OECD Public Governance Reviews

Global Trends in Government Innovation 2023



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BETTER POLICIES FOR BETTER LIVES

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Foreword

In the current context of multiple crises, governments must increasingly respond to emerging threats while grappling with more longstanding issues such as climate change or digital disruption. Driven in part by this environment, governments are striving more than ever to innovate to adapt their societies and economies, and to transform themselves and how they design and deliver policies and services. Indeed, recent crises have helped catalyse innovation in the public sector, and innovation has emerged as a much-needed driver of resilience that can generate public value in difficult times.

The need to strengthen trust in government is also a high priority, since it can help governments effectively respond to these challenges. With only about four in ten people in surveyed OECD countries trusting their national government, more can be done to demonstrate inclusiveness, reliability and responsiveness as drivers of trust. Innovation can be part of the equation for achieving these aims; however, only about four in ten respondents, on average across countries, say that their government would improve a poorly performing service, implement an innovative idea, or change a national policy in response to public demands.

Understanding new approaches and spreading successful ideas has thus never been more important. As part of the MENA-OECD Governance Programme, the OECD Observatory of Public Sector Innovation (OPSI) and the United Arab Emirates (UAE) Mohammed Bin Rashid Centre for Government Innovation (MBRCGI) have collaborated since 2016 to explore how governments are working to understand, test and embed new ways of doing things. These efforts have culminated in 12 reports on Global Trends in government innovation, as well as a deep-dive effort on Cross-Border Government Innovation to tackle global challenges.

This report on public sector innovation trends for 2023 continues the series of annual trends reports. As in previous years, the work for identifying this year's trends has been entirely fuelled by innovation leaders and practitioners working in the field and directly with users and stakeholders in their own countries and communities to design and implement innovative approaches. In coupling OECD research with user-submitted case studies as part of the Call for Innovations global collective intelligence exercise, OPSI has analysed 1 084 innovations from 94 countries and held interviews with innovation teams to derive and understand the latest novel practices. Through synthesising the identified projects and taking into account events, workshops and conversations held with governments around the world, OPSI and the MBRCGI have identified four key trends and 10 case studies that illustrate them. These trends and case studies demonstrate how governments are working to build more resilient and inclusive societies while ensuring greater accountability, equity, empathy and proactivity.

OECD and the MBRCGI celebrate these efforts and hope that they inspire others to take action and replicate their success in their own context. The partners behind this project also greatly appreciate the work of the individuals, teams and organisations undertaking innovation projects and who took the time to participate in the Call for Innovations that fuelled this work. For instance, innovators in Brazil submitted an astounding 112 cases, 53 came from Greece, and 35 or more came from Colombia, Korea and Türkiye. Although not all the efforts uncovered for this work can be featured in this report, many are available on the OPSI Case Study Library, a constantly growing resource where public servants can learn about innovative projects around the world, and even reach out to the teams behind them to learn more.

The report was reviewed by OPSI's Network of National Contact Points; it was approved by the OECD Public Governance Committee on 5 April 2023 and prepared for publication by the Secretariat.

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Executive summary

Governments worldwide have faced severe challenges in the last few years. The world had little time to recover from the impact of the COVID-19 pandemic before Russia's full-scale invasion of Ukraine dealt the global economy a series of shocks. The culminative effect of these events has been the destruction of lives and livelihoods, and growing humanitarian, economic and governance crises. Millions of people have been displaced, energy and food markets have been severely disrupted, inflation continues to surge, and economic growth is slowing). Governments must cope with and respond to these emerging threats while already grappling with issues such as climate change, digital disruption The challenges they face in ensuring positive outcomes for their people seem to be increasing.

Yet, despite compounding challenges, governments have demonstrated in many cases capacities for resilience, including for adaptation and innovation. More specifically to the focus of this work, governments have managed demonstrate they are open to changes on how they design policies, deliver services and manage the business of government. If anything, recent and ongoing crises have catalysed public sector innovation and reinstated the critical role of the state. While the overall tone may be pessimistic, public sector innovation has provided bright spots and room for hope.

