PATH

FINDER

Social
Innovation

Digital

Urban
Development

Acknowledgements

1 Introduction and core concepts

1.1 About the pathfinder

1.1.1 What is it about?

Welcome to our pathfinder that helps you to navigate through the world of social innovation for urban development

How can we create more economic, social, and environment value in our cities? Over the last decade, many cities worldwide have tackled this question by applying social innovation approaches based on digital technologies. Whether the issue is making digitalisation inclusive, providing migrants with opportunities to take part in society, or improving urban air quality by co-creating policies, social innovation rooted in digital technologies is about generating new responses to such societal needs.

This pathfinder addresses how social innovations develop, grow, and spread. We aim to support social innovators worldwide in turning promising ideas into useful ones. In contrast to other manuals that focus on the question of how to generate or adapt ideas, we go beyond the problem definition and ideation phases. We want to avoid having good ideas fail and we want to show how choices under your control can have a dramatic impact on success.

Our guide examines 12 best practices for successfully implementing, scaling and spreading social innovations. These are based on existing resources, and they build upon input from 14 experts whom we are grateful to have interviewed and/or collaborated with. The cases show real-life processes, impacts and challenges, and together they form a rich and varied picture of social innovation in practice. Although these cases' patterns of growth vary in detail, at the end of this guide we highlight their overarching and outstanding qualities as key learnings for policymakers and funders of social innovation.

We hope that this project advances the field of social innovation. We welcome your input and comments and hope you enjoy the read!

1.1.2   For whom?

This pathfinder is intended to encourage urban innovators in local or national governments to build their capacity to deliver ground-breaking social innovations. We have used two personas named David and Daniela to represent two typical users who use or support social innovation formats in their daily work:
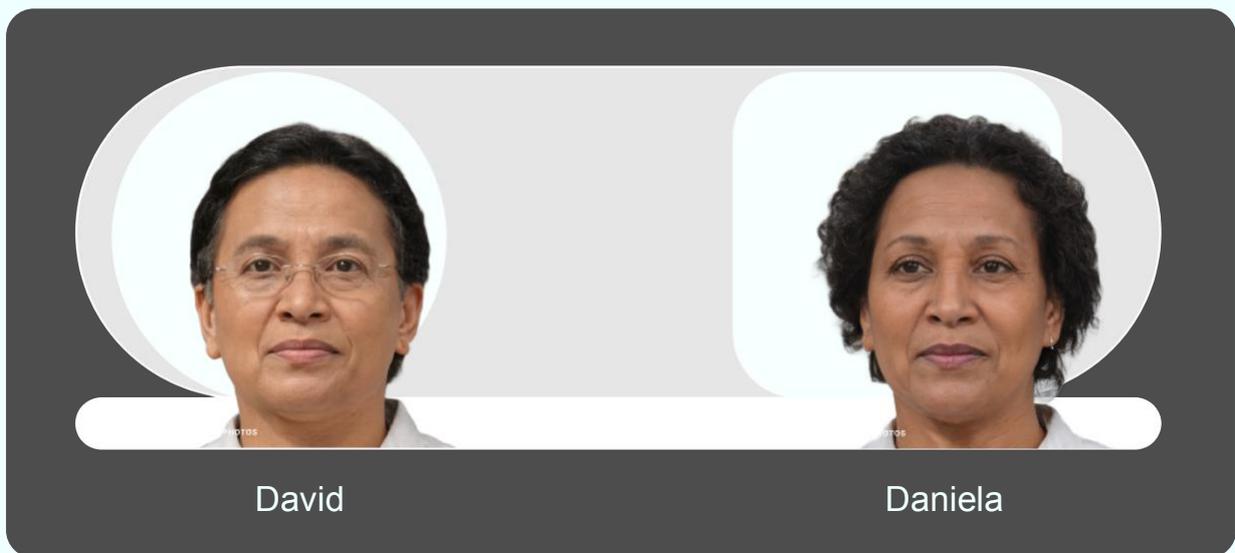
Fig. 1: Illustrative profile pictures for this guide's user personas: meet David and Daniela, Picture Sources

Who is David?
Smart city project manager in a city administration

His experience: David has more than 10 years of experience in strategic urban planning. He has been the smart city project manager for one year and needs to deliver an ever-increasing portfolio of complex, long-term projects. He needs to ensure synergy across city responsibilities and he sees great potential for social innovation to break down traditional administrative silos. In his own project, he has already started to apply social innovation tools directly. He particularly enjoys facilitating workshops in direct contact with target audiences, either online or in person.

His jobs to be done:
–   David has learned how to apply social innovation tools in various situations. Sometimes he lacks good examples to convince stakeholders in his environment.
–   David struggles with growing the developed ideas beyond the workshop context. He is open to experimenting with new approaches.
–   David organises co-creation workshops with business executives, technology experts, the public, etc. It is his goal to increase all participants' human-centred mind-set.
–   David would like to become a social innovation expert. He is looking for a network with

like-minded people.

Who is Daniela?
Head of the local digital collaboration unit at the Federal Ministry of Housing and Urban Planning

Her experience: Initially, Daniela was sceptical about the added value of social innovation. To her, it seemed like similar approaches had been around for years. Still, no matter how you label them, she is convinced that new, citizen-centred approaches are needed to find sustainable solutions to complex urban challenges. She is particularly interested in new technologies and the potential of digital participation to better integrate citizens into political debates. In her daily work, Daniela sets up funding programmes and collaboration networks. She is responsible for designing frameworks with methods and tools to be applied by third parties who are in charge of executing tasks.

Her jobs to be done:
–   Daniela understands social innovation in theory and can explain it well to her colleagues. She lacks current examples and success stories to inspire her colleagues to try new approaches.
–   Daniela does not need to focus on social innovation tools; rather, she needs to understand the appropriate conditions for strategically supporting social innovation in the urban context.
–   Daniela also needs to learn how to embed new approaches in core government operation, structures, and roles.

You too can choose to enter the pathfinder either as a more hands-on practitioner like David or as a strategic organiser like Daniela. Often these categories are overlapping. Consider your role in a specific project or the kind of material you are looking for.

1.2   Core concepts

Our core concept definitions are based on our research, interpretation and understanding. In offering these definitions, we hope to contribute to the ongoing discussion on social innovation for urban development that is fostered by digital solutions.

Social: While business innovation is generally spread by organisations that are primarily profit-driven, social innovation is explicitly designed to meet a social need that must be addressed to prevent harm. We consider social needs to be a more useful lens through which to explore social innovation than categories such as problems, poverty, rights, inequality or wants. The concept of social needs is non-stigmatising, even though meeting needs is central to human well-being.

Innovative: Although social innovations do not need to be completely unique, they should be new in some way or should be applied in a new way to have beneficial effects. In many cases, this means increasing impact along five dimensions: individual desirability (solution helps individuals make progress in their lives), societal desirability (solution contributes to a fairer system compared to the status quo), feasibility (solution is technologically doable and robust), viability (solution has found a fair way of giving and receiving), and sustainability (solution offers the city progress without denying such progress to future generations). On top of that, innovation does not stop with the formulation of a new idea: it also means implementing and applying the idea in a sustainable solution. Ideas and solutions may vary and might include products, services, processes, or organisational or governance models.

Digital: What we mean by "digital" is that the capacity of digital technologies to generate solutions (transparency, efficiency, real time, etc.) is used for the benefit of civil society (i.e. by developing a digital solution or by applying digital tools during the project process). Such approaches also promote alternative models to the centralisation of information, data, and resources in the hands of a few big tech industry players. Technology can range broadly from simple messenger-enabled group communication to advanced blockchain-enabled supply chains. New digital options in social innovation have developed thanks to open source and open data movements, low-cost open hardware, crowdsourcing and the Internet of Things. By engaging citizens in civic action, the digital components provide new ways of building social movements, delivering public services, and creating social impact.

Urban: In this report, we show how social innovation fits the urban context because its participatory nature empowers people and their communities to serve their own interests. As cities move away from classic top-down planning processes, social innovation represents an alternative to economic and technology-oriented approaches that maximise the smartness of technologies rather than the smartness of their implementation in everyday life. This is because social innovation emphasises human agency and the empowerment of local communities and citizens to become actively involved in transforming their urban environments. What is particularly challenging in the urban context is to cater to marginalised citizens, harnessing their collective knowledge to develop citizen-centred solutions, while also incorporating political decisions, generating top-down buy-in for small civil initiatives, and pursuing the overall vision of urban development plans. The methods and tools used in social innovation approaches can enable urban governments to effectively manage this balancing act.

Resources

The Young Foundation (2012): Social Innovation Overview: A deliverable of the project "The theoretical, empirical and policy foundations for building social innovation in Europe" (TEPSIE), European Commission – 7th Framework Programme, Brussels: European Commission, available at: https://youngfoundation.org/wp-

content/uploads/2012/12/TEPSIE.D1.1.Report.DefiningSocialInnovation.Part-1-defining-social-innovation.pdf

Science Communication Unit, University of the West of England, Bristol (2014): Science for Environment Policy In-Depth Report: Social Innovation and the Environment. Report produced for the European Commission DG Environment, February 2014. Available at: http://ec.europa.eu/science-environment-policy

DSI4EU project (2017): DIGITAL SOCIAL INNOVATION toolkit, available at: https://digitalsocial.eu/uploads/digital-social-toolkit.pdf

European Commission, Social Innovation Toolkit, European Social Innovation Competition (2018), [CC BY 4.0], http://creativecommons.org/licenses/by/4.0

Angelidou, M. & Psaltoglou, A. (2017): An empirical investigation of social innovation initiatives for sustainable urban development. Sustainable Cities and Society. 33. 10.1016/j.scs.2017.05.016.

1.3   Stages of social innovation

While acknowledging that innovation is rarely predictable or simple, the pathfinder guides you through the implementation-oriented later stages of innovation, from (a) prototyping, (b) piloting, and (c) sustaining to (d) scaling and transfer. Although every innovation is a complex story with its own loops and jumps, resembling more a fluid and emerging process than a straight line, we use the typology of stages that most innovations pass through to understand how to bring ideas to implementation. We focus on the different approaches and mind-sets needed at each stage.

1.3.1   Prototyping

Prototyping is an act of making an idea "real" and testing whether its assumptions survive the messiness of real-life needs

This stage is about taking your concept out for a spin. Ideas on a sticky note can be interesting but, whether it is a sketch on a napkin, a wireframe, or a functional app with live data, bringing the idea to life and testing it is invaluable. When you are at the early stages of a concept, you are likely to develop prototypes behind closed doors to align them with the project team. As you move through the process, you develop the prototype more deeply to test it with the broader public. This creates an opportunity to learn about what works and what does not, so that you can adjust and improve the solution before moving on to the next stage. A variety of elements can be prototyped, from governmental services to potential policies.

Best for

- Testing your hypothesis about the solution and its underlying problems and opportunities
- Learning whether your concept fulfils a need
- Evolving a concept from low- to high-resolution
- Engaging with stakeholders to create interest, identify blind spots, diversify ownership, etc.

When to move on: By the time you have completed the prototyping process, you will have validated the desirability of your solution, and you will be at a much more robust stage for planning its implementation.

Find best practices for this stage of innovation: #Sao Paulo #Krakow #Luanda/Maputo

1.3.2   Piloting

Piloting is about making the case before implementing a solution

Once you believe that you know the answer, you need to prove that it can work and is better than what is already there. A pilot can be considered the 'phase 1' rollout activity in a neighbourhood. This phase is no longer pure experimentation. The solution goes 'live' and is put out into the local community with real users. This process is particularly important in the social economy because through live testing, iteration, and trial and error, coalitions gather strength and conflicts of interest are resolved.

Best for

- Seeding the partially implemented concept to a limited population in a pilot neighbourhood
- Observing behaviours around the actual solution
- Building local networks and resolving conflicts

When to move on: By the end of piloting, you will have locally embedded your solution and ironed out the creases. You will be confident about its success (or failure), and the measures of its success will be clear.

Find best practices for this stage of innovation: #Helsinki

1.3.3   Sustaining

Sustaining is when your solution becomes everyday practice

This stage is about rolling out your solution. Preparing for such a rollout can be a challenging task. It is arguably the most critical phase of any project. It depends on a sense of certainty about the solution and how big the change is. The size and pace of change may be directly related to the level of risk. You might consider a staggered rollout for more radical changes. Sustaining includes fine-tuning solutions (and often streamlining them), as well as securing income streams that provide the long-term financial sustainability to carry the innovation forward. This means identifying budgets, teams, and other resources such as legislation. You may also need some help to get your concept out in the world by building strong partnerships.

Best for

- Identifying critical insights that make it possible to iterate and streamline the solution
- Identifying income streams and developing a business plan
- Demonstrating impact through a measurement and evaluation framework
- Finding funding sources and enabling new alliances and partnerships
- Preparing to scale the solution to the entire city

When to move on: By the end of the sustaining stage, you will be able to clearly articulate your concept and demonstrate its viability and value. You will have the right people and skills in place that help you to implement it smoothly.

Find best practices for this stage of innovation: #Mannheim #Seoul

1.3.4   Scaling & transfer

Growing and spreading an innovation to increase its impact

At this stage, you widen your innovation's reach to a significant proportion of people in the target group. There are many ways of scaling up – from replicating the project across geographical areas to collaborating with different organisations towards a shared vision or even expanding the scope of the problem your innovation addresses. Yet scaling is not appropriate in every case. The world is full of pilots that work well in a few places but are simply not scalable. Therefore, you need to make sure your social innovation is relevant beyond the initial context, is relatively simple, is less costly than alternatives, and does not rely solely on

the talents of specific individuals. The diffusion of an innovation requires that core ideas be decoupled from their initial context by making them available via open source and by collaborating with strategic partners to enable an organic and adaptive kind of growth. However, adapting new practices to a different context involves an imitation process, which bears the danger of oversimplification or detracting from the initial idea. Thus, diffusion does not always lead to increased impact.

Best for

- Double-checking whether your solution is scalable
- Increasing your reach to a greater portion of stakeholders
- Transferring your learnings and building your network beyond the city's boundaries

When to move on: By the end of this stage, you will have decided whether you are ready to scale, and if so, what could be the best strategy for you to do so.

Find best practices for this stage of innovation: #Bristol #Singapore #SolutionsForCities

Resources

The Young Foundation (2012) Social Innovation Overview: A deliverable of the project: "The theoretical, empirical and policy foundations for building social innovation in Europe" (TEPSIE), European Commission – 7th Framework Programme, Brussels: European Commission, available at: https://youngfoundation.org/wp-content/uploads/2012/12/TEPSIE.D1.1.Report.DefiningSocialInnovation.Part-1-defining-social-innovation.pdf

Nesta (2014): DIY Toolkit: Development Impact & You, available at: https://diytoolkit.org/media/DIY-Toolkit-Full-Download-A4-Size.pdf

Nesta & IDEO (2017): Designing for Public Services, available at: https://states-of-change.org/assets/downloads/nesta_ideo_guide_jan2017.pdf

Mulgan, G. (2017): In and out of sync, available at: https://www.nesta.org.uk/report/in-and-out-of-sync/

European Commission, Social Innovation Toolkit, European Social Innovation Competition (2018), [CC BY 4.0], http://creativecommons.org/licenses/by/4.0

2 Best practices

In each of the following 12 best practice examples, we highlight one innovation stage because the approaches used at that stage are particularly inspiring and valuable to share. We return to all of them in the later chapter on key learnings.

This wavy vertical line is used to designated a highlighted phase of a best practice
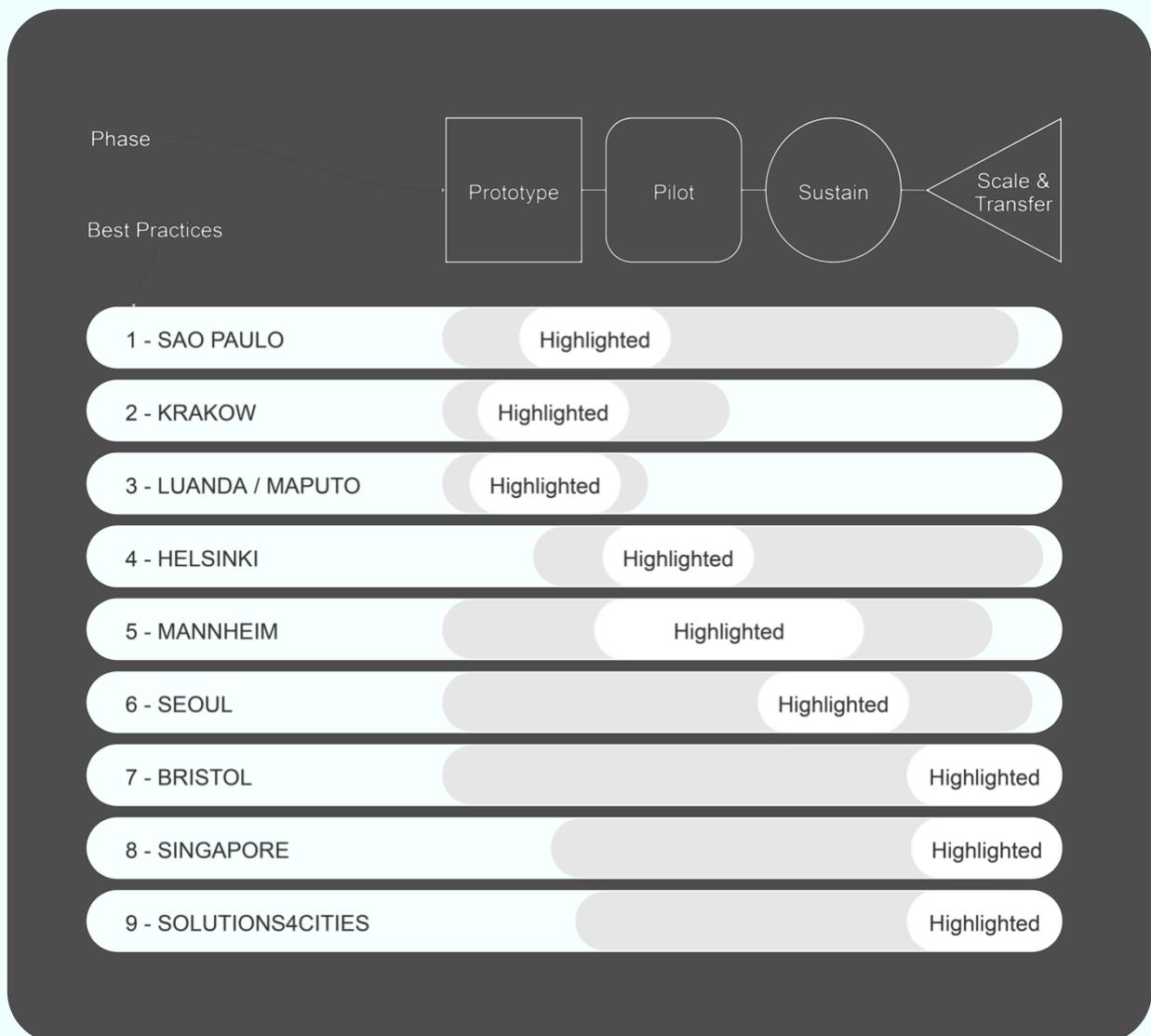
Fig. 2: Mapping and overview of following best practices along the stages of social innovation

