity, ability and willingness at the local level are at different levels. There also needs to have a balance between wide policy awareness and education with incentive programme applied at different levels according to the characteristics of the community.

The social innovator observed the need for the national government to engage the local governments and the academe/research and development centres, especially encouraging local government units (LGUs) that have the appetite for risk-taking, experimentation and collaboration with other LGUs. Furthermore, she explains that scale should be at the barangay (village) level; but needs LGU to provide standardized policies, monitoring and evaluation. Finally, the social innovator's goal is to encourage experimentation on the business model and technology for both government (policy) and start-ups (entrepreneurship).

The alarmed youth influencer

Demographics

Age	18 years old
Education	Senior High School Graduate
Family	Single
Location	San Antonio, Pasig City
Job	Student

Techographics

Internet
Social Media
Messaging
Games
Online Shopping

Media

Internet TV neighbourhood news local government news

The alarmed youth influencer

The alarmed youth influencer is an environmentally conscious senior high school student who is part of her private school's sustainability club. Her club launched a bazaar before the pandemic that featured sustainable products sourced directly from farming communities. The eighteen-year-old student lives with her parents and is particularly adept in digital apps and hardware. She is a heavy social media user and regularly chats with her friends online.

The alarmed youth influencer is observant and not afraid to ask about issues that surface on social media. She is very conscious of her carbon footprint and actively tries to practice zero waste in her daily life. While her village does not practice waste segregation, she is mindful that she recycles all plastic packaging she receives through food and grocery deliveries.

She has very strong opinions on the government and is well educated on the impact of climate change. She is aware or conscious of social issues, especially about the environment, saying that climate change is going to be their problem in the future. The alarmed youth influencer is also not afraid to ask 'what' but also 'why'. She is articulate and not hesitant to express her views on social media. Because of her access to the Internet and being adept at it, she is more knowledgeable and opinionated on current issues and can influence her peers.

The alarmed youth influencer understands the impact of plastic on the environment and strongly believes that good governance and policies can help mitigate the effects of marine litter/plastic waste. She believes that although she should be conscious of what she consumes, she asserts that responsibility should be on the government and producers to find sustainable alternatives to plastic waste. She believes that companies like Coca-Cola and McDonalds should be the ones to step up their efforts in using alternative packaging given how much they are part of people's everyday lives. She also recognizes the 'cool efforts' by brands such as Adidas that incorporate sustainability in their design by producing shoes made of ocean plastics.

She laments the fact that her generation has seen the effect of mass consumption and are the ones who will bear the brunt of their effects: "If it's bad now, how much more for the younger generations to come?"

Despite all these worries, the alarmed youth influencer does not believe her generation would have reversed the effects of climate change by the time she turns 30. However, she is hopeful that strict and concrete laws will be enforced by then where 'no one is an exception' and proper mechanisms and treatment facilities are in place to curb these issues.

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