The search for these bright spots and entry points for change is the driving force behind this report, and the research that underpins it

For 2023, OPSI has identified four primary innovation trends, alongside ten in-depth case studies and dozens of supporting examples of projects at the forefront of innovation to illustrate them. This wealth of innovative activities among governments and their partners in industry and civil society by far surpasses the level of innovation observed in previous years, demonstrating that governments are willing and able to step up and take rapid and impactful action to overcome the obstacles in their path and to help ensure the well-being of their citizens and residents. The trends identified are:

1. **New forms of accountability for a new era of government.** Focusing on algorithmic accountability in the public sector and new aspects of transparency regarding Rules as Code concepts and Internet of Things (IoT) sensors, this trend is supported by case studies on the United Kingdom's Algorithmic Transparency Recording Standard and Amsterdam's Sensor Register regulation and map.
2. **New approaches to care.** Re-orienting of care systems for a more integrated and patient-centred approach, as well as specific focuses on empathic care to support mental health and leveraging new technologies to revolutionise healthcare. This trend is supported by case studies on the Bogotá Care Blocks in Colombia, which provide integrated support to women carers and their families, as well as a Mental Health Café in Australia and the AI-powered Tucuvi virtual nurse in Spain.
3. **New methods for preserving identities and strengthening equity.** Innovative approaches to engaging with Indigenous peoples, safeguarding cultural heritage and enabling families and communities for equitable outcomes and enhanced wellbeing. This trend is supported by case studies on Ethical Deliveries, an alternative to private sector delivery platforms in Bologna, Italy, as well as efforts to support citizenship, participation and access to justice for Indigenous Maxakali communities in Brazil and the Empowered Families Initiative in Singapore.

4. **Trend 4: New ways of engaging citizens and residents**. Evolving upon and strengthening public engagement practices, while also empowering people to have a stronger role in re-imagining and seeing new norms for physical and environments. This trend is supported by case studies on permanent Deliberative Committees in the Brussels, Belgium Regional Parliament, as well as the creative #FreetownTheTreeTown initiative to promote the planting and caring for trees in the capital of Sierra Leone.

As can been seen throughout this report, government responses to COVID-19, and their efforts to move towards long-term recovery, permeate several of these trends, and in many cases serve as the point of origin for their underlying initiatives. In many ways, the four leading trends represent the systemic evolution and maturity of government priorities and workstreams already underway, rather than the introduction of radically new concepts. Accountability, public care services and protecting cultures and marginalised groups are age-old functions of government. Likewise, governments have been working to open their systems to the public for several decades now. Yet, recent events, new technologies, growing expectations from citizens and increasing awareness of inequities and injustices in society have compelled and empowered governments to act in new ways. While the resulting efforts in recent years were often ad-hoc, those seen this year, while still innovative in their approach, are often more intentional, building on lessons learned from previous efforts and seeking to address the root cause of issues rather than symptoms.

In addition to the four leading trends, a number of additional secondary trends emerged. Although these are not the focus of this report, they may be the subject of future work. These secondary trends include:

- **Public administration transformation.** Governments are innovating to transform nuts-and-bolts operations, such as procurement, training and reskilling and upskilling public servants, and seeking to measure public sector innovation.
- **New foundations for young people and intergenerational justice**. Governments are developing novel solutions tailored to the needs of young people and giving a voice to future generations in today's policy making.
- **Accelerating the path to net zero**. Governments are taking creative approaches to reduce carbon emissions and promote sustainable approaches.
- **Strengthening and leveraging GovTech ecosystems**. Governments are reaching beyond the public sector for innovative solutions and tapping into new ideas from agile startups.

1 Trend 1: New forms of accountability for a new era of government

This chapter introduces the trend on the increasing adoption of Artificial Intelligence in the design and delivery of policies and services. It highlights the need and drive towards ensuring that the algorithms and underlying data avoid bias and discrimination, and that public servants understand data ethics. Finally, it provides practical examples and global case studies to help governments and their partners understand, test and embed new approaches to AI accountability in an effort to enhance transparency and reinforce trust with citizens.

Governments are increasingly adopting Artificial Intelligence in the design and delivery of policies and services. This is accompanied by efforts to ensure that the algorithms and underlying data avoid bias and discrimination and that public servants understand data ethics. Several forward-thinking governments and external ecosystems actors are promoting algorithmic accountability, emphasising transparency and explainability, with a view to building trust with citizens. Beyond algorithms, governments are promoting new concepts of transparency with the evolution of Rules as Code–open and transparent machine-consumable versions of government rules – and shedding light on the Internet of Things, which has embedded often-invisible sensors in public spaces. While promising, innovative policy efforts in these areas are often scattered and lack coherence, limiting the potential for collective learning and the scaling of good ideas. This underlines the need for further work on these topics, including fostering international alignment and comparability.