2.1   Prototyping

2.1.1   Best practice ①
MobiLab São Paulo, Brazil

São Paulo's laboratory for urban mobility solutions to move beyond traditional government approaches to innovation

The São Paulo city government created MobiLab as part of the city's efforts to react to major social turmoil that had people on the streets questioning the quality and management of urban transport and traffic. MobiLab introduced innovative elements (collaboration across sectors, open data, innovation formats such as hackathons, an entrepreneurial mind-set) to the public sector. It fostered the use of public transport and traffic data produced by the local government to create innovative services tackling the challenges in the status quo. In combination with a redesigned procurement process, MobiLab acted as an interface and intermediator between start-ups and city government, piloting new cost-effective ways of buying information technology.
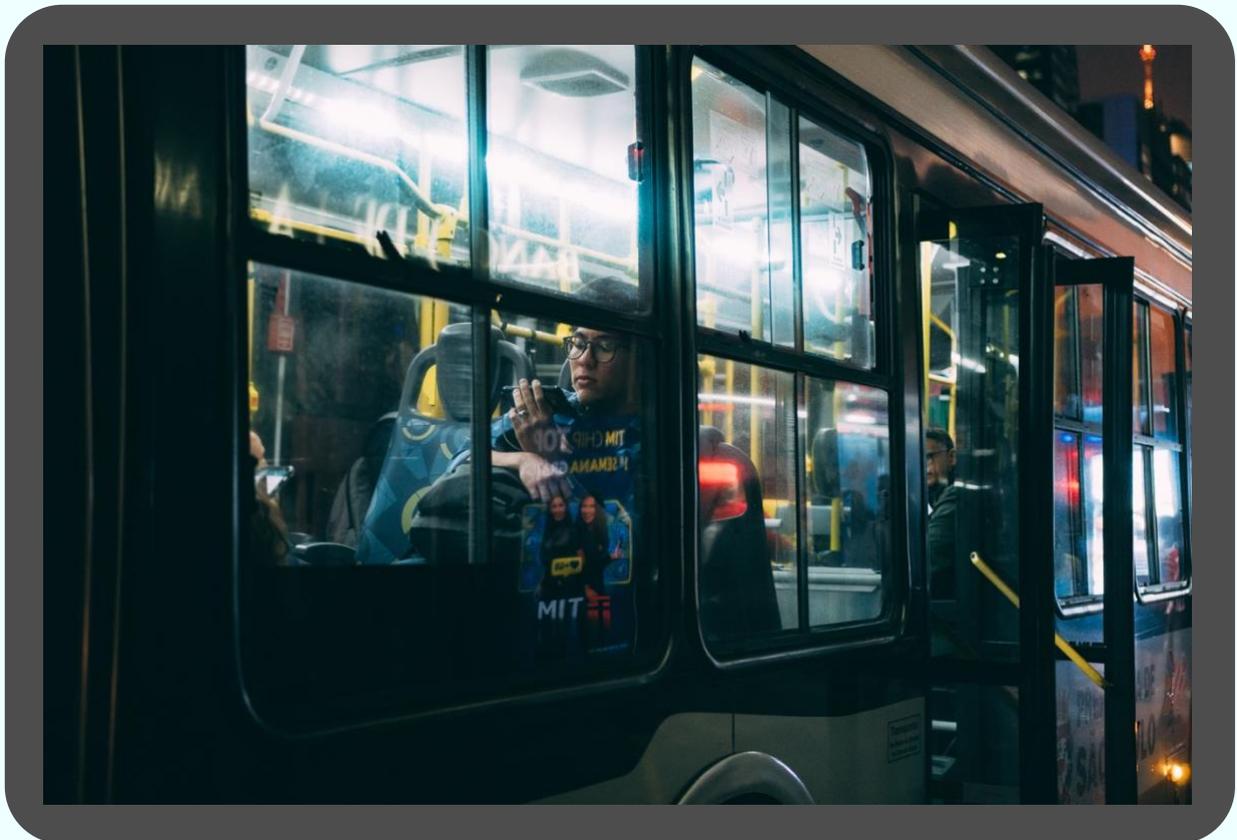
Fig. 3: Photo by Kaique Rocha from Pexels

Stakeholders and modes of participation

Steer and decide: The MobiLab project managers acted as an interface between the city's mandate givers and the teams working on innovative solutions. In regularly held decision meetings, the state of the project, its successes and its challenges were presented and the path for the next months was decided. Although civic actors, experts and other involved actors were not present in these meetings, their voices and collective learnings from workshops, hackathons and piloted services were discussed.

Curate, foster and legitimate: The project scope and next steps were decided on the basis of these meetings. Where challenges occurred, MobiLab facilitated the process to provide for better interaction between city government, start-ups, and the legal framework, with results that included internal projects to redesign legislation – for example, for procurement procedures and for publishing mobility data.

Make and improve: The MobiLab project managers acted as project co-leads for various collaborations with start-ups and university projects. In this role, they oversaw the project scope and pathways, while giving the start-ups and university collaborators the freedom to do the project work of finding, improving, and implementing mobility solutions in an agile way

Participate and contribute: In various projects, the MobiLab team organised open formats to invite entrepreneurs, change makers and other civic actors to help find new and innovative solutions. This took the form of idea competitions, hackathons, workshops, and public events.

Process

Highlighted phase

Prototype: MobiLab was one of the city's answers to strong public dissatisfaction with its mobility infrastructure, services, and management. The initiators' approach to the challenge of getting political buy-in to explore innovations in a crisis in which previous approaches to finding solutions had not worked was to refer to innovation methods and best practices from the start-up scene. This resulted in a first project mandate for a hackathon to explore the solution-finding capacities of civic actors and entrepreneurs. In preparing for this hackathon, MobiLab faced the challenge of negotiating an ethical way to legally publish mobility data in the public interest. Partly as a result of the MobiLab team's efforts, the legal framework was redefined to allow non-personalised transport data to be published as open data. Prior to the event, MobiLab tested the hackathon's problem- and solution-finding potential with selected topics, datasets,

and entrepreneurs to create a sense that this could work within the city government. At the end of the hackathons, many potential use cases were turned into prototypes that enabled the jury – consisting of members of the MobiLab team, mobility experts and politicians – to experience the solution potential of new technologies first-hand. This generated excitement and further buy-in from both elected officials and start-ups. Along with hackathons, MobiLab also used other formats to explore solutions to current challenges. These formats differed in their setting and timeframe but still used the formula from the first hackathon: providing the infrastructure for external solution-finding to prototype solutions. The formats included idea competitions and public calls and competitions.

Pilot: Some of the winners among these various formats to prototype solutions were prioritised to be piloted to validate their desirability in an everyday setting. For this process, MobiLab collaborated with the start-ups, intermediating between the city government's public goals and the continuous learning process of start-ups refining their ideas. For the pilots that proved to provide progress for the mobility system, the following challenge for the MobiLab team emerged: *how to set up, manage and co-create a partnership with external entities to sustain and roll out validated services in the public interest beyond the scope of a one-time project.*

Sustain: Establishing a legal framework for this was the first challenge. An internal project was set up to redesign the procurement infrastructure to enable partners other than the traditionally hired big information and communications technology companies to implement solutions. An iterated framework allowed for multiple collaborations with start-ups as well as university teams. MobiLab also realised that moving away from big information and communications technology companies required a boost in tech skills as well as a different mind-set on risk-taking and ownership. To achieve this, the team developed organisational capacity-building formats.

Scale: Scaling MobiLab within the organisation initially produced successful results that created political buy-in to continue the journey. However, along the way MobiLab become a change agent that questioned many assumptions and roles in the status quo. With growing opposition to the team and with increasingly interwoven projects, which were thus dependent on collaboration with other organisational units, progress became much harder to produce.

Impacts

A shift towards a more hybrid governance system: São Paulo's government shifted its role from only providing solutions and services to managing, procuring, and curating actors in the mobility system to find, test, run, and maintain smart solutions for mobility challenges. This also required an iteration of legal frameworks and legislation to allow for co-creation among start-ups, civic actors, and the municipality.

Producing innovative results: MobiLab used non-personalised mobility data to provide tech-enabled services that offered more transparency and increased the interoperability of existing mobility solutions. This ultimately helped to better match individual mobility needs and public services. MobiLab also used technology to increase the efficiency and thus the capacity of internal processes such as maintenance. Internal processes and legal frameworks were designed to allow for new ways of procuring technology providers and using mobility data.

Novel solution-finding approaches: Inspired by solution-finding approaches from start-ups around the world, MobiLab introduced new processes of understanding problems and finding solutions as well as implementing and improving solutions based on real-life evidence. For example, hackathons were used to crowdsource solutions with civic actors and entrepreneurs. They piloted prototypes to test and iterate problem-solution assumptions before scaling a solution to the city.

Establishing new organisational routines: The projects established routines and interactions between the government, which still needed traditional forms of maintenance, and private actors who followed a faster-paced, can-do entrepreneurial approach. Such structures included project-based co-creation partnerships with start-ups and universities as well as an iteration in the procurement procedures to allow for a broader pool of potential suppliers, including smaller companies and start-ups.

Key assets

From crisis to showcasing a new way: The MobiLab initiators used the social turmoil around the unsatisfactory public mobility services, infrastructure, and management to showcase a new way of thinking on how governments should find and provide solutions and improve existing services.

Start small, prove impact, and grow: Starting with a small team inspired by novel approaches from outside the government, MobiLab was able to introduce new ways of producing and displaying results and then increasing their impact on the public organisation along the way.

Utilising entrepreneurship for commonly shared mobility pains: MobiLab used external creativity and solution-finding capacity as well as technological knowledge from a highly motivated start-up and university scene to change the widespread mobility problems into a better system.

Learnings

Crises as catalysts: The MobiLab case shows how a crisis can bring actors together across disciplines and sectors to improve on the status quo.

Facilitate, curate, and provide infrastructure to solve public challenges: The MobiLab case shows that providing the infrastructure for external entities to create public services can be a successful strategy.

Daniela, MobiLab Project Lead
"…maybe we need something like a humble government. (…) Moving away from being experts in everything towards a humbler approach of providing an infrastructure for public services that are in line with the values and principles of the public to be created or curated with other civic actors."

Show and tell: Successful participation artifacts such as prototypes have the power to produce buy-in both from the bottom up (motivated civic actors) and, perhaps more importantly, from the top down (politicians).

Real political will is essential: Change takes time, ownership and a mandate that allows for learning along the way.

Daniela MobiLab Project Lead
"…maybe we need something like a humble government. (…) Moving away from being experts in everything towards a humbler approach of providing an infrastructure for public services that are in line with values and principles of the public to be created or curated with other civic actors."

Resources

Brasil, Presidência da República (1993) Lei nº 8.666, de 21 de junho de 1993: Regulamenta o art. 37, inciso XXI, da Constituição Federal, institui normas para licitações e contratos da Administração Pública e dá outras providências. Diário Oficial da República Federativa do Brasil, Brasília, DF, 21 jun 1993. Available at http://www.planalto.gov.br/ccivil_03/leis/L8666cons.htm

Brasil, Presidência da República (2006) Lei Complementar nº 123, de 14 de dezembro de 2006. Available at http://www.planalto.gov.br/ccivil_03/LEIS/LCP/Lcp123.htm

Erenst & Young (2014a) Relatório de Avaliação do Modelo de Gestão, Monitoramento e Fiscalização dos Serviços Contratados. Termo de Referência do Edital Concorrência Pública 007/2013 - São Paulo Transporte S. A. – SPTrans, Fase 4, Etapa 4.1, Produto 4.1.1. http://www.sptrans.com.br/verifica/ or https://drive.google.com/file/d/0B724o3NxjlCINHNpNDhjRkVPNFE/view

Ernst & Young (2014b) Relatório de Verificação do Cumprimento dos Requisitos Contratuais e Normativos Relacionados à Prestação dos Serviços. Termo de Referência do Edital Concorrência Pública 007/2013 - São Paulo Transporte S. A. – SPTrans, Fase 5 Etapa 5.1, Produto 5.1.1. http://www.sptrans.com.br/verifica/ or https://drive.google.com/file/d/0B724o3NxjlCIcjR2LU1SQ3o3YWs/view

Geertman, S. and Stillwell, J. (eds.) (2003) *Planning Support Systems in Practice.* Advances in Spatial Science. Berlin: Springer.

Ministério das Comunicações (2014) Edital nº 11/2014/SEI-MC: Regulamento de Concurso de seleção de projetos de aplicativos e jogos sérios de interesse público – INOVApps. República Federativa do Brasil. http://www2.mcti.gov.br/index.php/formularios-e-requerimentos/doc_download/1869-edital-concurso-inovapps

2.1.2 Best practice ②
Collectively improving air quality, Kraków, Poland

Supporting decision-makers with relevant tools and instruments for better co-creation of policies with a human-centred approach

The Air Quality Plan is the result of a co-creative design and policy-making process by the Marshall Office of Małopolska Region in close collaboration with Kraków Technology Park (KTP). Kraków is one of the most polluted cities in the world in terms of air quality, emitting 5.5 tonnes of CO_2 per year. The pollution mainly stems from transport, buildings, heating, electricity, and industry. Facilitating large-scale behavioural change alongside decarbonisation and futureproofing efforts is one of the defining tasks for the region for the coming years. Over the course of two years, a binding document for the region was produced that addresses the crucial challenge of improving air quality by 2023 in an integrative manner by including core stakeholders transparently and efficiently. The implementation of an early-stage prototype to monitor industrial pollution accompanied the drafting and writing process.
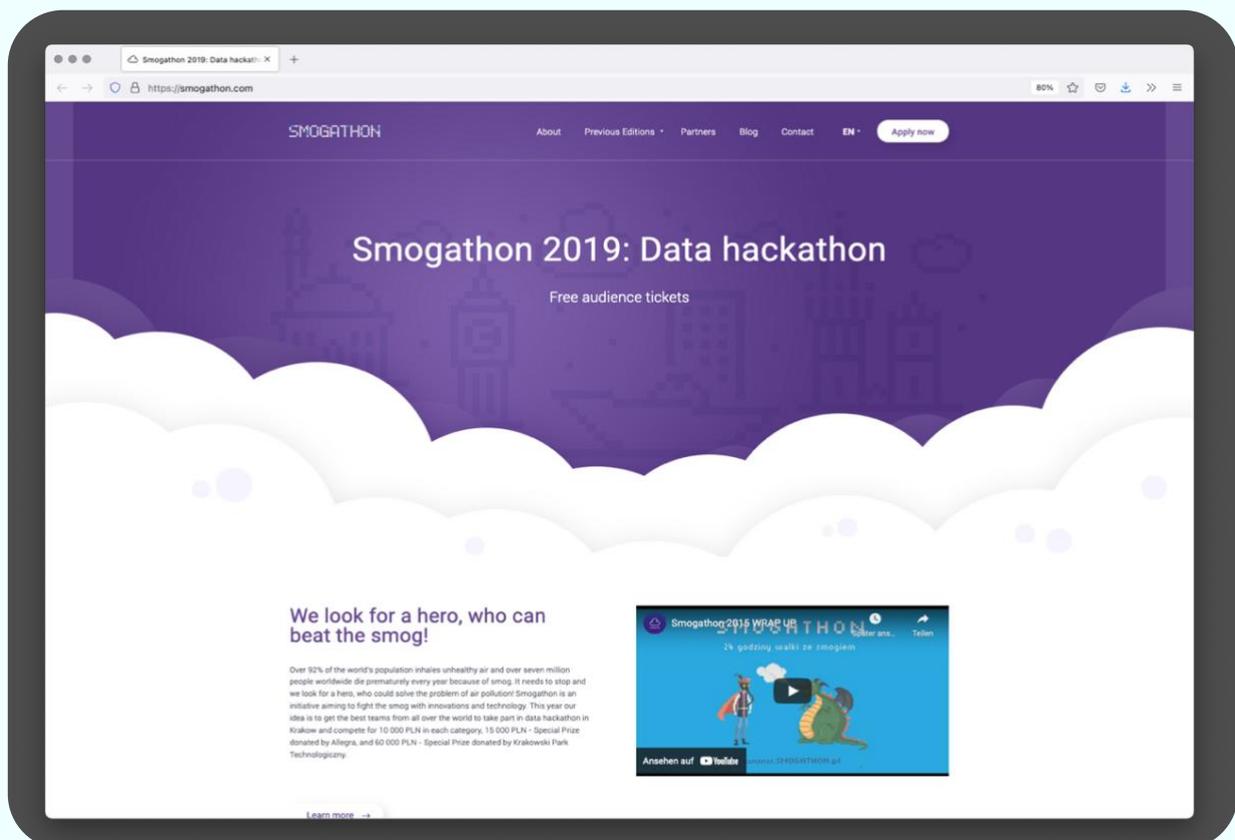

Fig. 4: Screenshot of the Smogathon project website, Source

Stakeholders and modes of participation

Curate, foster and legitimate: The Marshall Office of Małopolska Region provided general legitimacy, coordination, and financial frameworks for the region (and the KTP).

Steer and decide: The KTP Living Lab was the core project team, providing well-curated facilitation and participation processes. Kraków's government was responsible for implementing and enabling the policy-making process. It provided input and revision in the drafting process of the new Air Quality Plan (AQP).

Make and improve: Partners from the academic community were responsible for the external evaluation of crucial climate-related goals, implications, and interdependencies, as well as reflection on these. Businesses and NGOs were implementation partners and experts on business models and targeted products and services (as in the case of the air pollution monitoring platform).

Participate and contribute: Citizens were selected as representatives of local communities to take part in the workshops, share and discuss drafts of the documents, and voice citizens' concerns, hopes, and ideas.

Process

‹ Highlighted phase

Prototyping: The initial project launch for the co-creation of the Air Quality Plan (AQP) and the Smogathon took place in December 2019 and featured one award-winning idea for future piloting and implementation. This was followed by a set of co-creative workshops with various stakeholders and two core objectives: a) for all involved stakeholders to understand existing needs and expectations and b) to create – through visualisation and synthesis of shared images of the future – a joint vision of how to face future problems. A subsequent hackathon in December 2020 laid the groundwork for the initial draft of the AQP.

Piloting: Following the publication of the draft AQP, a first round of co-creative consultations took place in January 2020, translating the concepts from the draft into a first evaluation scenario. This took place in six meetings in five major cities in the region to involve as many stakeholders as possible and led to a shared review and the development of the draft into a second version of the prototype. Due to the volatile situation of the pandemic, the subsequent consultation and evaluation phase was partly shifted online to a hybrid feedback process.

Impacts

Moderation and mediation: While the KTP Living Lab played an active part in facilitating, coordinating, and moderating the co-design process to draft a shared document, its role was also a slightly distanced and neutral one. This allowed for moderation of relevant steps, decisions, and implementation processes, as well as mediation of any potential tensions, discussions, or trade-offs throughout the collaboration phases. The core job of the Living Lab thus was to support authorities and decision-makers with "relevant methodology, tools, and instruments for better co-creation of local new policies with a user-centred approach", as Agnieszka Włodarczyk-Geberik, project manager at KTP's Living Lab, puts it. The explicit neutrality within this process can generate openness, trust, and approachability in a complex collaborative effort.

Resilient collaboration: After 2019, the project felt the brunt of the COVID-19 crisis, and had to shift planned meetings and events as well as day-to-day collaboration and coordination efforts from in-person to digital and hybrid formats. Here, adaptability, flexibility, and goal orientation (rather than process orientation) proved vital: open and collective learning and feedback-collection with a broad set of stakeholders – from public authorities to private partners to end users and citizens – was a challenging and, at times, quite difficult experience. However, it was rewarding and successful nonetheless, due not least to the quick adoption of interactive tools, software and solution-oriented problem solving by those involved.

Parallel prototyping: From the early days of the project, the AQP was also developed through a prototyping and testing process that built upon the tangible idea of a monitoring platform for industrial pollution control. Conceived and awarded at the 'Smogathon' event in late 2019, and co-developed by a local start-up, the real-world application was continuously developed, which allowed for a less theoretical approach to the subject for all parties involved. The project was developed in parallel to the drafting process for the AQP policy paper. This process had three phases, from an internal review of the idea by a project team to an external review by representatives of the KTP and regional authorities to early testing and evaluation by citizens and end users. The back-and-forth of theoretical and conceptual workshops on the one hand, and practical implementation of a specific prototype on the other, provided great learning and reflection opportunities for all parties to this process.

Key assets

Skilled facilitation and methodological expertise: The deep involvement of the KTP Living Lab provided a professional, efficient, and transparent framework for the entire process. This

included moderating collaborative workshops, identifying and engaging relevant stakeholders, and carrying out essential 'translation' work among all the parties involved.

Long-term institutions, short-term activities: Now that the process has been completed, capacities, programmes, and resources are in place to ensure sustainable scale-up formats to build upon the project's findings and outcomes. This was enabled by the combination of institutionalised efforts and programmes (such as the Kraków Technology Park and public authorities) with a specific scope of action for the development of the AQP. This also includes contact points (and people) that remain available and approachable even now that the drafting process has concluded.

General public and political awareness: Awareness of the issue of air quality helped to put the topic on the agenda, generate early stage buy-in and tie it into further public efforts to address air pollution in the region – including a "portfolio of experiments" as part of Kraków's participation in the Climate-KIC Deep Demonstration Programme on Healthy, Clean Cities.

Learnings

Open feedback, early on: Embracing open and varied feedback early on proved to be a valuable resource to improve the project's resilience and robustness. In lieu of a process where the initial draft was overly complex and was then refined by citizens, the invitation for citizens to take part in the formulation and evaluation of the draft made for a transparent co-creation process between citizens and authorities. "Test before Invest" proved to be a valuable mantra, especially in public procurement and decision-making processes.

Hybrid inclusion is challenging Participation does not translate easily, and even less so when there is a broad range of stakeholders. COVID-19 hit during the project, which made many traditional forms of collaboration and participation impossible. Consultation and discussion meetings as well as collaborative prototyping sessions had to be altered, which entailed a range of complex and time-consuming challenges, not least when it came to including policymakers. While the switch from in-person to online and hybrid formats was necessary for everyone over the past years, it proved specifically challenging for open participation processes in urban settings. Fast, flexible, and sometimes unconventional approaches can provide short-term resilience here.

Resources

European Network of Living Labs (2019): Living Labs Projects 2019, available at:
https://issuu.com/enoll/docs/living_lab_projects_2019

European Network of Living Labs (2021): Living Labs Projects 2021, available at:
https://issuu.com/enoll/docs/living_lab_project_publication_2020_3f6db35797f158

International Trade Association (2018): Poland launches clean air program, available at:
https://www.trade.gov/market-intelligence/poland-launches-clean-air-program

Climate-Kic (2021): Krakow – transforming the city towards climate neutrality, available at: https://www.climate-kic.org/news/krakow-transforming-the-city-towards-climate-neutrality/

2.1.3   Best practice ③
Knowledge co-production in Luanda & Maputo

An international research and exploration project to establish more inclusive and innovative approaches to data collection for the monitoring of the SDGs in Luanda, Angola, and Maputo, Mozambique

To address the previous lack of reliable and up-to-date city-level data and the challenges of sharing and connecting existing data, this project aimed to collect relevant data on the indicators for SDG 11, which aims to build sustainable cities and communities. The project explored new ways to co-produce local knowledge and experience in a more sustainable and participatory way in Luanda, Angola, and Maputo, Mozambique. It studied three selected peri-urban settlements in each city with the goal of providing policymakers and authorities with a better sensing level for coordinated and efficient urban policy-making and action.

Fig. 5: A focus group session in Km12A, Viana municipality in Luanda 2018. Credit: Development Workshop Angola.

Stakeholders

The International Science Council (ISC), through its Leading Integrated Research for Agenda 2030 in Africa programme (LIRA 2030 Africa), provided a framework for this project. LIRA is financially supported by the Swedish International Development Cooperation Agency (Sida) and works in partnership with the Network of African Science Academies (NASAC).

A core team of researchers around Sylvia Croese of the African Centre for Cities (ACC), a research network at the University of Cape Town in South Africa, conducted the research, facilitation and conceptualisation. They worked in close collaboration with the Centre for Policy Analysis at Eduardo Mondlane University in Mozambique as well as the local administrative civil society organisations Development Workshop (DW) in Angola and the National Association of Municipalities of Mozambique (ANAMM).

As legitimating stakeholders with a public mandate, government officials from the National Statistics Office and the Urban Upgrading Office for Luanda (GTRUCS) as well as the Ministry of Spatial Planning and Housing were involved in Angola, as was the Ministry of Economy and Finance in Mozambique, in addition to municipal organisations and civil society community members, university students, and representatives of local residents' committees. Local UN, UN Habitat and UNDP representatives were also involved in the process, contributing an international and development policy perspective.

Process

Note: Since this case is a scientific research project, typical design process phases do not map onto it easily. Accordingly, a stronger focus lies on the exploratory phase of research question formulation, data collection, evaluation, and documentation. Future application of these findings is recommended but does not fall within the presentation of this case here.

Highlighted phase

Proof of concept (desirability): The LIRA 2030 programme provided the initial impetus for this research project. After an initial proposal and planning process led by a core group of researchers at the ACC, as well as a clarification of methodology, timelines and core questions, the project conducted qualitative research for data collection. Through focus groups, interviews with local experts and citizens, and the application of GIS-enabled data collection, the project completed 1,285 surveys, highlighting specific local data for indicators related to SDG 11.

Researchers subsequently presented and discussed findings, insights, and questions in community and stakeholder workshops and shared them with partner organisations and stakeholders. They documented and published the project results in multiple outlets, from the official LIRA 2030 report to the partners' websites (e.g. the DW website) to online media and videos. These results included recommendations for future action, especially in terms of data analysis and translation as well as future decision-making and information formats for public servants.

Impacts

People-based localisation: This project provided situated and localised knowledge for the eleven targets that fall under SDG 11 and their respective indicators. This project specifically focused on four core themes: the environment and public spaces, basic sanitation, transport, and questions around participation. Since the standardised collection of this data is especially challenging in informal settlements, narrowing the gap between policy ambitions and official objectives on the one side and grounded local insight and practice on the other become a core challenge. Establishing people-centred, contextual data collection methods in close collaboration with local communities achieved a robust and capable shift towards effective urban policies to implement SDGs.

Inclusive insights: In the face of interdependent, volatile, and uncertain urban development challenges, the response to these processes should be just as complex in terms of analysis, evaluation and comprehension. New ways of co-producing knowledge that span different cultural, organisational, social and disciplinary silos are needed to provide practitioners, policymakers and authorities with tangible, multi-faceted data on urban action. This meant opening up the research, decision-making and implementation processes to a wider range of stakeholders; facilitating dialogue, learning, and collaboration between academic and non-academic stakeholders; and transforming institutional structures and processes so that they can accommodate new approaches effectively. In this context, all survey data has been made publicly available in an open data repository.

Enabling environments: Working with and within the framework of SDGs in a local, urban setting requires the translation of general policy recommendations into the specific context. To do so, local expertise and place-based partnerships are needed. If these are facilitated well, they can benefit SDG implementation in African cities. Designing and providing open spaces for discussions of trade-offs, implications, and blind spots can integrate usually overlooked communities, and can make for a more participatory and robust overall implementation process. These enabling environments could be joint efforts of academic institutions, international and national funding agencies, and local authorities and governments.

Key assets

Scientific & methodological expertise: The research and facilitation skills of the core team were a core asset in putting this project together. From participatory mapping excursuses to qualitative research and focus groups and a GIS-enabled survey with tablets, scientific rigor and skill ensured robust data, high-quality discussions, and tangible results and recommendations. A strategic and skilled approach to clarifying time and budget investments; co-designing spaces for discussion and collaboration; managing stakeholder expectations; and mediating between different perspectives, objectives, levels, insights, and power dynamics proved essential.

Networked social capital: Flexibility when trying to foster engagement and participation in different urban areas was essential to identify and reach out to the right stakeholders. The project achieved this by building upon existing connections and social capital (such as trust) by involving organisations and stakeholders on the ground that had access to key multipliers and door openers. DW in Angola and the ANAMM in Mozambique proved to be valuable partners in this regard, especially in terms of involving the right stakeholders from authorities and local governments. The insight that in some cases, an external actor (e.g. a researcher, designer, etc.) can be extremely helpful in facilitating collaboration and bringing people together in a shared project should be noted, too.

Learnings

Essentially unique: Not only are cities essentially unique when it comes to their specific history, regulatory characteristics, past and future policies, and individual circumstances, but this uniqueness also applies to the greater region and Africa in general. This uniqueness calls for research focused on contextual specificities, Africa-specific research theories, and a unique framing to create more situated and nuanced knowledge and practice.

Enabling environments: Providing spaces for co-productive research by multi-disciplinary teams of public servants and trained researchers proved to be a valuable basis for this project. Along with entailing academic and institutional challenges, this also requires that public authorities provide formats, funding schemes and capacity-building programmes to foster new models of public-academic collaborations in urban contexts.

Long-term learning: Urban development and innovation processes are complex and multi-faceted, and take time. One lesson from this project was that while short-term and one-off interventions can create initial momentum and action, longer-term involvements enable all

stakeholders to build resilient relationships and trust, understand contextual specificities, and move from an output- to an outcome-driven approach. Longer-term settings also allow for the integration of new stakeholders and insights along the way through an iterative process of continuous adoption and creation over time.

Resources

Open Repository of Survey Data: https://www.datafirst.uct.ac.za/dataportal/index.php/catalog/CO-SCS

Croese, Sylvia (2020): Urban experiments led by early-career African scientists, available at: https://www.africancentreforcities.net/advancing-the-2030-agenda-in-african-cities-through-knowledge-co-production-urban-experiments-led-by-early-career-african-scientists/

Croese, S., Dominique, M. & Raimundo, I.M. (2021). Co-producing urban knowledge in Angola and Mozambique: towards meeting SDG 11. *npj Urban Sustain* **1,** 8 https://doi.org/10.1038/s42949-020-00006-6

International Science Council (ISC), 2020. Advancing the 2030 Agenda in African cities through knowledge co-production: Urban experiments led by early-career African scientists, available at: https://council.science/wp-content/uploads/2020/04/LIRA-2030-report-2020-04-29.pdf

Spotlight
Aces app – from machine learning to job creation in India

Bringing employment to urban slum-dwellers with machine learning

During our research, we found an interesting example of quick prototyping in India. The Hult Prize India Chapter 2016 challenged participants to come up with scalable social enterprises that are built to double the income of the millions of people residing in crowded urban spaces. The winners were a student team from the Indian Institute of Technology. Their idea was quite simple: machine learning technology requires initial, manually provided training data sets from millions of inputs before the machine can interpret and learn the data. The team wanted to crowdsource this data with urban slum-dwellers. These people, who could be house cleaners, drivers, or shopkeepers, are given the opportunity to increase their income in their free time. In the first prototype, dubbed 'Wizard of Oz', the team simulated their solution's functionalities with a mock-up of their mobile app that asked simple questions based on image categorisation and text verification. The team would then email this data to research groups and companies who pay for this preliminary data processing. They would collect the money and pass it on manually to the users. This approach enabled the team to test functionalities that had not been implemented yet, which saved them time and resources. It is important to test a basic working prototype of a whole system, rather than perfect each piece in isolation.
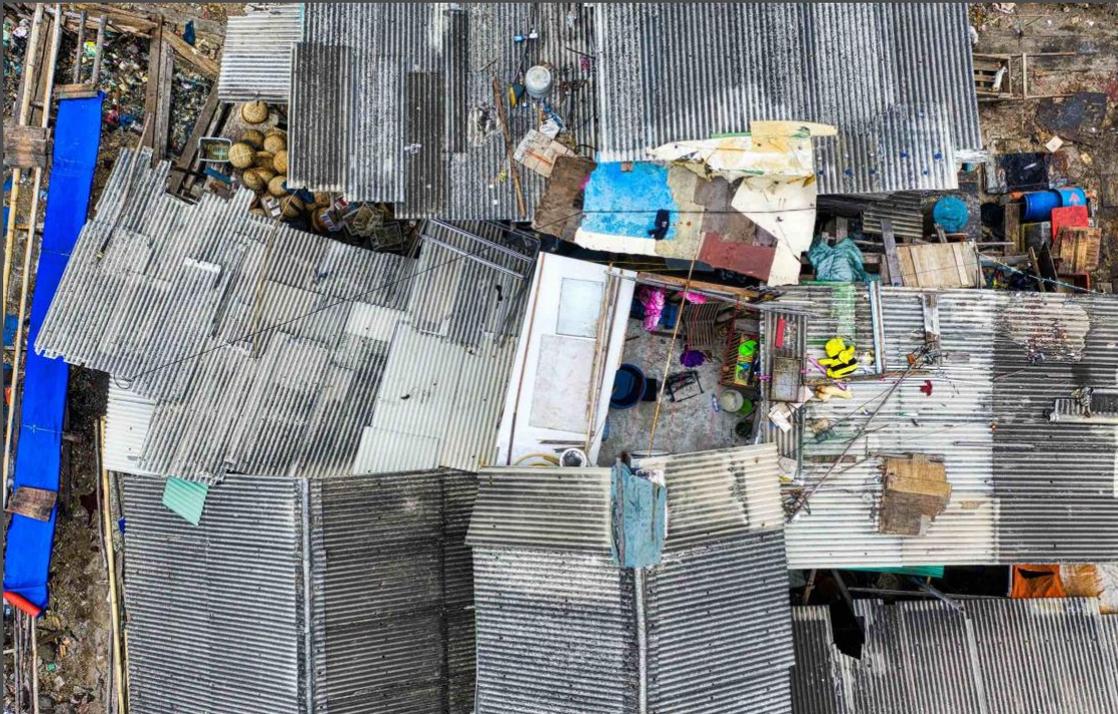
Fig. 6: Photo by Tom Fisk from Pexels

Resources

Bhalla, T. (2016): 4 social innovations which can change lives in urban slums of India, available at: https://yourstory.com/2016/01/4-social-innovations-can-change-lives-urban-slums-india/amp

Pandey, J. M. (2016): IIT Kharagpur students win prestigious award, available at: https://timesofindia.indiatimes.com/city/kolkata/iit-kharagpur-students-win-prestigious-award/articleshow/50649339.cms?from=mdr

Alumni Network of the Indian Institute of Technology Kharagpur (2016): IIT KGP students win Hult India Finals, available at: http://alumni.iitkgp.ac.in/Alumniweb/GoThroughNews?news_id=159

2.2   Piloting

2.2.1   Best practice ④
Agile pilots in Helsinki, Finland

A programme to pilot new urban services and technologies in a co-creative and experimental way

The Agile Piloting Programme was initiated by Forum Virium Helsinki in the City of Helsinki and aims to foster co-creative urban innovation projects. In targeted pilots, a wide range of stakeholders – from the city itself to private companies and civic initiatives – engage in an experimentation mode to explore the real-world application of new services and technologies. Centred on two districts in Helsinki, the programme addresses topics as diverse as mobility and smart energy, education, green infrastructure, last mile delivery, health, and well-being. After more than 50 pilots and many learnings from running such highly explorative urban labs, the model has also been adopted in the six biggest cities of Finland and, as of 2019, in Starvanger, Norway.
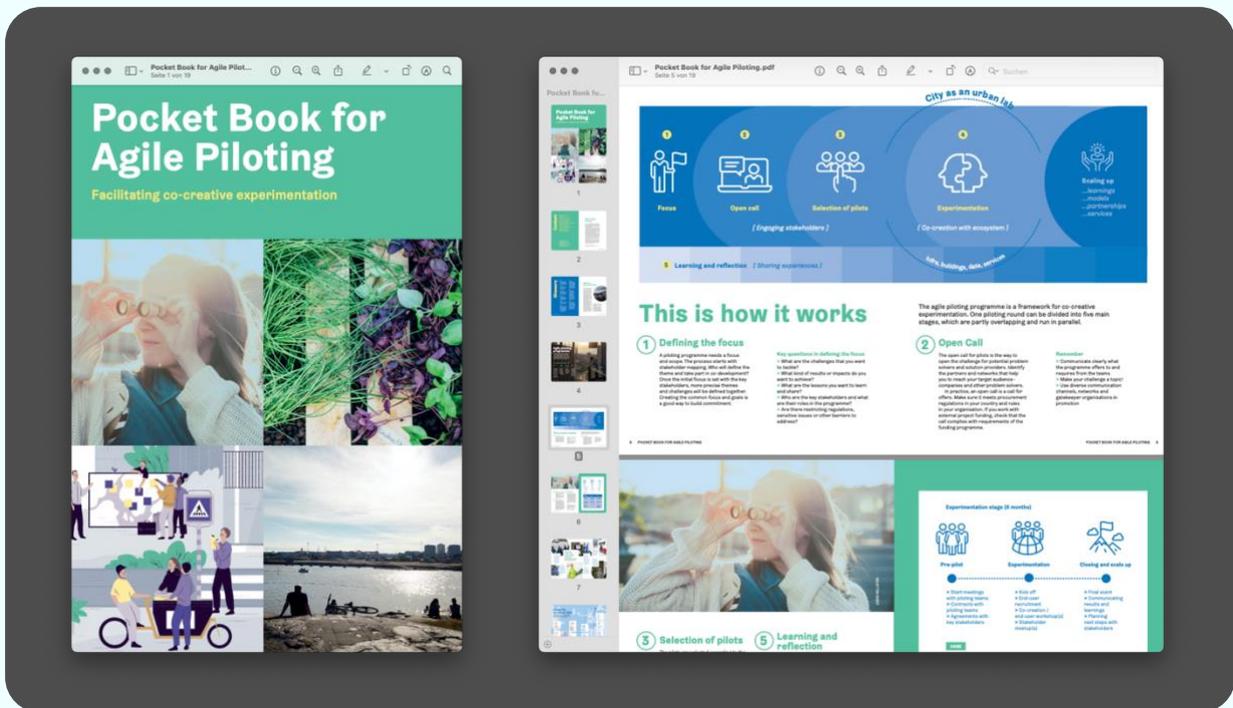

Fig. 7: Screenshot of the agile piloting booklet, Source

Stakeholders and modes of participation

Curate, foster and legitimate: The City of Helsinki takes the role of enabler
And Forum Virium Helsinki acted as a facilitator of the piloting program, providing an experimental safe space as well as data and further resources – all in exchange for insight about the feasibility of new urban technologies, services, and even internal processes (such as lightweight procurement).