Algorithmic accountability

Artificial Intelligence (AI) is reshaping economies, promising to generate productivity gains, improve efficiency and lower costs. As governments determine national strategic priorities, public investments and regulations, they hold a unique position in relation to AI. Many have acknowledged the economic importance and potential of AI, with AI strategies and policies now in place in more than 60 countries worldwide.

The OECD.AI Policy Observatory has taken the lead in advancing OECD's AI-related efforts. An important milestone was the adoption of the OECD AI Principles in 2019. This pioneering set of intergovernmental standards on AI stresses the importance of ensuring that AI systems embody human-centred values, such as fairness, transparency, explainability and accountability, among others.

The majority of national AI strategies recognise the value of adopting AI in the public sector, alongside the need to mitigate its risks (OECD/CAF, 2022[1]; Berryhill et al., 2019[2]). In fact, governments are increasingly using AI for public sector innovation and transformation, redefining how they design and deliver policies and services. While the potential benefits of AI in the public sector are significant, attaining them is not an easy task. The field is complex and has a steep learning curve, and the purpose and context of government presents unique challenges. In addition, as in other sectors, public sector algorithms and the data that underpin them are vulnerable to bias, which may cause harm, and often lack transparency.

The OECD Open and Innovative Government Division (OIG) has undertaken extensive work on the use and implications of AI and Machine Learning (ML) algorithms in the public sector to help governments maximise the positive potential impacts of AI use and to minimise the negative or otherwise unintended consequences (see examples here, here and here). Other organisations, including the European Commission, have also reviewed and examined the expanding landscape of AI in the public sector.

However, the rapid growth in government adoption of AI and algorithmic approaches underlines the need to ensure they are used in a responsible, ethical, trustworthy and human-centric manner. Perhaps more than any other sector, governments have a higher duty of care to ensure that no harm occurs as a result of AI adoption. Such potential consequences include the perpetuation of "Matthew effects", whereby "privileged individuals gain more advantages, while those who are already disadvantaged suffer further" (Herzog, 2021[3]). For instance:

- The "Toeslagenaffaire" was a child benefits scandal in the Netherlands, where the use of an algorithm resulted in tens of thousands of often-vulnerable families being wrongfully accused of fraud and even hundreds of children being separated from their families, resulting in the collapse of the government.

- Australia's "robodebt scheme" leveraged a data-matching algorithm to calculate overpayments to welfare recipients, resulting in 470 000 incorrect debt notices totalling EUR 775 million being sent. This led to a national scandal and a Royal Commission after many welfare recipients were required to pay undue debts.
- In the United States, the use of facial recognition algorithms by police has resulted in wrongful arrests, while bias has been uncovered in criminal risk assessment algorithms that help guide sentencing decisions, resulting in harsher sentences for Black defendants.
- Serbia's 2021 Social Card law allows for the collection of data on social assistance beneficiaries using an algorithm to examine their socio-economic status. As a consequence, over 22 000 people have lost benefits without an explanation, resulting in legal petitions by a network of advocacy groups (Caruso, 2022[4]).

Government have sought to address this issue in a variety of ways, including outright bans on some types of algorithms. For instance, in Washington, DC, the proposed "Stop Discrimination by Algorithms Act" prohibits the use of certain types of data in algorithmic decision making, and at least 17 cities in the United States and even entire countries, such as Morocco, have implemented bans on government usage of facial recognition. However, a number of have since backtracked, and OECD OPSI-MBRCGI's prior report on *Public Provider versus Big Brother* shows that while authoritarian governments have employed algorithms as a means of social control (e.g. China's Social Credit System), others have applied them in legitimate ways to deliver better outcomes for the public. Some even argue that algorithmic decision making can counteract unaccountable processes and offers "a viable solution to counter the rise of populist rhetoric in the governance arena" (Cavaliere and Romeo, 2022[5]).

While algorithms can indeed introduce bias and discrimination, so can humans. Indeed, algorithms can systematise the human bias observed in human decisions (Salvi del Pero, Wyckoff and Vourc'h, 2022[6]). The key to prevention is having the right safeguards and processes in place to ensure ethical and trustworthy development and use of AI technologies and to mitigate potential risks and biases, as emphasised by the 2023 *European Declaration on Digital Rights and Principles for the Digital Decade*. One example of this approach is **algorithmic accountability**.