Experiment and learn: The Forum Virium Helsinki facilitates the program and core project partners (e.g. selected start-ups or service providers) work on the implementation of the pilot.

Make and improve: The residents of the urban lab districts play a crucial role in the programme. Public testing and collaboration formats that address customers, early-stage users and testers, as well as residents and the interested public, create trusted spaces for feedback, collaboration, iteration, and co-creation. They are a cornerstone of the process, which has over the years led to a trusted network of partners. The Citizen Innovator Pool, for instance, is one of many formats to regularly engage residents in collaborating on specific projects together with public and private partners. Corporate partners provide leverage for more mature solutions. They bring in technologies and services as well as the resources (people and budgets) to deploy them quickly in a given area. This brings market opportunities for future scale-ups as well as mutually beneficial network effects for all sides. Agile Piloting also provides an attractive space for early market implementation for innovative urban start-ups. The opportunity to run a service under real-world conditions with the support of public and private partners allows for rapid iterations and often provides a basis for establishing longer-term services in the future.

Learn and reflect: Learning and reflection is key, and thus research partners (including those from the academic community) can accompany the process from a conceptual and reflective point of view. They can gather and sustain meta learning and comparative insights on urban innovation processes as well as specific themes or technologies across multi-generational programming that creates data, cases, and even opportunities for student involvement.

Participate and contribute: Local residents provide input and topics. Their contributions are enabled through broad, open, and transparent communication with the public about new initiatives, pilots, and projects, which gives them an accessible and low-barrier way to stay informed about the programme's progress. This happens predominantly through digital media, including a website to document and highlight voices, learnings, and people engaged with the project. The website also includes knowledge-sharing and exchange with communities of practitioners such as the Nordic Smart City Network.

Process

Prototyping: One original impetus for this project was the Smart Kalasatama project, funded by the European regional fund, which ran experimental activities that promoted urban innovation in Helsinki. Starting in 2014, this was followed by the conceptualisation of the Agile Piloting Programme to explore new ways to foster public-private-partnerships in a living lab environment, based on methodical expertise. Next steps included identifying lean and agile pathways to implement and test new solutions and services within a lightweight procurement process, applying a hyper-local focus, and identifying key partners for implementation and facilitation. This also included formulating a goal: rather than making a pilot stay forever, find ways to learn and collaborate as quickly as possible, and iterate or pilot easily if needed. As a next step, the programme determined the specific process gates and the regulatory set-up and created a blueprint for open calls and selection criteria. This phase included the identification of early-stage testing areas with two smart districts in the City of Helsinki to limit the complexity and scope, thereby allowing for a more nuanced testing scenario for the pilots.

Kaisa Spilling, Development Manager at Forum Virium Helsinki
"A small district is like a small city, it provides for a great lab."

Piloting: In the next phase, the project ran initial trials as well as iterations on process, facilitation, and communication. These learnings and iterations were documented and shared as findings, best-practice processes, and results as a frame of reference for future action and decision-making with civic and private partners. In its current form, the Agile Piloting Programme has run over 50 pilots in fields ranging from energy and resource effectiveness to health and well-being, from mobility to green infrastructure. It has brought about a Smart Pedestrian Crosswalk; a connected urban mobility infrastructure project that collected and analysed traffic data on volume, speeding violations, and environmental variables; a mobile app-supported cargo bike sharing service with six bikes being placed in the district of Jätkässari for the third year in a row in 2021 ; personalised meal bags for home delivery to monitor and adjust personal nutrition data and the carbon footprints of individual food consumption; and many more projects.

Sustain: In the sustaining phase, the procurement processes, including administration, were standardised and institutionalised. A future task remains, namely the move to more long-term thinking through applying urban foresight and forecasting to designing better pilot portfolios (especially when designing open calls).

Scale: The scaling phase encompasses the adoption of the model in six cities in Finland as well as Stavanger, Norway. Implementation and sharing happen autonomously with regular exchange of learnings, data, and resources among the different cities. For instance, the Healthy Liveable Neighbourhoods programme was created as part of the Nordic Healthy Cities project. In a collaborative effort, five different companies ran three pilots in the cities of Helsinki and Vantaa, Finland; Stavanger and Kristiansand, Norway; and Copenhagen, Denmark. They implemented solutions such as an augmented reality service that makes it possible to map and place green urban infrastructure in the district of Kalasatama, Helsinki, providing a simple and accessible approach for participatory urban co-creation and collective imagining of green futures.

Impacts

**Tangible innovation*:* By specifying a clear focus and scope as well as a limited timeframe, the programme makes a targeted impact on a small scale possible. In a joint selection process, local stakeholders define the criteria and expected impact of the pilot, and the aspiring project partners offer their own adapted solutions. The tight timeframe also means that solutions have to be beyond a purely conceptual stage and ready for quick deployment: Rather than pursuing one major and overly complex project, the Agile Piloting Programme was able to realise more than 50 small-scale experiments. The model is still in use in several projects in Helsinki, and is, for example, being taken into use in the Helsinki Innovation districts project within urban regeneration areas.

From the drawing board to the street: Understanding districts as urban labs creates a real-world learning environment that is varied enough to address different perspectives within a given pilot and focused enough to find enough common ground to mediate them. The exploratory approach of the Agile Piloting project encourages exchange and sharing of resources and learnings, as well as tolerance of failure: with a typical timespan for about six months, each project has a relatively low cost of failure and can be treated as a learning experience.

Learning routines: With co-creation at their core, the Agile Piloting projects explore new forms of multi-stakeholder engagement and collaboration. Because they provide the space for open and guided experimentation that centres on a shared goal or challenge, many projects are rooted the participating actors' sense of ownership. Clustering the projects in cohorts of three to four pilots and running subsequent cohorts within a given district, as well as in parallel with the other district, makes it possible to leverage synergies and cross-sharing benefits. This allows for shared learning experiences as well as a healthy foundation for future continuation or adoption of the pilot beyond the programme.

Prototyping procurement: The lightweight approach to defining a call and selecting project partners serves as a blueprint for efficient and agile administrative procurement processes. Here, making sure that processes and requirements are clearly defined is just as crucial as setting the regulatory, budgetary, and procedural parameters. Preparation and transparency are key.

Key assets

A well-defined and clearly communicated process: Making the procedural steps clear for everyone involved even before the project starts helps to provide orientation and create mutual understanding and focused action. Communication is key for the process, the pilots, and the outcomes – and is elemental before, during, and after the implementation of a pilot.

A government-backed experimentation field: The open commitment by local and national authorities to treat the two elected districts as a field for guided experimentation encourages open innovation processes as well as diversity of solutions and approaches.

Methodological expertise and inter-generational learning: The inclusion of a dedicated reflection and learning phase in all project phases ensures that resources are used efficiently and that the right questions are asked at the right time with the right people.

Learnings

Small is beautiful: A clearly defined, small-scale and focused effort allows for tangible results and a manageable set of variables. The Helsinki approach shows how the selection of specific districts – rather than innovating in the entire city – can provide a robust basis for efficient and iterative testing and piloting of new ideas. In combination with a clear process, a "cook book" of innovation processes, and clearly defined starting and end points (without ideation or future scaling of the pilots – even though both are welcomed), this makes for a clear and accessible approach for all stakeholders involved. It is just as important to know who you are and what you are doing as it is to know who you are not, and what you are not doing, even though it might be interesting, too. Scaling, in this contexts, can thus also mean a scaling of learnings to future procurement processes, or creating new partnerships for partner companies to drive further (as has happened before).

Don't re-invent the wheel – use it: Where possible, piggybacking on existing knowledge, processes, budgets, or discourses can be extremely helpful for an efficient process. In both selected piloting districts, for instance, a great deal of smart infrastructure was already present and many explorations were already taking place. Sometimes it helps to move into a space that generally knows how to live and work with these new ideas already. The same applies to budgeting: taking up existing policy programmes or themes and translating them into an aligned project can help in opening doors or identifying those which are already open.

Innovation storytelling: Prilots make "stories" that can go a long way. A story is open for associations, quotations, references, and adoption; it can be retold by others, changed, shifted, and continued in many ways. In the same sense, Agile Piloting treats its projects as ongoing narratives that might start elsewhere and might be continued in different ways. This broadening of the scope for impact makes it possible to factor in the unplanned, surprising, or even incoherent future development of a project. Even a pilot that is not continued on site might well inspire a successful project in a different district or city. The skill of telling, retelling, and listening to these kinds of innovation stories thus becomes a crucial skill for innovation managers and facilitators.

Resources

- Forum Virium Helsinki (2021): Agile Piloting, available at: https://fiksukaupunki.fi/toolbox/agile-piloting

- Spilling, K. & Rinne, J. (2020): Pocket Book for Agile Piloting, available at: https://drive.google.com/file/d/1L7c-FEUOFfvWQE3am35SYk-4bvJPz7RH

- Smart Kalasatama (2021): Overview of selected pilots, available at: https://fiksukalasatama.fi/en/agile-piloting-programme/get-to-know-the-pilots/

- Forum Virium Helsinki (2021): Website & projects, available at: https://forumvirium.fi/en/projects/#

2.3 Sustaining

2.3.1 Best practice ⑤
Perspectives welcome - Migrants4Cities, Mannheim, Germany

Rethinking urban transformation from the perspective of migrants

Motivated by the tremendous cultural and intellectual potential that Mannheim's international character offers, the city wanted to harness this potential to help shape the sustainable development of the city. In the "Perspectives welcome – Migrants4Cities" project, the city worked together with 26 migrants to find new ideas for a climate-friendly, socially balanced, economically prosperous, and culturally diverse Mannheim. They were assisted by local and university experts from fields such as mobility, housing, and governance. Over a period of more than three years, the participants discussed, developed, tested, and presented solutions that are now in the process of being implemented. Three partners worked together on the project: the City of Mannheim (Christian Hübel), the Technische Universität (TU) Berlin (Prof. Elke Pahl-Weber), and inter3-Institute for Resource Management (Dr Susanne Schön). The German Federal Ministry of Education and Research funded the project from 2016 to 2022. Digitalisation was not the focus of the topics addressed but it formed a cross-sectional theme in this project.

Fig. 8: Image from Urban Labs, photo courtesy of TU Berlin

Stakeholders and modes of participation

Curate, foster, and legitimate: The German Federal Ministry of Education and Research funded the project within the programme Transformation of Urban Areas.

Steer and decide: Urban researchers from TU Berlin designed and facilitated the series of urban labs and further developed the idea of urban co-creation by citizens and experts. Transformation researchers from inter 3 Institute for Resource Management focussed specifically on the transferability of solutions developed in Mannheim to other cities. One project manager was embedded in Mannheim's city government, allowing for close collaboration and quick decision-making between the city and its external partners.

Make and improve: The main participants in Migrants4Cities were 26 highly qualified migrants. They developed five concrete solutions in co-creation workshops known as urban labs.

Participate and contribute: Ten patrons of specific themes (from public administration, private industry, academia, and civil society) not only provided thematic support but also were in a position to implement the changes explored. In addition, a variety of partner cities and multipliers were involved in several transfer activities accompanying the project.

Process

The first project phase in 2016-2019 was about co-creating ideas, prototyping, and piloting. The follow-up project for 2019-2022 focusses on knowledge transfer and the implementation of selected solutions (piloting/sustaining).

Prototype: In nine co-creation sessions, participants went through an iterative six-step design process called Urban Design Thinking (see figure 9, red steps). The needs of different population groups were identified through interviews and site visits, deepened in discussions, and translated into prototypes. The teams had no other restrictions beyond the five focus areas of housing, mobility, work life, social cohesion, and participation. This deliberate vagueness was intended to avoid limiting the participants' scope for thought and action. Throughout the phase, teams had regular contact with municipal stakeholders to ensure alignment and allow for collective action regarding the developed solutions. Through this phase, teams validated the desirability of the use cases of their solution.
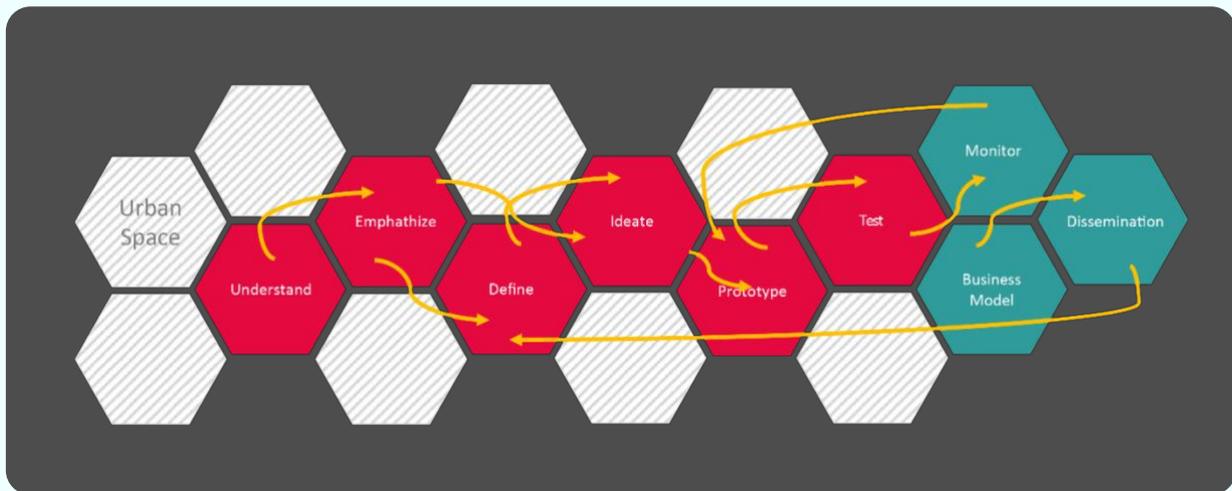
Fig. 9: Urban Design Thinking Process, TU Berlin, Source

Highlighted phase

Pilot and sustain: During three test labs, ideas were refined in one pilot neighbourhood. Here it was important to ensure that every co-design session took place in an accessible neighbourhood and venue so that travel was not a barrier for stakeholders. To complement the testing with a digital offering, an audio walk with eleven stations was developed that contained information about the district, its challenges, and its potential, including the ideas developed in the project. The solutions' positioning in public space made it possible to clarify emerging business models and generate a feasible business case for wider uptake (green steps). This small-scale solution development was a necessary condition for recruiting implementation partners from the municipality and city-owned operations. The next step will be to prepare resolutions for the city council to get buy-in from local politicians. The idea is to scale up best practices embraced by a neighbourhood through city-level collaboration. Through this phase, a business concept/operating model for the solutions was developed, long-term implementation partners were identified, and progress was made towards ensuring a political commitment.

Scale and transfer: To ensure continuity and transfer of learnings, a standardised, more compact form of urban labs was developed to fit more easily into urban routines. Due to the COVID-19 pandemic, one urban lab took place online. This digital concept is less resource-intensive and easily transferable to other cities. The project had 13 partner cities with more than 40 interested stakeholders. The stakeholders were regularly provided with interim results and individually interviewed about formats, the relevance of results, and their potential transferability. In a two-hour transfer lab, more than 20 city partners experienced the methods themselves in a creative online format. The three-day UN-supported hybrid event Urban Thinkers Campus with 500 participants was used as a digital and analogue platform to discuss and disseminate project results and processes. As part of the event, the project team invited participants to take part in a two-hour neighbourhood walk. In addition to providing brief input

on topics such as fair use of space, heat stress, green spaces and urban trees, the participants tried out the individual steps of the Urban Design Thinking method.

Impacts

Outputs with high social innovation potential: The project resulted in three social innovation solutions that are based on the actual needs of Mannheim's residents, address current sustainable development issues, and each contain a digital component. These are: 1) the KulturTram for intercultural encounters in daily life; 2) a workbox for flexible working in green spaces, combined with an app that includes payment, customisation, cleaning services, etc.; and 3) the municipal programme People[2] - Rethink Street Space, which supports neighbourhood initiatives to temporarily reuse public space. Since 2018, the KulturTram has been launched five times in cooperation with the regional transport company *rnv*. It has connected neighbourhoods and brought people who otherwise rarely encounter one another together on public transport.

Introduction of new solution-finding approaches: A standardised Urban Design Thinking framework that actively involves local people in design, testing and evaluation rather than pushing pre-determined solutions onto them has been developed. It focusses on supporting residents and stakeholders from diverse backgrounds in working together, and it closely interlinks urban development with its actors.

New governance and ownership practices: Migrants4Cities succeeded in accessing highly qualified migrants, a group usually underrepresented in participation processes, which benefitted both the city and the migrants. The city welcomed the perspectives of its immigrant residents, who felt valued for being asked about their views and who initiated exchange with their neighbours to gain new insight. The migrants in turn were able to actively participate in the design of their city and present their expertise to Mannheim's urban society. This concept can be easily transferred to other underrepresented groups.

Key assets

Learning from an outside-in perspective: A group of highly qualified migrants offered a fresh perspective on existing challenges and a capacity to question the status quo. Along with their high level of motivation to use the project to shape and contribute to a better neighbourhood, they showed their willingness to become an active part of the city.

Multi-stakeholder involvement: Along with the newly arrived migrants' perspectives, patrons of specific themes were chosen to represent the city's multi-layered interests.

Utilising existing funding: The project initiators were able to use funding available at the national level to accelerate new initiatives.

University as project incubator: The project made use of urban researchers' skills and network to translate theory into practice.

Learnings

Fairness is important: It is important to put all relevant stakeholders from different sectors and with opposing views together in the same workshops so that they can truly understand 'the rules of the game'. So that each participant has the same chance to have his or her say, the process must be designed in such a way that everybody – irrespective of age, sex or income – can participate equally. It is the facilitator's task to ensure the proper implementation of this requirement.

Clear mandate: The citizens' mandate and decision-making scope must be very clear and must be communicated well before the process starts. Otherwise, there is a high risk that they will feel misled or disappointed. In Mannheim, citizens were actively involved and took part in the decision-making process, which showed that the city was willing to engage with their needs.

Sustainable involvement: Sustainable involvement means that citizens are involved throughout the entire co-creation process. It is important that all participants be informed about new developments and the outcome of the process. Such involvement is time-consuming. In Mannheim, the volunteers were continuously involved for more than three years. However, as they had full-time jobs, they usually did not have time to complete design tasks on top of their daily responsibilities. Therefore, support structures provided by the project are essential to avoid putting participants under too much pressure.

Professor Elke-Pahl Weber:
"Political commitment from the top to implement the developed solutions
was crucial to the project's success."

Set the course for implementation at an early stage: From the outset, municipal coordinators must link the co-creation process with goals and structures in and beyond the administration. These include a clear political commitment for the direct involvement of citizens, formulated quality gates for the innovation process, and committed staff who monitor and support the process. In Mannheim, the administration acted as a coordinator by finding project partners for implementation (e.g., the Chamber of Handicrafts, city-owned companies, the university) at an early stage and by providing funding for the development of high-resolution prototypes. Such coordination required the administration to take on a more entrepreneurial, risk-taking role, applying trial-and-error-based problem solving and experimentation. A project advisory board set up within the administration also helped to strengthen the administration's identification with the jointly found solutions and its willingness to implement them.

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2.3.2 Best practice ⑥
The Seoul Innovation Bureau and the Sharing Initiative

Building a culture of citizen-led, agile, and innovative governance with the Seoul Innovation Bureau

The Seoul Innovation Bureau (SIB) was created in 2013 to embed social innovation and citizen engagement as the core principles of city administration. The cross-departmental unit is responsible for civic co-operation: it oversees public-private partnerships, innovation planning, youth and human rights policies, conflict resolution and the development of active local communities. It has an annual budget of approx. 6 million euros and 58 staff members. It is said to be the first city-level government structure of its kind anywhere in Asia.


Fig. 10: Photo by Alexandre Chambon from Unsplash

Stakeholders

Curate, foster, and legitimate: The former mayor initiated the SIB. He legitimated it and fostered various innovation activities.

Steer and decide: The SIB coordinates with the public both online and offline to seek ideas and insights. It works closely with agencies across the city government to put the citizens' ideas into practice, supporting these agencies in the design and execution of programmes and policies. The SIB's director-general reports directly to the mayor.

Make and improve: During the execution of the projects, the SIB organises co-creation workshops between residents and the government. When more in-depth discussions are needed, departments meet with citizens in person. For instance, budgetary proposals submitted online are discussed face-to-face with citizens to talk about the details. When a project is beyond what a department can handle, the SIB outsources some work to the private sector. Corporate partners provide capacities and resources to implement a project. The SIB also supports growing civic energy through programmes for community activists to engage on social issues.

Participate and contribute: The SIB considers citizens to be the main catalysts and sources of innovation, whether in identifying problems, clarifying issues, or generating solutions. Because of this, several participation formats exist. For example, it holds weekly town hall meetings (policy by listening) at which elected officials, civil servants, and citizens participate to delve deeper into specific policy areas. The goal is to set a policy agenda, generate ideas, and identify relevant resources and expertise in the community. There is also a youth council to monitor city policy and make recommendations. With a mobile mayoral office, civil servants go on site visits in various communities to talk to people, understand issues first-hand, and bring public administration closer to citizens. To extend the accessibility of collaboration and innovation activities, especially to less mobile participants, the city launched online tools to automatically publish policy decisions, collect complaints, and offer payments to citizens to canvass ideas. People can discuss the ideas back and forth and vote on them. Departments have ten days to review the five ideas with the most votes. Citizens can win up to 147 euros if their suggestion is implemented. In addition, the city holds an annual "ideas expo" to collect suggestions from citizens. Around 30,000 people turn up each year, and this initiative has gathered 1,000 suggestions in recent years. There is a speaker's corner at the city council for citizens to share their concerns and proposals for improving the city via video. These videos are then published on the Seoul City Council website.

Process

The goal of the SIB is to reach a level where citizens can participate in administration themselves, from the early stage of planning to implementation. To elaborate what this process looks like, we have focused on one capstone project, the Sharing City Initiative (2012 until today). It includes hundreds of small-scale citizen-led sharing initiatives that allow, for example, drivers to share their parking spaces, or elderly citizens to rent out spare rooms to university students. The project developed due to the pressing need to reinvent the city in the face of overpopulation and urbanisation that have led to housing, transportation and parking shortages; pollution (nearly 9,000 tons of trash daily); and social challenges, with citizens suffering from isolation, stress, and anxiety (South Korea has the highest suicide rate among OECD countries, 2021).

Prototype: In 2012, the issue was introduced on the political agenda. Sharing became one of the city government's top priorities: it was seen as a social innovation measure to reconnect citizens and to reduce waste and over-consumption of resources. A series of public hearings was organised that allowed the local government to collect information and opinions from sharing economy activists and citizens and to understand regulatory and technical hurdles for establishing a sharing ecosystem. Based on this research, several sharing models were developed and tested during a sharing economy festival and a seminar. This first step enabled the SIB to build relationships with the sharing organisations.

Pilot: Before the pilot was set up, outdated laws and sharing-promotion systems were changed (2012-2014). The first ordinance established the formal structure and allocated a budget for the initiative. Subsequent ordinances stated the city's support for the revitalisation of sharing for the public, private, and non-profit sectors. The SIB also established a policy execution body under private-public governance to make key decisions, the Sharing Promotion Committee (2013). It comprised 12 members from the private sector and three from government. Twenty new sharing enterprises were then selected through the Youth Business Start-up Incubation programme, providing workspaces and advisory services, and subsidising the expenses of ten sharing enterprises for either launching or scaling up their platforms.

Highlighted phase

Sustain: To provide long-term financial sustainability, the SIB offered a funding programme to foster the development of sharing organisations. It opened an online information-sharing platform (Share Hub) that gathers all the city's information and experiences regarding sharing and collaborative consumption. This platform is a bridge connecting citizens, businesses, and local government. The SIB has also set up a KPI system that measures the increase in the number of 'sharing' companies and initiatives, as well as the number of residents attending events and workshops and suggesting ideas both online and offline. To review legislation, resolve potential tensions between sharing businesses and current laws, and ensure better institutional support, a Sharing Facilitation Committee was established in 2015.

Scale and transfer: Scaling required building in sharing companies. To do so, the SIB endorsed selected services that were already running successful pilots, such as Kiple, a children's clothing exchange, to expand their services to other districts. When this proved successful, more districts wanted to join in, through which the schemes were continuously expanded to all 25 districts in the city. To fuel growth further, the SIB created a positive competition between districts for sharing-related government grants. Seoul transferred its learnings by creating a cross-departmental group that developed model policies for the sharing economy. The city also adopted a joint declaration on policy cooperation for the sharing city with seven local governments. Moreover, it actively publicises its brand as the Sharing City and has created an International Sharing City Conference. In 2017, Seoul launched a Sharing City Alliance with New York City, Toronto, Amsterdam, and Copenhagen to foster international exchange.

Impact

New 'power to the people' governance modes: Multiple online and offline channels for citizen input are available, from a speaker's corner and innovation competitions to open workshops and citizen groups that function as part of the city's monitoring and auditing systems (see participation mode for more examples). Between 2012 and 2017, the city budget devoted 216 million euros to citizen proposals. However, setting up open channels for citizen participation was not enough – some sort of guidance was required. To achieve this, the SIB set up a school dedicated to instructing interested citizens on how to engage with their city, design smart city goals, and develop innovative solutions. This sort of cooperation establishes trust between the city government and the people. The city changed from a highly bureaucratic, top-down city with rising tensions between the government and its people to the more socially stable and highly innovative city that it is today.

QUOTE BOX:
"Furthermore, when residents are involved in proposing and developing ideas for their cities, they tend to come up with good ideas because they are the ones witnessing the problems and solutions in their daily lives."
Park Won-Soon, the former mayor of Seoul Source

Bottom-up structures activate local communities: The SIB not only collects citizens' opinions but also engages in ongoing discussions and dialogue with civic organisations. It has created a Community Building Division which supports the establishment of neighbourhood

centres across Seoul to build the capacity of community actors, including formal NGOs, youth groups and grassroots movements. The centres are open and accessible spaces where initiatives and residents can seek help with implementing their ideas. They can plan and create within their own spaces, based on their own priorities. This ensures that all projects and, importantly, their budgets are focused entirely on what each community needs, rather than the city forcing top-down solutions onto them.

Changing government culture: The SIB has put a strong emphasis on staff learning, but not in the sense of technical training on how civil servants can do their jobs differently. Rather, the objective is to expose civil servants to outside perspectives, help them expand their understanding of problems and issues from a resident's point of view, and encourage their sense of commitment.

Former mayor Park Won-Soon
"The employee who fails in his work can be tolerated; however, the public employee who fails in engaging with citizens cannot be tolerated" Source

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Key assets

Unique team composition: The SIB staff were recruited mainly from civil society and private organisations, while senior government officials occupy half of the leadership positions. This setup has been highly instrumental in mediating between new ideas and established routines. However, for those new to government, it also required a process of adjustment to the slow, incremental nature of government work, as many of them were accustomed to seeing immediate results.

Political commitment: Former mayor Park was very active in the creation of the SIB and in its deployment to lead various initiatives. He has been described as "a mayor on a mission to revolutionise the policy-making process". His strong leadership made it possible to make administrative changes quickly. It remains to be seen whether Seoul's new mayor Oh Se-Hoon (in office since April 2021) will carry on with the focus on social innovation.

Social media: One of the SIB's key tools is social media to help rapidly increase citizen engagement. The city runs a social media centre that provides a centralised one-stop message collection point. It distributes messages from citizens to the most relevant departments, collects feedback from the relevant departments, and sends replies to citizens.

Key learnings

Building a social innovation ecosystem: The Seoul case shows how the city successfully combines an 'inside out' approach, that is, having an innovation unit inside the city, with an 'outside in' approach, meaning that the city also considerably invests in a range of outside actors (start-ups, civic organisations, etc.) to pursue social innovation ambitions. Perhaps this combination unites the best of both worlds.

Citizen engagement is more than communication: By gearing all citizen communication tools and programmes towards encouraging citizens to speak out and public servants to listen and empathise, the SIB has given diverse groups of people from different parties opportunities to talk to each other and understand each other better. Transparency strengthened by various online tools and authenticity illustrated through offline programmes have together helped people to experience the positive value of citizen engagement. However, neither online nor offline channels are guaranteed to reach a wide range of people's voices. Active utilisation of online tools is often limited to the younger generation or certain groups of outspoken people. Offline communication programmes also usually attract citizens who are actively engaged or have close relationships with civic groups. Beyond communication, trust is needed to generate more citizen engagement. However, these essential conditions are not yet fully present in Korean society. Although mistrust has started to diminish, creating solutions together takes time and skill. Also offering discussion-based education programmes and training session for actors in different sectors, rather than relying solely on open communication channels, supports the trust-building process.

Overcoming legal and organisational barriers: The SIB's challenges include regulations, legal frameworks and organisational structures that are insufficient for supporting innovation activities, a common complaint among civic innovators. The SIB encourages a more flexible structure that allows for public-private partnerships and vests more authority in committees and other deliberative bodies. Governance advisors have also been embedded in city teams to overcome organisational barriers. However, this was not as successful as hoped. According to one official, teams which were familiar with public engagement did not experience much value added from an advisor. And for teams which required effective cooperation and coordination to improve engagement, the advisors lacked sufficient authority to make it happen.

Incentives and accountability of civil servants: The incentives and accountability mechanisms that govern civil servants' behaviour have not kept pace with what city employees are being asked to do regarding innovation and citizen engagement. Even though they can make decisions together with citizens, the public servants are responsible for the failure. To create shared accountability, bilateral citizen-government committees have been proposed. Seoul is also discussing incorporating cooperative governance (i.e. working more closely with residents) into the job performance measures for civil servants.

Resources

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2.3.3   Spotlight ②
Consul app – Open-source software for citizen participation

Promoting citizen engagement in decision-making with an online participation platform

As the Seoul case shows, social innovations often are inclusive and involve a wide range of actors, especially citizens. One digital tool that enables urban organisations to carry out the most important citizen participation processes is Consul. It is an open-source platform that includes citizen proposals, consultations, voting, participatory budgets, and collaborative legislation. The tool is used by over 135 institutions in 35 countries, which are able to freely use and modify it. Its development was started by Madrid City Council in 2015 and since then has been taken up and expanded by municipalities from all over the world. This was only possible through openly sharing the Consul technology among different bodies so that they could work together and create a community to share best practices, knowledge, and ideas. People support each other in online spaces and while participating in the Consul conference, and IT experts, activists, and elected officials meet to improve the platform.

Fig. 11: Photo by William Fortunato from Pexels

Resources

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2.4   Scaling and transfer

2.4.1   Best practice ⑦
The Dampbuster project with the Bristol approach, Bristol, United Kingdom

A framework for managing inclusive, community-driven digital projects that involve sensor data and technologies

The Bristol approach is a six-step framework for delivering technology and innovation projects that use IoT devices, sensors, and 'smart' technology (Link to framework). It provides a set of tools and a way of working for various groups – from councils and businesses to schools and community organisations – and ensures that their needs and priorities are at the heart of innovation. Rather than imposing technology on people, it supports them in collaborating and creating the change they want to see. One project that applied the Bristol approach was the Dampbuster project (2015-2016) to tackle the major problem of damp homes in Bristol.
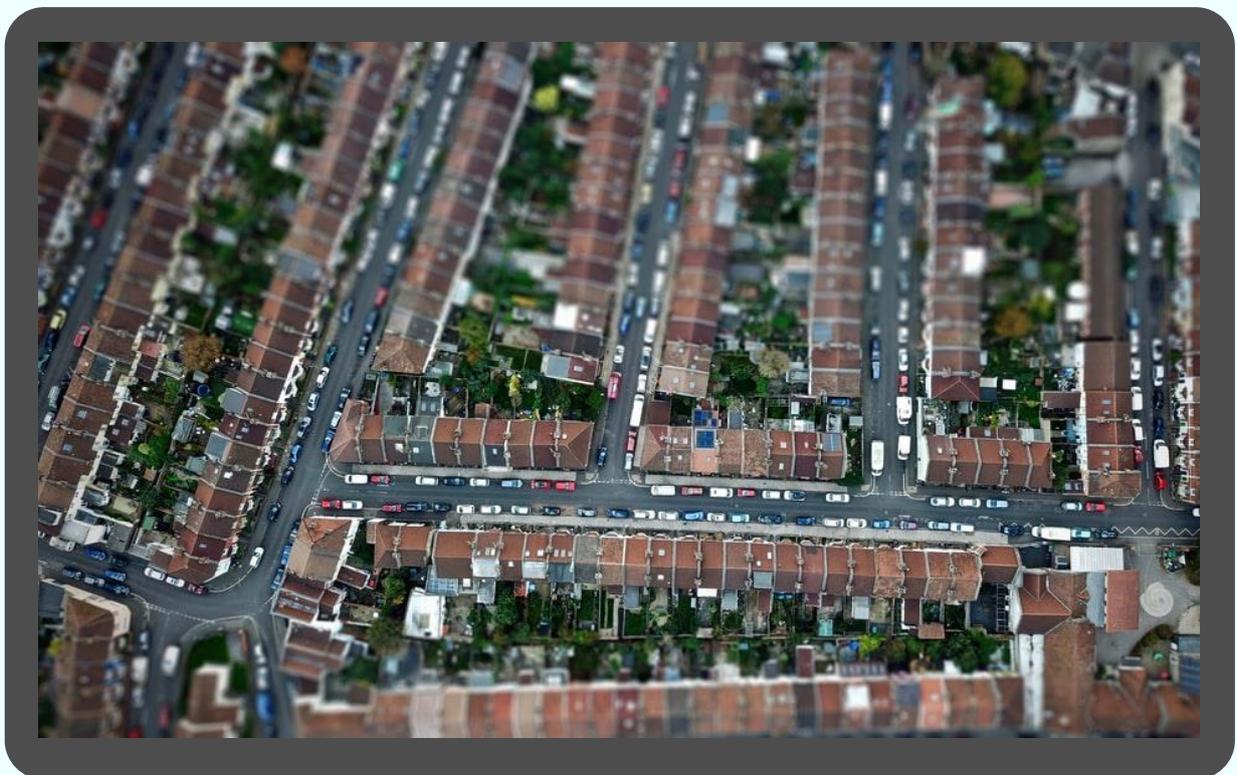

Fig. 12: Photo by Louis Reed from Unsplash

Stakeholders and modes of participation

Curate, foster, and legitimate: Bristol City Council appointed the non-profit organisation Knowle West Media Centre (KWMC) to deliver an inclusive and sustainable citizen sensing programme in Bristol. It also led the EU-funded REPLICATE project that applied the Bristol approach (see the process section below). The Council made sure that the project's activities fit the citywide Smart City strategy.

Steer and decide: Working with the Bristol City Council and the Barcelona-based innovation company Ideas for Change, KWMC crafted the Bristol approach. KWMC then coordinated the framework's application in several projects. In the damp homes project, the organisation was responsible for setting up the project and facilitating the process. It organised workshops, group maker sessions, data hack days, etc. aimed at enabling collaboration between citizens, neighbourhood associations, artists, schools, city council representatives, open data specialists, university researchers, etc.

Make and improve: A variety of stakeholders including researchers, tech companies, artists, and local associations engaged in co-creation because they (a) saw value in collaborating with others, and wanted to (b) support their causes and gain access to (c) others' expertise and (d) a community of engaged citizens.

Participate and contribute: The goal of the Bristol approach is to engage with citizens. Multiple formats, from smaller workshops to citywide festivals and exhibitions, were used to get people involved. One main reason that people chose to participate was to address the problem of damp. This was a big matter of concern and dampness was particularly pertinent to those living in rented accommodation.

Process

The Bristol approach was developed in 2015. The approach covers every stage of the innovation process, from problem identification to scaling. Here we take the Dampbuster intervention (2015-2016) as one project example and describe steps 3 to 6 (from prototyping to scaling & transfer) in detail (Link to framework).

Prototype: In the Dampbuster project, KWMC discovered that damp and mould in homes was a significant problem for many people. Through a programme of practical workshops, 'hack days', making sessions, and regular meetings, KWMC helped people from different backgrounds to come together to identify key actions and develop and test a 'damp-busting'

system. The system included (a) five prototypes for temperature and humidity sensors. The participants agreed that the sensors should be suitable for homes with children, adults, and pets. Eventually the decision was made to develop one that had widespread user appeal, which looked like a frog and became affectionately known as the Frogbox. Due to time and funding constraints, the group decided to make and test a few sensors before scaling to larger numbers. The solution also included (b) digital interfaces to make sense of the gathered data, (c) mapping tools to visualise the scale of the problem, and (d) training for volunteers to tackle the problem on a practical level. Early-stage usability testing was conducted during the workshops.