> *Algorithmic accountability means "ensuring that those that build, procure and use algorithms are eventually answerable for their impacts."*
>
> *Source: The Ada Lovelace Institute, AI Now Institute and Open Government Partnership*

Broadly speaking, accountability in AI means that AI actors must ensure that their AI systems are trustworthy. To achieve this, accountable actors need to govern and manage risks throughout their AI systems (OECD, forthcoming-a, *Towards accountability in AI*). The concept of algorithmic accountability more specifically is rooted in "transparency and explainability" and broader "accountability", values that are integral to the OECD AI Principles. However, current legal and regulatory frameworks around the world lack clarity regarding these values, especially about the use of algorithms in public administrations. For instance, the European Union (EU)'s General Data Protection Regulation (GDPR) provides rules and remedies related to algorithmic decisions, but the question of whether explainability is also a requirement has given rise to much debate (Busuioc, 2021[7]). The EU's Digital Services Act (DSA) (passed in July 2022), Canada's proposed Artificial Intelligence and Data Act (AIDA), and the United States' proposed Algorithmic Accountability Act (AAA) all include requirements for enhanced transparency for algorithms, but are generally aimed at companies, leaving the question of how public administrations should use algorithms open to interpretation. The proposed EU Artificial Intelligence Act (AI Act) and the related EU AI Liability Directive, however, offer significant potential for algorithmic accountability in the public sector (Box 1.1).

Box 1.1. Algorithmic accountability in the proposed AI Act and AI Liability Directive

Proposed in 2021, the **AI Act** is the first piece of regulation that specifically addresses the risks of AI. The Act tackles gaps in current European legal frameworks by adopting a risk-based approach. It sets four levels of risk for AI: unacceptable risk, high risk, limited risk, and minimal or no risk.

All forms of AI deemed to present an unacceptable risk will be banned as a threat to people's rights, safety and livelihoods. Those in the high risk category, such as biometric identification systems, will be subject to stricter obligations, which include appropriate human oversight measures, high-quality training datasets, and risk assessment and mitigation mechanisms. Limited risks AI systems will comply with lighter obligations that focus on transparency and ensure that users are aware that they are interacting with a machine. The use of minimal or no risk AI systems, which constitute the majority of those currently used in the EU, will be free or restriction.

To establish a shared framework to address the legal consequences of harms caused by AI systems, in September 2022 the Commission proposed the **AI Liability Directive**. With this policy the Commission wants to ensure that victims of harm caused by AI are not less protected than those of traditional technologies. The policy would decrease the burden of proof for victims, establish a "presumption of causality" against the developer, provider or user of the AI system, and make it simpler for victims to obtain information about high-risk systems – as defined by the AI Act – in court.

Source: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206, https://ec.europa.eu/commission/presscorner/detail/en/ip_22_5807.

As the international landscape continues to evolve and solidify, a number of forward-thinking governments worldwide are promoting algorithmic accountability, led largely by oversight and auditing entities, as well policy-making bodies often located at the centre of government. External ecosystems actors are also taking note and are working to ensure the use of algorithmic approaches in government meet the higher duty of care required of the public sector. However, despite these promising approaches, more needs to be done to build alignment among disparate definitions and practices around the world.

From the inside-out: Innovative government efforts in algorithmic accountability

Independent **oversight entities** have a critical role to play in auditing the use of algorithms in the public sector. Such algorithmic accountability can be seen in a variety of examples from around the world:

- In a first for the Latin American region, the independent Chilean Transparency Council is developing an open and participatory design for a binding "General Instruction on Algorithmic Transparency" for public entities. A public consultation is expected for 2023.
- The Netherlands Court of Auditors (NCA) has made significant advances in both front-end and back-end aspects of algorithmic accountability. In 2021, it developed an audit framework that assesses whether algorithms meet quality criteria. In 2022, it audited nine major public sector algorithms and found that six (67%) did not meet basic requirements, exposing the government to bias, data leaks and unauthorised access.
- In 2022, Spain created an independent Spanish Artificial Intelligence Supervision Agency (Box 1.2), and the Netherlands launched a similar entity in 2023. The draft AI Act (Box 1.1) also calls for a supervisory European Artificial Intelligence Board (EAIB).
- In an example of a successful cross-border collaboration, in 2020 the Supreme Audit Institutions (SAIs) of Finland, Germany, the Netherlands, Norway and the United Kingdom (UK) collectively issued *Auditing machine learning algorithms: A white paper for public auditors*.
- The United State Government Accountability Office (GAO) in 2021 issued *Artificial Intelligence: An Accountability Framework for Federal Agencies and Other Entities*.