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45 events and workshops were run, with over 717 participants aged 13-80
Source

Pilot: For two months, an on-the-ground engagement team recruited people to test the Frogboxes in homes that were severely affected by damp. Residents were also given "lily pad" diaries to help them keep track of everyday activities such as showering or cooking. At the same time, a volunteer team of community Dampbusters was trained in diagnosing and tackling damp, complementing the data-driven insights with on-the-ground action. By testing technologies on the ground, the participants collected data on how people interact with the tools in their natural environments and without instructions. They also identified security and privacy concerns, and addressed them, taking into consideration the needs and views of the community.

"People were excited to have them in their homes." Source

What was key in this phase was holding events to enable social interactions between community members with different levels of expertise and experts who could contribute knowledge about the technology and the issue at stake. The outcomes of this phase were a set of open-source technologies documented in free repositories (GitHub), open data about damp, new relationships, and new skills.

Sustain and scale: These phases involved sustaining the engagement of the contributing community and scaling it up to engage a broader group of people, as well as exploring business opportunities. A data 'hack day' was held where data enthusiasts, damp experts, researchers, designers, and citizens with different skills were provided with datasets, including Frogbox data, self-reported damp homes, and community data. They used it to create visualisations and discover correlations. The project team wanted to instil a sense of

meaningfulness by demonstrating the usefulness of co-created resources. New forms of cooperation among stakeholders emerged. People contributed photos of damp in their homes. Other community workers stepped in to provide advice to the participants on how to take action to prevent damp (e.g. ventilating the kitchen while cooking). KWMC then provided the Council officers with the collected evidence of damp along with proposed new measures on how to improve the situation. In terms of scaling, a second generation of Frogboxes is under consideration, which may include LEDs in the frogs' eyes to show when the damp problem is reaching a critical level. The first generation already inspired one community member to set up a business servicing the sensors, and generated data that was given to the council to help it tackle the damp problem. On top of that, Bristol is thinking about boosting local employment with community-based micro-manufacturing of the Frogboxes. The city wants to use the newly developed technology to foster new kinds of jobs and skills.

Highlighted phase

Transfer: A key prerequisite for knowledge transfer is critical reflection and assessment regarding whether and how the project goals were achieved. The Bristol approach includes this as a last step outcome in the framework. Evaluation forms, reflective writing, and interviews were used to ask participants, partners, and staff about their learnings, especially about using the framework itself. In this step, the team also ensured that the resulting technologies and collected data were accessible to third parties to support external appropriation, so they could be used to create new solutions for various issues (e.g. if the community is addressing a mobility problem and shares pedestrian navigation data, the city could use this data to plan new public transport routes). Moreover, the Bristol approach was developed to be an exploitable, replicable form of engagement through co-creation with communities. Experiences and learning from the Dampbusters project enabled KWMC to implement the framework within the five-year EU-funded project REPLICATE (2016-2021). Along with Florence, Italy, and San Sebastian, Spain, Bristol is one of the "lighthouse" smart cities that test technical innovations before they are rolled out more widely to the public. The project consortium consists of 10 public organisations, 24 multisectoral companies, and 5 universities. Other communities (e.g. in the Netherlands) are looking at using the framework. Additionally, KWMC has incorporated many of the principles, practices, and lessons into a series of learning resources called "Tips & Tricks cards" as well as a user guide for applying the framework.

Impact

Innovative solutions piloted and implemented: Sensor-laden devices resembling frogs were co-designed. People could use them to measure temperature and humidity – and, importantly, to get feedback on where they found damp and what they should do about it. The technology was shared using open-source technologies. Open data was gathered to help

visualise the prevalence of damp homes and its correlation with other factors (health, house prices, and people's habits at home). The data was integrated into Bristol's open data platform.

Enabling new governance practices: New partnerships were developed between renters, council workers and damp experts who are jointly tackling the issue of damp homes. New networks of residents, researchers, local authority, and business were formed to extend the reach of the project and support inclusive participation. Participants were also empowered through improved technical and data literacy skills. They gained awareness of their behaviour and became more open to the idea of sharing data and making changes. In general, the approach helped them to identify needs that affected their lives and to create solutions, leading to a greater feeling of empowerment.

New, replicable processes for finding solutions: A Framework to Orchestrate Large-Scale Citizen Engagement around Urban Issues has been tested and further developed. Moreover, learnings have been shared through a variety of local, national, and international channels. The framework has received media coverage from the BBC, Wired, Dutch national television, etc. It was even presented at the House of Lords as an example of good practices in citizen engagement in the UK. It has become a tool that other cities can learn from, implement, and iterate.

Key assets

A standardised framework providing orientation: Like in the Mannheim case, the case study demonstrates the effectiveness of having a framework to facilitate orientation and communication, providing a common language for engaging citizens in technological innovation. Having six clear stages fosters reflection on the work that has been done and celebration of achievements. It helps to structure a process that entails intricate social, political, and technological dynamics. Besides providing a guide for participation, the framework is also a narrative tool that helps gain support for citizen engagement and that provides a shared vision for participants.

Adopting a commons approach: At the heart of the Bristol approach is the development of a 'city commons' where resources, tools, expertise and technologies are shared and used for the common good. A key 'commons' principle is that of the 'low floor/high ceiling', which ensures there are no barriers to taking part (a low floor) but that every stakeholder can be challenged to the best of their abilities (a high ceiling). This helps to address the inequality of access to new technologies and means of production such as AI, robotics, and digital fabrication.

Combining bottom-up with top-down: The Dampbusters projects are an initiative that balances bottom-up (citizen stakeholders) and top-down (initiating institutions and external funders, along with Bristol City Council) approaches, using outside experts (KWMC and Ideas for Change) to structure and coordinate the process. This balanced approach acknowledges the organisational challenges of solely citizen-led initiatives. It also addresses the need to seek new approaches to urban problems and attain outcomes that are meaningful to public stakeholders.

Key learnings

Continuous onboarding of people: Building relationships between existing local communities is an obvious way of scaling up engagement. But it is easier said than done. It is key for the project to be open and to enable onboarding of people and groups at various stages. In a commons structure, it is unrealistic (and unnecessary) to expect that everyone will participate in every aspect of design. Generally, a small percentage of participants are highly engaged and active. However, all contributions are essential in the overall ecosystem of participation.

Leverage existing networks: It is important to work out how to best leverage existing networks, knowledge, and resources. Face-to-face encounters such as visits and meetups are essential. However, to sustain engagement it is also important to provide infrastructure for the community, that is, technical skills and data literacy trainings that are accessible and enjoyable. Strategies to foster social interaction include organising workshops in the local area, adopting a common language to prevent the use of complex and specialist terminology, and encouraging interactions between experts and non-experts in a context of horizontal collaboration.

Thinking in phases: Following distinct phases that have a beginning and an end helps each stakeholder to plan, arrange, and communicate actions. Of course, phases can overlap, and it is necessary to move back and forth in an iterative manner. Still, a clear framework is the backbone and helps to (a) keep everything on track, (b) create opportunities for reflection and celebration of achievements, and (c) facilitate the process of sharing learnings.

A commons approach as vehicle for discussion: The strong focus on the commons, as an alternative way of creating and managing resources, became a vehicle for discussing tensions that are important to talk about when using sensing technologies. For example, the issue of who owns the technology and the data was raised when someone saw an opportunity to develop the frog prototype into a business.

Resources

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2.4.2   Best practice ⑧
"Seniors go digital" in Singapore

Programme that equips seniors with the tools, skills, and habits to thrive in the city's digital future

As part of the government's concerted push to build a digitally inclusive society for Singapore, the Infocomm Media Development Authority (IMDA) and SG Digital Office (SDO) launched the 'Seniors go digital' programme in May 2020 as a follow-up to the SilverComm initiative that was launched in 2007. 'Seniors go digital' was developed by applying design thinking to government policy-making. The innovation process yielded a variety of ways to help seniors gain digital literacy. These range from small-group learning sessions at libraries to IT bootcamps in neighbourhood schools, a network of digital ambassadors, online learning journeys and financial assistance for those who cannot afford devices or data plans.
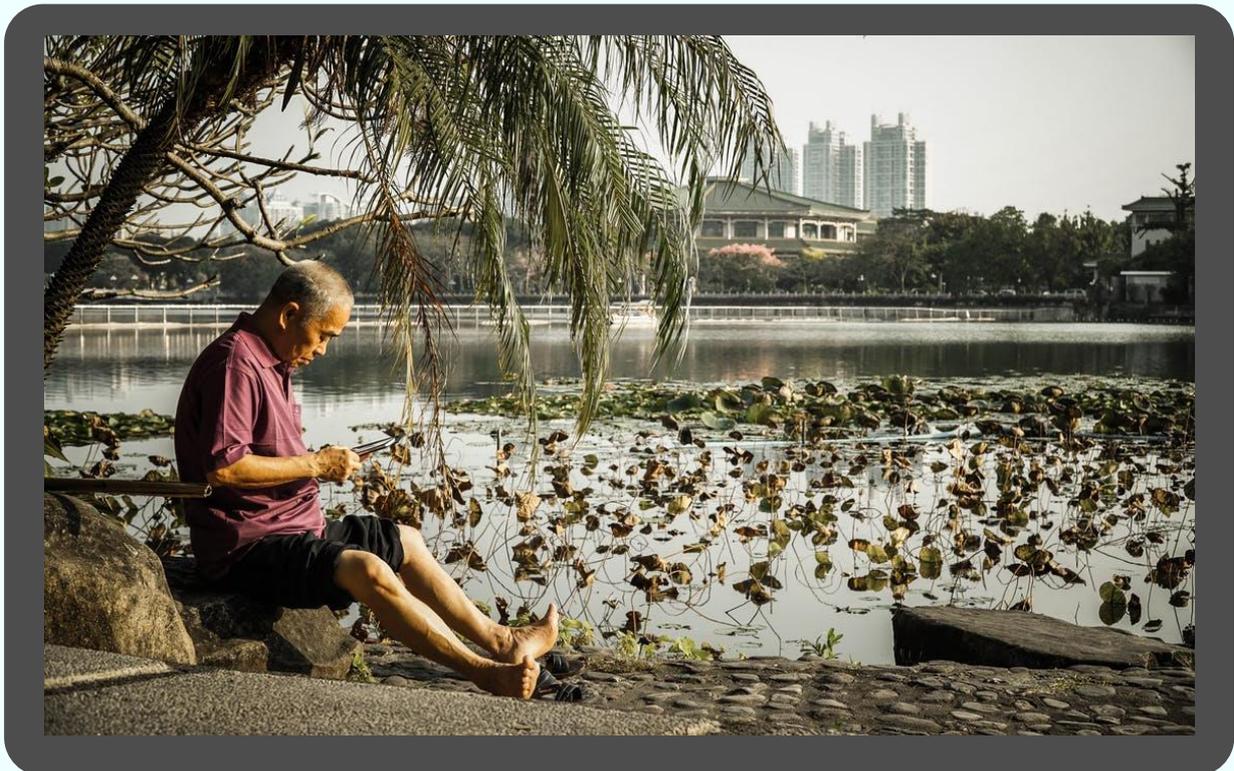

Fig. 13: Photo by Peter Lopez from Pexels

Stakeholders and modes of participation

Curate, foster, and legitimate: The Infocomm Media Development Authority (IMDA) is leading Singapore's digital transformation. It regulates the converging infocommunications and media sectors and seeks to develop a dynamic digital economy and cohesive digital society creating new ecosystems, developing talents, and helping different industries to start their digitalisation journey. The IDMA is the interface between the city government's mandate and the 'Seniors go digital' project team. It also builds the community of corporate partners and community organisations that like to contribute to the programme.

Steer and decide: Under the IDMA, SG digital office (SDO) was established to accelerate digital adoption among Singaporeans. It implements the 'Seniors go digital' programme by assessing the status quo, overcoming challenges, and developing new formats in regularly held meetings. Private and civil society actors are not part of these meetings but are heard during co-creation and testing sessions.

Make and improve: SDO gives social service agencies and volunteer groups the freedom to design different training formats. For example, the non-profit agency TOUCH Cyber Wellness offers workshops on smartphone usage where seniors are paired with volunteers on a one-to-one basis. After the training, volunteers befriend seniors through their smartphones and coach them remotely on how to use the phones. Telco providers also improve the programme's offerings by subsidising data plans or sponsoring upgrades. Community and senior activity centres transform into digital hubs where information and communications technology is integrated to promote active ageing. These learning hubs are operated by voluntary welfare organisations, community clubs, and non-profit organisations.

Participate and contribute: Singaporean seniors are the users of the project. They are invited to participate in a variety of physical and digital formats to gain digital literacy. With greater proficiency, some seniors can actively contribute as digital ambassadors who volunteer at events, serve as mentors, and inspire more of their peers to adopt digital routines.

Process

Prototype and pilot: In 2018, the IDMA conducted a survey on information and communications technology usage in households, which found that reluctance to embrace a digital lifestyle boiled down to two factors: (1) seniors lacked digital literacy, and (2) they were daunted by the steep learning curve and feared making mistakes. Thus, the project team set up a human-centred innovation process to approach the difficulties faced by different groups

of elderly people with empathy. In this process, they analysed government processes and services through a user-centric approach to identify pain points for seniors. They realised that digital skill training must have a human touch and it needs to be easily reachable for the seniors, that is, embedded within the community. Based on this insight, the idea of digital ambassadors as role models of digital skills was developed. The digital ambassadors are either young people in their late teens or early 20s, whom the seniors can relate to as they are the age of their grandchildren, or they are in their 50 and 60s and have similar fears and difficulties learning how to use digital tools. A peer learning session was prototyped, tested in a community centre, and improved based on feedback. The city also uses a co-creation platform called SCOPE that is designed to let citizens test the latest government initiatives and products that are still in development. In the next step, an initial pilot was run with volunteer ambassadors in nine digital community hubs.

69-year-old Kathirithamby Selvakkrishnan
"I think I'll pick up TikTok and teach other seniors […] I have people sending me TikToks …As seniors, we must keep with what our youngsters are also doing", Selvakkrishnan said. Source

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Sustain: To make the programme sustainable, the city actively looked for corporations interested in providing funding as well as community organisations that could help expand the ambassador network and increase the number of courses offered (e.g. a Senior Academy provides IT-related courses, Youth Corps Singapore engages youth volunteers to provide digital guidance). The SDO also linked the project to other city initiatives such as the Singapore Together movement, which provides a platform for citizens to form action-oriented, cross-sector collaborations. As of April 2021, 21 'Alliances of Action' had formed in Singapore: one is about the enhancement of digital readiness skills and literacy.

Highlighted phase

Scale: The programme was scaled up by establishing 200 more community counters to bring services even closer to the seniors. The goal is to establish nodes in every administrative division of Singapore so that seniors have a way to interact and get the feeling that they are undertaking a journey together. New topics for the curriculum beyond basic digital literacy were also identified. Besides basic communication skills and assistance with government services and e-payment, seniors are equipped with knowledge of cyber hygiene practices, the use of health-related apps, and the use of commercial apps to make supermarket purchases. To increase the programme's reach, the SDO also provides services customised to the needs of specific community segments, such as seniors who are deaf. Additionally, new channels were identified: a Seniors Go Digital workplace programme which trains seniors at workplaces is being progressively rolled out. Employers set aside time and space to train older employees using the Seniors Go Digital curriculum.

Impact

Digitally skilled seniors: More than 350,000 seniors have benefited from digital skills training. The training has been highly effective, with nine in ten continuing to apply the skills learnt in their daily lives, including using their smartphone for video calls, accessing digital public services, and making e-payments. In 2019, 95% and 58% of senior citizens aged 50 to 59 and 60 and above respectively used internet-enabled devices daily.

Devices for lower-income seniors: 5,400 seniors received a device and mobile plan by making these more affordable. In 2020, 12,000 computers were distributed to low-income households and 5,000 families were given free broadband access through a programme launched by IMDA in cooperation with industry and community partners.

Community building in a digital society: A growing pool of more than 1,600 digital ambassadors provides one-on-one guidance on a customised package designed to equip seniors for a digital life. These training sessions are also a good opportunity to meet other people and to establish friendships. That, in turn, was a source of more intrinsic motivation and activity in older people's lives, which supported their personal development. Similarly, the ambassadors reported that they had a stronger sense of belonging to society when teaching digital skills to other older people. It was seen as a new form of civic participation and active citizenship, and it also enabled them to find their place in digital society.

Key assets

Ambitious digital transformation plan: Singapore's digital transformation plans are highly ambitious. The government wants to become "digital to the core", that is, every government agency will be digital end-to-end by 2023, from policy development and planning to operations management and service delivery. Such a clear vision helps to direct government activities along a clear path. Digital inclusion is a key priority, and the urgency of getting all Singaporeans on board increases the legitimacy of the project.

High ICT adoption and digital skills: Singapore is one of the world's most digitally connected nations. It was ranked sixth in the world for information and communications technology adoption and digital skills. This means the government is well placed to focus on those who need more support with better access to the digital space.

Financial resources from private partners: Besides the government's budget, the IMDA receives large donations from the private sector (e.g. $1 million from ST Engineering) for its

digital access programmes. The government aims for a public-private funding mix. Beyond imposing taxes on big tech companies, the government considers it fair for them to contribute directly to full digital inclusion, as they have been able to leverage vast troves of user data for profit.

Key learnings

Digital resources as public utilities: The case shows that Singapore has undergone a paradigm shift towards viewing digital resources as public utilities that should be universally provided by governments, like running water and electricity are. This requires steps to close the digital divide. Otherwise, digital inequality will become a source of a social divide and an impediment to social mobility in a world where inequality is already high. This makes it important to channel more digital transformation resources towards getting the least digitally ready on board – failing which, the digital divide will widen existing inequalities.

Going digital is ultimately a collective effort: Achieving digital inclusion requires a whole-of-society effort – a government mandate, non-governmental organisational resources, and community volunteer networks are all necessary for digital inclusivity initiatives to have reach, scale, and sustainability.

A truly human-centred approach to digital inclusion: Digital inclusion requires meeting users where they are. Once people have a sense of ownership of new digital tools, this generates social impact. It is not enough to simply identify target groups and initiate programmes for them. Attention must be paid to their specific needs, such as ensuring that materials for seniors are available in all four local languages and that volunteers and officers speak local dialects.

Resources

IMDA (2021): Seniors go digital, available at: https://www.imda.gov.sg/en/seniorsgodigital

Sagar, M. (2020): Singapore Senior Citizens Go Digital During Pandemic, available at: https://opengovasia.com/singapore-senior-citizens-go-digital-during-pandemic/

Pihlainen, K.; Korjonen-Kuusipuro, K.; & Kärnä, E. (2021): Perceived benefits from non-formal digital training sessions in later life: views of older adult learners, peer tutors, and teachers, International Journal of Lifelong Education, 40:2, 155-169, DOI: 10.1080/02601370.2021.1919768

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Davie, S. (2021): 1,000 digital ambassadors help hawkers and seniors adopt technology, available at: https://www.straitstimes.com/singapore/parenting-education/1000-digital-ambassadors-hired-and-trained-by-sg-digital-office-to

Smith, L. (2018): A portrait of the smart nation Singapore, available at: https://hub.beesmart.city/city-portraits/smart-nation-singapore

2.4.3 Spotlight case ③
Digital inclusion in the farming community in Vietnam

Internet access and tech training for farmers to improve rural life

Another digital inclusion case comes from Binh Duong, a province in southeast Vietnam with a pioneering smart city. In 2011, Binh Duong was still an agrarian, low-population area. To improve quality of life for farmers and not leave them behind during digital transformation, the city brought tech training and internet access to the remotest areas. The idea of the project was to give farmers unrestricted internet access via access points so that they could learn about farming practices, prices and commodities, consumption markets, and international models for raising livestock and plants. The information portal enabled farmers to easily locate the information most relevant to their land and situation. Access point staff also provided training courses. To better understand the farmers' training needs, the city collaborated with local farmers' associations, which are also managing the innovative farming platform. As of November 2018 (the most recent information available about the project), more than 87 access points have been established and approximately 900 farmers have participated in this scheme.

Fig. 14: Photo by Quang Nguyen Vinh from Pexels

Resources

Binh Duong News (2021): Provincial Farmers Association improves quality of farmers movements, available at: https://baobinhduong.vn/en/provincial-farmers-association-improves-quality-of-farmers-movements-a238548.html

Appleton, J. (2021): Binh Duong: The pioneering Smart City in Vietnam, available at: https://hub.beesmart.city/city-portraits/binh-duong-pioneering-smart-city-in-vietnam

Krisman, V. (2018): Binh Duong Smart City, available at: https://www.intelligentcommunity.org/tags/binh_duong

2.4.4 Best practice ⑨
SolutionsForCities idea competition, global

An international competition to identify digital solutions for common urban challenges in times of COVID-19

The #SolutionsForCities ideas competition addressed common challenges shared by cities around the world in face of the COVID-19 pandemic. Initiated by the German Federal Ministry of the Interior, Building and Community (BMI) and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), this project aimed to identify and transfer digital solutions for local problems and thereby promote sustainable urban development for the common good. Over the course of more than a year, a set of specific challenges was identified, providing the basis for an international call for solutions and a subsequent selection and implementation process. One of the winning concepts – a solution from Kampala, Uganda, to support local market vendors during the pandemic by selling their products online – is currently being rolled out and "scaled" in the city of Guadalajara, Mexico.
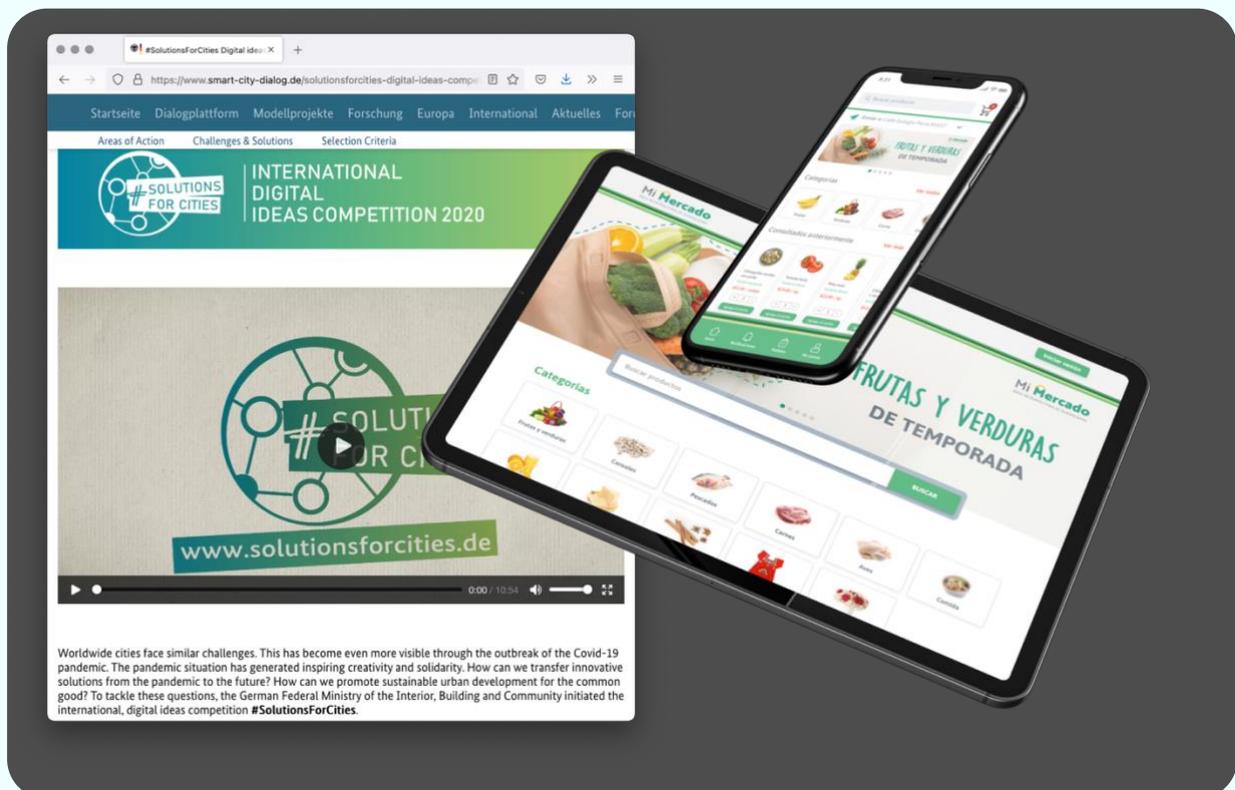

Fig. 15: The first mock-ups of the translated Ksmart Market Platform, Source

Stakeholders and modes of participation

Steer and decide: This project was coordinated by GIZ in close cooperation with the BMI in the context of the International Smart Cities Network (ISCN). Key decisions about the project's scope, partners, outline, and procedures were discussed openly, with a core group of project managers implementing these decisions. Additionally, a board of a collaborative committee was established and played a crucial role, especially in selecting and evaluating criteria, ideas, and future coordination.

Make and improve: A project team at GIZ implemented these decisions, working closely with partners from inside and outside the ISCN. These partners were the actual solution providers, and were drawn from an international context: private citizens, universities and research institutions, other cities, and private service providers. More specifically, for the winning idea of the Mi Mercado AMG project, IMPELAN (the Institute for Planning and Development Management of the Metropolitan Area of Guadalajara) became an essential partner for a **legitimated and coordinated process** of local transfer.

Curate and foster: In order to **curate, foster,** and design the co-creation phases and workshops throughout the process, methodological experts and coaches facilitated remote design, decision-making, and scaling sessions with the partners.

Process

Prototyping: As a first step, a set of challenges was identified in the "Challenge Labs" in mid-October 2020. Here, selected cities, experts, and partners from Brazil, Germany, Peru, India, and Mexico collected, structured, and prioritised a set of 12 concrete challenges to be addressed further. This two-day workshop took place online and was facilitated by design thinking coaches. All of its results were subsequently published on the #SolutionsForCities website, including a call for solutions. This call was tailored to an international community of experts, innovators, start-ups, and companies, as well as civic actors and research institutions. The call was spread online, in social media, and through networks and contacts; solutions were collected until early November 2020 and subsequently revised, evaluated and – if deemed suitable – matched to the proposed challenges to form teams.

Pilot: In the following phase, participating cities and the solution teams were chosen to collaborate (and compete) in a three-day virtual workshop – again facilitated by design thinking coaches and implemented by the core team at GIZ. Close collaboration between solution providers and public servants from the municipalities formed the basis for further refinement

and led to a set of well-designed and specified solutions. These were later evaluated, and the winning teams showcased their pitches in early December 2020 at the New Leipzig Charter Digital Symposium. After this, one of the winners, the Mi Mercado AMG solution from Kampala, Uganda, was chosen to be implemented in Guadalajara, Mexico.

Highlighted phase

Sustain & scale: This pitch also marked the kick-off of the implementation process in Mexico. A cross-functional team was once again formed by IMPELAN, the core team at GIZ, and a set of local experts; it aims to encompass four phases:

- User research: A new research phase will seek to re-validate the concept's desirability and feasibility on the ground, applying a service design and design thinking methodology that identifies core figures, stakeholders, and partners and their respective needs, troubles, resources, and motivations.
- UX+ development: Next, these findings will be translated into a technical prototype that covers core aspects of the solutions and is ready to be rolled out and tested.
- Administration and advertisement: To validate a product-market fit and ensure the solution's reach, a targeted communication strategy will be implemented, covering the solutions' viability and making the service readily accessible to potential users and partners.
- Transfer package: Ultimately, a shared and collective learning resource will be created. All learnings and insights from the project will be documented and made available for other cities to implement this solution in their own context.

Impact

Innovative transfer: The winning digital solution to support local merchants in the pandemic was not only identified and matched to the new context of Guadalajara – it can also serve as a blueprint for future inspiration and adaptation in other regions that share a similar challenge. The specific challenge-based identification process and the subsequent matchmaking and escalation phases laid the foundation for future implementation and collaborative learning. IMPELAN will share updates, learnings, and insights from the implementation with members of the ISCN to foster a continuous collaborative learning experience.

Specific selections: The early identification of specific challenges and targeted areas of action provides valuable resources well beyond the scope of the competition. The eight selection criteria are designed to provide a sustainable, digital transformation oriented towards the common good. They aim to:

- Strengthen the sense of community
- Foster citizen participation, inclusion, and open innovation

- Contribute to urban development goals
- Improve municipal services
- Promote green and healthy cities
- Strengthen the local economy and digital ecosystem
- Address privacy and security
- Design for scalability, adaptability, and transferability

These eight criteria are themselves value-driven and closely connected to the programme's six areas of action: social cohesion, access, vibrant urban & local centres, mobility, resilience and digital competence. Both the selection criteria and the areas of action provide orientation and "guardrails" throughout the process, as they are clearly specified at the outset of the process, are value-based and normative, and allow for efficient self-selection among the solutions and ideas generated in the process.

From quantity to quality: The call for solutions took place in October and November 2020 and generated a wide range of suggested solutions. The call was followed by a selection and matchmaking phase. The diversity, volume, and challenge-related fit of the ideas put forward led to 12 suggested approaches, ranging from digital upskilling of public servants in India to micro-mobility approaches for managing overcrowded public places in Peru to digital literacy and civic participation innovations from Germany. All of these approaches were presented and proposed with the idea of transfer and inspiration for members of the ISCN and well beyond it.

Key assets

Pandemic openness: The exceptional circumstances due to the pandemic were one essential factor in conceiving, setting up, and implementing this project. Standard procedures and common rituals were not possible at many times, opening up windows of opportunity to try out something new. This openness played into a range of strategies, processes, and approaches, from cross-sectional collaboration to a shared readiness (and need) to embrace new ways of participating in strategic programmes.

Global momentum: A second side effect of the pandemic situation was general international momentum due to a similar set of challenges, questions, and circumstances. Seizing this moment of crisis (that is, the shared sense of the need to act, paired with an uncertainty as to how exactly to do so) in a coordinated and well-structured manner – with a clearly formulated process, a call for action, and an open invitation to take part – provided a robust basis for future action and follow-through.

Targeted innovation: The extremely clear, differentiated, and timely formulation of core challenges compensated for the lack of orientation (especially in the beginning of the

pandemic) with a welcome, relatable, and relevant set of themes. This asset created a framework for future discussions and ideation processes, providing a basis for targeted, user-centred innovation processes that address a wide range of individual, economic, cultural, administrative, and environmental goals. The time and attention invested here proved to be a valuable resource throughout the competition, and even well beyond the selection of the winning idea.

Learnings

Timing: Quickly and flexibly noticing an emerging internal or external opportunity for momentum can unlock a shared willingness to participate and focus on one given project. Especially in times of crisis and general uncertainty, a ready-made and clearly communicated game plan can open doors, rally support, and translate openness into collective action.

Cross-functional collaboration: Even though close collaboration across different departments, organisations, or cities can be challenging (due to a range of different individual goals, metrics, or policies), the shared benefit can often outweigh these challenges. It is important here to address knowledge transfer, peer-to-peer learning, and rituals for collaboration explicitly and continuously. A robust context such as the ISCN can provide such a community of practice, which offers valuable insight to all involved while ensuring the necessary individual space for adaptation and translation into a specific local or organisational context.

Openness to failure: The pandemic has taught us all that rigorous planning and rule-based 'business as usual' only get us so far. A general openness and flexibility when it comes to trying out new processes, approaches, or ideas is just as important – all the more so if the old and proven ones can no longer deliver. The SolutionsForCities contest offers a promising reminder that even in the context of a global crisis, new and innovative projects are possible. A shared sense of curiosity and openness when trying out these methods can itself serve as a prototype for new forms of collaboration, governance, and policy work.

Resources

The Solutions For Cities Website: https://www.smart-city-dialog.de/solutionsforcities-digital-ideas-competition-2020#challenges-&-solutions

The original Solution Smart Market in Kampala, Uganda: https://ksmartmarket.kcca.go.ug/blog

3   Learnings and resources

3.1   Key learnings

In the following section, we cluster our findings into three major categories, drawing upon our cases and their key results, resources, process elements, and learnings. With reference to our model users, David and Daniela, and their jobs, we employ a three-pronged framework: deciding, implementing, and re-evaluating.
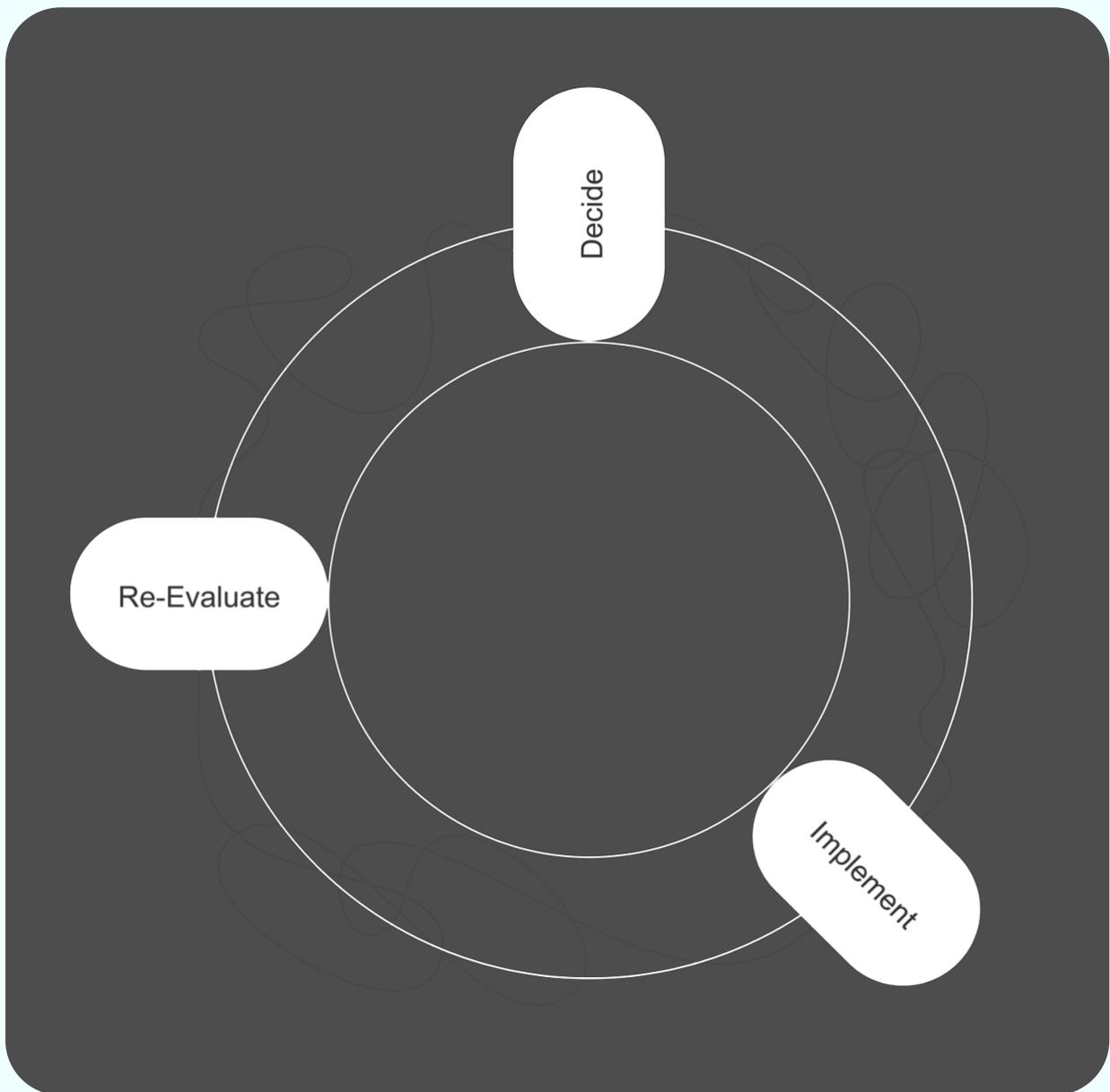

Fig. 17: Framework: decide, implement, re-evaluate, shown in both its theoretic simplicity and the messy process of everyday projects

–   **Deciding** refers to the governance aspect of an innovation project. It formulates objectives, goals, and desired future states; maps them onto present scenarios, challenges, and developments; and translates them into strategies for what to work on and how, how to frame success, and how to integrate political, civic, or private stakeholders.

–   **Implementing** builds upon these strategies. It is all about efficient, sustainable, and resilient processes that continuously aim to identify the right means for context-specific goals. Here, dealing with unforeseen challenges along the way is just as essential as robust methodologies and clearly structured process design.

–   **Re-evaluating** refers to each project's capacity for reflection, adoption, and iteration. Learnings in this category highlight the ability to shift perspectives, question old truths and routines, and broaden perspectives within a given project. Participation, multi-stakeholder collaboration, and continuous learning become core traits that ensure resilient project structures, even in the face of local challenges or global crises.

Returning to our two model users, we suggest that David, as a hands-on practitioner, would tend to lean towards **implementing:** it prioritises implementation strategies, highlights methods and approaches for everyday work in urban contexts, and integrates co-creation concepts with the bigger picture of sustainable project implementation. On the other hand, Daniela as a strategic organiser and enabler might be more oriented to the governance traits of best practices that centre on **deciding:** several factors play a vital part here, such as governance, culture, embracing innovation storytelling instruments, and establishing favourable conditions for multi-stakeholder engagement processes. We suggest that **re-evaluation**, which calls for iteration of current practices and decisions, is equally relevant to both David and Daniela. Likewise, we understand the distinctions among the three categories as general principles – in practice, the three categories overlap and at times converge.