Box 1.2. Spanish Artificial Intelligence Supervision Agency (AESIA)

AESIA was enacted by law in mid-2022 and is the first dedicated national government agency of the EU to implement a direct mandate on supervising, monitoring and building rules on AI, both for the public sector and beyond. The agency was established in response to a proposed AI Act requirement on implementing national supervisory authorities to ensure the application and implementation of the rule of law concerning AI, and to help achieve Spain's National AI Strategy. The new agency seeks to build a tailored Spanish vision and jurisprudence that could serve as a model for future European AI agencies.

The development of AESIA is a two-step process. First, the design of auditing and implementing guides is key to mainstreaming its vision, and to gathering evidence directly from users needed to build reliable and human-centred regulatory tools. Second, by creating new sandboxes (and incorporating existing ones) with a focus on AI and algorithmic accountability, the agency will be able to test its own rules with a view to achieving objectivity and ensuring that the balance between protecting human and digital rights, and economic interests, is maintained, and that the legitimate interests of all parties are met.

AESIA is expected to be fully operational by late 2023.

Source: www.boe.es/buscar/act.php?id=BOE-A-2021-21653, Interview with AESIA officials.

To obtain a complete picture of new forms of accountability, such as algorithmic accountability, it is necessary to look at other players in the public sector innovation and accountability ecosystems. Perhaps the most relevant of these are **policy-making offices** which set the rules that public sector organisations must follow. One recent example is the October 2022 US White House *Blueprint for an AI Bill of Rights*, which includes five principles and associated practices to protect against harm – although the blueprint has received criticism for excluding law enforcement from its scope. Similarly, Spain's Charter on Digital Rights includes 28 sets of rights, many of which relate directly to ethical AI and algorithmic accountability, such as "conditions of transparency, auditability, explainability, traceability, human oversight and governance".

Figure 1.1. AI Bill of Rights Principles in the United States



Source: www.whitehouse.gov/ostp/ai-bill-of-rights.

Additional relevant examples include:

- In late 2021, the UK Cabinet Office's Central Digital and Data Office issued one of the world's first national algorithmic transparency standards, which is being piloted with a handful of agencies (see full case study later in this publication). Relatedly, the United Kingdom, through The Alan Turing Institute (see p. 167 of OPSI's AI primer for a case study on its Public Policy Programme), has also created an excellent AI Standards Hub to advance trustworthy AI through standards such as the Algorithmic Transparency Standard.
- Canada's Directive on Automated Decision Making, issued by the Treasury Board Secretariat, requires agencies using or considering any algorithm that may yield automated decisions to complete an Algorithmic Impact Assessment. This questionnaire calculates a risk score which in turn prescribes actions that must be taken (OPSI's report on AI in the public sector includes a full case study). Canada's Algorithmic Impact Assessment has inspired similar mechanisms in Mexico and Uruguay.
- France's Etalab has issued guidance on Accountability for Public Algorithms, which sets out how public organisations should report on their use to promote transparency and accountability. The guidance proposes six principles for the accountability of algorithms in the public sector, among other elements.
- The Netherlands' Ministry of Interior and Kingdom Relations has created a Fundamental Rights and Algorithms Impact Assessment (FRAIA), which facilitates an interdisciplinary dialogue to help map the risks to human rights from the use of algorithms and determine measures to address these risks.
- At the local level, policy offices in the cities of Helsinki, Finland and Amsterdam, the Netherlands have developed AI registers to publicly catalogue AI systems and algorithms, while a policy office in Barcelona, Spain, has developed a strategy for ethical use of algorithms in the city. Based on Helsinki and Amsterdam's work, in 2023 nine cities have collaborated through the Eurocities network to create an algorithmic transparency standard.

In addition to these internal government approaches, countries have adhered to non-binding international recommendations and principles for responsible and ethical AI that could guide this work. Such examples include the aforementioned OECD AI Principles and UNESCO's Recommendation on the Ethics of AI. The development of such instruments continues, for example through the Council of Europe, which has a committee dedicated to AI (CAI) that is developing a Legal Instrument on Artificial Intelligence, Human Rights, Democracy and the Rule of Law. In regard to accountability, the OECD.AI Policy Observatory is working to make principles more concrete through its Working Group on Tools & Accountability and collaboration around the prototype OECD-NIST Catalogue of AI Tools & Metrics.