Decide

Innovation is storytelling

#Sao Paulo
#Krakow
#Bristol
#Helsinki
#Seoul

A targeted communication effort goes a long way. Many cases have shown that a clear, transparent, and well-executed communication strategy is more than an afterthought to an innovation project. In many cases, it *is* what innovation is all about: telling new stories, exploring and sharing new perspectives, and thereby re-defining goals, processes, and engagement for all stakeholders involved. This can take the form of a show-and-tell format, but in many cases is more subtle and holistic. From (a) short morsels and stories to be told internally and externally around a given project to (b) targeted outreach to relevant but underrepresented audiences, to (c) aligned messaging and rallying to generate momentum, all the way to (d) high-quality project documentation and dissemination, innovative storytelling enables and structures shared decision-making and collective action in a broad range of settings. In short: innovation = storytelling = innovation.

Political commitment and buy-in is a valuable long-term asset

#Sao Paulo
#Krakow
#Helsinki
#Mannheim
#Singapore

While seemingly obvious, it is worth noting that the commitment of core stakeholders in political and governmental bodies is an extremely valuable and robust asset. This refers to political (and thereby also public) awareness of the project and the challenge it tackles as well as to identifying relevant stakeholders, actors, or individuals within these institutions to engage them proactively. We want to emphasise that this not a mandatory precondition for starting or setting up a project. However, a general pattern emerged in all our reviewed cases, which was that at one point, a connection was drawn between existing political narratives, themes, or issues and the specific project at hand (see also *Implementing*). Decision-making here became a multi-level effort that connected well with external processes or institutions. We learned that management of these decision-making processes, which might take place outside of the core process of a project, is a sometimes challenging but extremely worthwhile investment of time, energy, and (networked) resources.

Challenging routines and establishing a new government culture

Choosing how decisions are to be made is a part of the governance culture of a project. Novel approaches within traditional government structures, from hackathons to new routines to co-creation partnerships and cross-sectoral collaboration, can transform a city well beyond the immediately visible outcomes of a project. We learned that in many cases, embracing openness towards new ways of doing things paid off for everyone involved. The establishment of new structures or bodies (e.g. committees specifically devoted to resolving challenges or conflicts), new formats and methodologies (close collaboration processes that bring together internal and external actors in new and well-facilitated ways), and a general stance that favours flexible, quickly responsive, and agile approaches over processes of business as usual emerged as important issues. We acknowledge that change – especially changes to long-established routines – can sound nice on paper but be hard in reality. What worked for many cases here was the identification of timely occasions (such as a general openness in the face of the pandemic) as well as the identification of a core group of open-minded and willing actors who spark change and bring it into their respective organisations.

Building collaborative ecosystems rather than one-off solutions is more sustainable and resilient

Social innovation projects are inherently complex and systemic and cannot be completed by individual actors or communities in isolation. Therefore, each social innovation process should have at least a two-tiered focus on, first, developing solutions and, second, generally improving

the environment for social innovation. You should seek to foster an inclusive, long-lasting, and collaborative ecosystem. This system should involve diverse actors (including new, less well-represented groups) and places (including areas that are less advanced in terms of innovation), maximise the value of the innovation to all, and safeguard equitable diffusion of its benefits. You need to ensure a long-term commitment by stakeholders that makes it possible to build resilient relationships and trust and supports the integration of new stakeholders along the way. This will prove to be more valuable than the initial momentum and action created by short-term and one-off interventions. From a public sector perspective, building an ecosystem requires creating links with (1) the private sector (SMEs, start-ups, industry) for faster access to funds and markets; (2) local civil society organisations and citizens to match the needs, values, and expectations of the local communities; and (3) universities and research and technology organisations as a source of innovation and talent. Establishing greater collaboration and trust requires not only a few organisations taking the first step but also a coordinated, massive demonstration of willingness to share and to put individual interests aside to expand and enrich the ecosystem as a whole. The Seoul case showed how the city successfully combined an 'inside-out' with an 'outside in' approach, that is, it built an innovation unit inside the city government but also invested significantly in a range of outside actors. Strategies to foster social interaction include holding local workshops, adopting simple language that avoids niche terminology, and encouraging interactions between experts and non-experts or between 'strong innovators' and 'modest innovators' to tackle innovation gaps. You can integrate often-overlooked communities by providing open, accessible spaces to discuss trade-offs, implications, and blind spots. Building and sustaining an ecosystem may also require capacity building programmes (1) for public authorities to foster novel models of public-academic, public-private, or public-civic collaborations, and (2) for the community to provide methodological, technical, and other required skills in a way that is enjoyable.

Implement

Transparent and clearly structured processes and phases help orient action and resources

#Bristol
#Helsinki
#Mannheim
#SolutionsForCities

The cases show how an effective and standardised process or framework supports communities, researchers, city councils, and other stakeholders in planning and running social innovation interventions. A simplified structure is easier for both experts and non-experts to follow, communicate and enact. Implementing a common set of tools and processes decreases ambiguity and guesswork, making project teams more efficient. Thinking in phases helps us to better understand what activities matter when and it shows how each phase contributes an output to the formulated challenge, which in turn increases contributions from participants who may not be able to take part in all phases. Such a framework also helps to galvanise participants around common values (openness, experimentation, etc.) and a shared vision that fosters joy and empowerment, providing a common language for stakeholder engagement. Standardisation makes it possible to scale up a community project to increase awareness across different communities, cities, governments, and user groups.

Focus on results and learnings rather than processes to gain flexibility and robustness in the face of crises

#Krakow
#Helsinki
#Seoul
#SolutionsForCities
#Sao Paulo

While it is good to have a structured process as a backbone, innovation is still messy and unpredictable, even more so during a pandemic crisis. Phases overlap and it makes sense to move back and forth. In this iterative process, it is useful to break the idea down into smaller pieces for testing rather than jumping on the bandwagon for one potentially big solution. The Kraków example showed how it can sometimes be useful to start a parallel prototyping process with a real-world application alongside a more theoretical policy paper. Both processes require embracing a broad range of open feedback early because collecting evidence ensures that your project has the intended positive outcome. You need to plan what you want to measure and be clear about how you will demonstrate impact. Getting a measurement and evaluation framework in place early allows you to capture critical insights, iterate, and make changes more easily with a comparatively small budget. This builds flexibility into your project in uncertain times. Clear criteria for success can also help to convince funders that their investment is effective. However, the "small is beautiful" approach requires more flexible public regulation that allows for a particular type and scale of experimentation in urban developments (e.g. a lightweight procurement process in Helsinki, public-private partnerships in Seoul) to create the best possible conditions for social innovation to flourish.

Making "clever" use of existing resources, commitments, budgets, and networks saves time, energy, and money

#Bristol
#Mannheim
#Helsinki
#Luanda & Maputo
#Singapore

One of our key learnings is that rather than building all your own project infrastructure from scratch, you should try to leverage existing resources and knowledge, budgets, and networks to run your project efficiently. Look for innovation solutions that are already out there. Sometimes it helps to visit a space where people already know how to live and work with these new solutions. You should take up existing policy programmes and check for international or national funding schemes, like in the Mannheim and Bristol cases, to get financial support and enable collaboration beyond the city's boundaries. Investments in social innovation from philanthropic organisations and larger foundations (e.g. Robert Bosch, Lankelly Chase) are also growing. Scanning your environment (e.g. through a stakeholder analysis) helps to identify potential collaboration and funding partners as well as existing social innovation initiatives and networks. From the outset, you should try to link the project with relevant government departments that can act as multipliers or door openers. Check for digital platforms (e.g. digital social innovation networks) to connect internationally. You can find opportunities by piggybacking on other initiatives, solutions, or networks. Initial engagement of stakeholders requires a simple and compelling focus. Addressing these stakeholders as one homogenous group is usually not effective. Instead, you should try to build close relationships separately with each group. While the existing approach to network building has proved to be successful in connecting people and organisations with specific interests, you should be aware that it is not usually the best way to reach people beyond the 'usual suspects'.

Ensuring the long-term viability of social innovation requires much care and creativity, because value creation and capture works

differently to profit-oriented innovation

#Mannheim
#Sao Paulo

Turning a good idea into a sustainable venture depends on a business model and a coherent funding strategy. You need a clear idea of how you will generate income streams that cover more than your costs and how you will make sure that you have enough money to get your solution off the ground. Instead of relying solely on grants or donations, you should try to find innovative ways to ensure that your endeavour is financially sustainable in itself in the long term. Social innovation requires dedicated, sustained funding from patient funders, but compared to other innovation-driven businesses, you have to frame and deliver the social and environmental value (measurable impact) and economic value (revenue) better. Social innovation business models represent a strategy for sustainability. They are as diverse as profit-oriented business models, ranging from direct services to models that create value for customers to models like those around the web that share knowledge and intellectual property. When designing your business model, you should use adapted versions of the classic Business Model Canvas, such as the city business model canvas or the Triple Layered Business Model Canvas, that do not focus on firms but rather are designed specifically to support business modelling for sustainability. Once you have decided on the structure of your business model, you can work on a strategy to raise money for your innovation. This funding strategy can be different from your ultimate sustainable revenue approach, as long as you ensure that you bridge from your initial, short-term strategy to a long-term plan. Short-term funding options include grants, crowdfunding platforms like Kickstarter or Indiegogo, cash donations from corporations (see Singapore), or impact investing. A big advantage of crowdfunding is that it simultaneously functions to both build a community and gain popular support for your initiative.

Re-evaluate

Participatory development requires learning routines and structured decision-making

Social innovation processes include stakeholders and users in ways that go beyond pure feedback. In co-creation formats, participants' experiences, knowledge and ideas are considered, which requires clear procedures and patterns for learning and decision-making. Urban labs in pilot districts create real-world learning environments that have a fixed time span (between one and six months) and are focused enough to find a common ground for the diverse perspectives of stakeholders. Such an environment creates an experimentation field with an exchange of learning at a low cost of failure. When pilots run in parallel, you should make sure to encourage cross-sharing and identify synergies. You should also ensure that any co-design sessions take place in an accessible neighbourhood and venue so that travelling does not become a barrier to attendance. However, collaborative work and knowledge sharing is not enough in itself. Trust, empathy, and personal bonds are necessary for people to work and learn collectively. When actions are derived from learnings, decisions need to be taken, sometimes with partial knowledge and tight timescales. This requires a clear mandate and decision-making scope for all participants before the start of the process. The role of the methodological expert/facilitator is crucial here because he or she can suggest methods and tools, and can support communities in making suitable decisions, foreseeing effects, and sorting out tensions.

Identify committed leaders early because they can be valuable assets for kickstarting and navigating a project

We realised that in many cases, external experts, often from universities (e.g. TU Berlin in Mannheim, the research network at the University of Cape Town) or non-profits (e.g. KWMC in Bristol) became a key asset in putting the project together. They initiated the projects and did the conceptualisation, research, and facilitation work. They played a vital part in conducting research, providing the theoretical framework, and translating it from theory into practice. They created an environment where the project stakeholders could collaborate. Complementarities were often discovered, and links were established with actors from other sectors. Their role

was to facilitate interaction to enable continuous learning, reflection, and adaptation of ideas in a multi-stakeholder setting. They also resolved miscommunications and tensions as they arose. Not every member of a social innovation project needs to have the same level of commitment. From a government perspective, it is advisable to try to identify committed and skilled leaders who possess the resources (e.g. experience, passion, commitment, time, and knowledge) to lead and moderate the conversation. You can support them with dedicated funding and a patient approach to funding. It is important to ensure that common principles of collaboration are created and communicated effectively.

Methodological expertise is key for effective co-creation

#Helsinki
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It is important to master the social innovation process and apply the tools and mind-set properly, especially in the early phase of adopting methodology, since mistakes in any of the project phases might lead to the complete failure of the initiative. Very often, city governments lack personnel with adequate methodological skills. Employees need skill training and the time to practice and learn methodologies and tools in a safe environment. In addition, coaching and facilitation are by their nature ongoing activities that require constant observation and correction. Initially, it can be useful to get external support that provides a professional, efficient, and transparent framework for the entire process. This includes moderating collaborative workshops, identifying and engaging relevant stakeholders, and doing essential 'translation' work among all parties involved (see learning above). Learning from outside experts can then be transferred to public authorities, as with the two-hour TransferLab training sessions in the Mannheim case. Another option to gain methodological expertise is to hire skilled staff from civil society or private organisations – the strategy followed by Seoul's Innovation Bureau.

Crises as catalysts for turning challenges into opportunities

#Sao Paulo
#SolutionsForCities

The public sector is traditionally perceived as reluctant to change. Two of our cases show that crises such as the coronavirus pandemic or social turmoil can generate momentum for change if they are approached as opportunities for change. They create demand for new products and services and lead to regulatory shifts as well as opportunities to use resources in new ways, particularly if traditional approaches and paradigms are questioned and challenged. During a crisis, incentives and motivations change, potentially leading to new cooperative behaviour and even to the creation of new solutions or structures. To be able to leverage change and not be overwhelmed by it, you must understand how fast you need to act and how long your window of opportunity is likely to stay open. Turning an existing crisis into an opportunity further requires reframing the problem or looking at the issues through a different lens. Reframing could include widening the aperture to see more of the problem. Alternatively, reframing could include bringing in lessons or systems from other areas. Sao Paulo's MobiLab and the SolutionsForCities Contest seized the momentum of crisis very well with a clearly formulated call for action, a clear process, and an open invitation to participate. This helped to align actors across disciples and sectors. They also demonstrated an ability to learn and an openness to failure that are key for successful crisis management. To be better positioned to respond to a future crisis, you can conduct lessons-learned exercises to see what has and has not worked during the pandemic.

4   Call to action

We hope that in sharing this collection of best practices and learnings, we have helped you to flourish in your role as social innovator, perhaps from a perspective like David's or Daniela's. We hope you will be able to influence the implementation of a new service, system, programme, or policy that responds to the challenges you, your department, or your city are facing. You should now feel that social innovation approaches can help to bridge the gap between challenge and change. By applying or coordinating them, you will also likely feel more connected to the citizens and users of your services, and this, in turn, can bring about a renewed sense of purpose and responsibility in your role.

5   Glossary

Accountability

At its heart, accountability is about a relationship between those responsible for something, and those who have a role in passing judgement on how well that responsibility has been discharged. When accountability works well, it enables a degree of feedback between the government and the public that it serves. While strong accountability is not a panacea for solving the numerous challenges that government faces in a complex environment, it can improve government. It generates incentives for responsible individuals to act in the interests of the public. Source

Adaptability

Adaptability is the ability to adjust to new conditions. Rather than resisting what is happening or acting from a position of denial, adaptive teams focus on understanding why things happen the way they do and redeploy resources according to the new situation. Source

Co-creation

"The philosophy of co-creation, drawing on participatory design and democratic practices, assumes that stakeholders will achieve satisfactory outcomes if given responsibility for decisions and have equal status in convening roles." Source

Citizen jury

A process that brings together a small group of volunteer citizens for several days to discuss, analyse and try to answer a controversial policy question. During the time that the jury convenes, its members are presented with evidence on the question and engage in debate with policymakers and experts. They ask questions, have group discussions, and finally reach a decision. Source

Design

Devising a course of action aimed at changing an existing situation into a preferred one (Herbert Simon 1969); working towards change that is meaningful and valuable for participants

through a practical, exploratory process that becomes increasingly focused. Here, design is understood as a cyclical process of production and observation, design, and discovery. Source

Design thinking

A process for creative problem solving. It is a human-centred approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success. Decisions are based on what your (potential) customers really want and not on the analysis of historical data or intuition. Coined as a given process by IDEO. Source

Experimentation

An experiment is a way of trying something new while putting in place the necessary structures to find out whether it works. It often implies the preceding definition of tangible hypotheses and the subsequent validation of them. There is a wide range of experimental methods suited to different purposes, with varying degrees of rigour. Source

Future

We employ a constructive notion of a future that, rather than assuming it to be a fixed state in time that we collectively travel to, embraces an open understanding of multiple present futures as today's stories, expectations, fears, or opportunities that are yet to be realised or avoided. This understanding is a decidedly pro-active one (a future must be made).

Governance

A principle to allocate resources and assign decision-making authority in order to attain specific goals. Urban governance refers to how governments (local, regional, and national) and stakeholders decide how to plan, finance, and manage urban areas. Source

Hackathon

A hackathon is an event where individuals from multiple sectors meet physically or digitally, form teams, and focus on solving a specific technical problem for a set amount of time. Early

hackathons focused on bringing together coders to develop software. Since then, they have expanded to creating solutions for social problems. Source

Impact investing

Impact investment seeks to deliver positive social and/or environmental benefits alongside financial returns, by providing capital to organisations that develop products and services or use their operational infrastructure to make a positive difference to society. Source

Methods

Activities or tasks that generate a certain output. Specific methods are usually linked to a certain stage in the wider process. For example, user interviews are often used as a method in the problem exploration stage to explore and understand people's needs, motivations and goals. Source

Network

A network is a set of different identities in relation. It can include individuals (governors, elected officials, city planners, citizens, policymakers, bystanders), organisations (governments, schools, municipalities, citizens' initiatives, local communities) and/or ideologies (liberal, social, conservative, religious, progressive, agenda-based) and is constituted by explicit and implicit boundaries: you might not notice the boundaries of a network until you start mapping it. Source

Participant

The term is used interchangeably with customers, users, activists, volunteers, and beneficiaries. Used to refer to the wide range of people who will be involved in a project using social innovation methods. Source

Principles

Core beliefs that drive certain behaviours. For social innovation, 'iterating', 'start small, think big', and 'build empathy' are key principles. Source

Process

A series of steps or categories of actions taken to achieve a certain outcome. These activities are organised in process steps or stages. The nature of processes can be linear, iterative, or interactive. The stages of innovation (see page 7) are often used as an archetypal innovation process. Source

Resilience

In the words of systems theorist C.S. Holling, resilience is the "ability of systems to absorb changes of state in variables, driving variables and parameters, and still persist." Resilience is often equated with robustness.

Social capital

The OECD defines social capital as "networks together with shared norms, values and understandings that facilitate co-operation within or among groups". In this definition, we can think of networks as real-world links between groups or individuals. Source

Social impact

A significant, positive change that addresses a pressing social challenge, as a result of a deliberate set of activities with a goal of generating social change. Source

Social innovation ecosystem

Social innovation ecosystems enable or inhibit the development of social innovations. They consist of actors from different societal sectors and their environments with legal and cultural norms, supportive infrastructures, and many other elements. Source

Tools

Instruments or artefacts needed to carry out a particular activity or task, e.g. personas can be used to capture and communicate insights from user interviews and observations. Source

Urban lab

A lab is a permanent or temporary organisation that engages diverse participants in open collaboration for the purpose of creating, elaborating, and prototyping solutions to systemic challenges. It is often set up as a supportive laboratory for the planning department of a municipality. Source

User

To use something is to employ it or operate it, so a user is someone who uses or takes advantage of something. If you have a computer and use it for anything, you are a computer user. In current discourse, the understanding of the user is being expanded from an (often too) individualistic notion of a single person to collectives, societies, and even non-human users (such as animals and ecological systems).

Social
Innovation

Digital

Urban
Development

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