Alongside these initiatives scoped specifically around AI and algorithms, the application of broader open-by-default approaches can help make governments algorithms more accountable to their people. In this regard, the OECD Good Practice Principles for Data Ethics in the Public Sector underscore the need to make source code openly available for public scrutiny and audit and the need for more control over data sources informing AI systems (see Box 1.3). Other examples in this area include the Open Source Software initiative implemented by Canada in the context of its OGP Action Plan, as well as France's application of open government in the context of public algorithms.

Box 1.3. OECD Good Practices Principles for Data Ethics in the Public Sector

- Manage data with integrity.
- Be aware of and observe relevant government-wide arrangements for trustworthy data access, sharing and use.
- Incorporate data ethical considerations into governmental, organisational and public sector decision-making processes.
- Monitor and retain control over data inputs, in particular those used to inform the development and training of AI systems, and adopt a risk-based approach to the automation of decisions.
- Be specific about the purpose of data use, especially in the case of personal data.
- Define boundaries for data access, sharing and use.
- Be clear, inclusive and open.
- Publish open data and source code.
- Broaden individuals' and collectives' control over their data.
- Be accountable and proactive in managing risks.

Source: https://oe.cd/dataethics.

From the outside-in: Broader ecosystems strengthening accountability

While innovative and moving in the right direction, government algorithmic accountability efforts are currently scattered and lack coherence, which limits the potential for collective learning and the scaling of good ideas and successful approaches. The first step in bringing the global discussion on public sector algorithmic accountability into alignment is understanding the different approaches and developing a baseline for action. Some excellent work has already been done in this area, with the joint report of the independent Ada Lovelace Institute, AI Now Institute and OGP representing "the first global study of the initial wave of algorithmic accountability policy for the public sector" (Ada Lovelace Institute, AI Now Institute and Open Government Partnership, 2021[8]). Their work surfaced over 40 specific initiatives, identified challenges and successes of policies from the perspectives of those who created them, and synthesised some findings on the subject.

Box 1.4. Six determinants for the effective deployment of algorithmic accountability

1. Clear **institutional incentives and binding legal frameworks** can support consistent and effective enforcement of accountability mechanisms, supported by reputational pressure from media coverage and civil society activism.
2. Algorithmic accountability policies need to clearly define the **objects of governance** as well as establish **shared terminologies** across government departments.
3. Setting the appropriate **scope of policy application** supports their adoption. Existing approaches for determining scope such as risk-based tiering will need to evolve to prevent under- and over-inclusive application.
4. Policy mechanisms that focus on transparency must be **detailed and audience appropriate** to underpin accountability.

5. Public participation supports policies that meet the needs of affected communities. Policies should **prioritise public participation** as a core policy goal, supported by appropriate resources and formal public engagement strategies.
6. Policies benefit from **institutional co-ordination** across sectors and levels of governance to create consistency in application and leverage diverse expertise.

Source: https://www.adalovelaceinstitute.org/report/algorithmic-accountability-public-sector.

Additional relevant work has been conducted by the International Organization for Standardization (ISO) and the Institute of Electrical and Electronics Engineers (IEEE) to develop technical standards or quality specifications approved by a recognised standardisation body. These can be powerful tools to ensure that AI systems are safe and trustworthy, and include, for instance, ISO/IEC TR 24028:2020 on trustworthiness in AI and IEEE's Ethics Certification Program for Autonomous and Intelligent Systems (ECPAIS). Furthermore, the Association for Computing Machinery (ACM), the world's largest scientific and educational computing society, through its global Technology Policy Council, has issued a set of Principles for Responsible Algorithmic Systems, which focus on relevant issues such as legitimacy and competency, minimising harm, transparency, explainability, contestability and accountability. The principles are accompanied by guidance on how to apply them while considering governance and trade-offs.

External actors in the accountability ecosystem are also working to hold governments accountable, or to assist them in doing do. Accountability ecosystems encompass "the actors, processes and contextual factors, and the relationships between these elements, that constitute and influence government responsiveness and accountability, both positively and negatively" (Halloran, 2017[9]). This shift towards transparency and accountability combined with ever-growing Civic Tech, Public Interest Tech and GovTech movements, have expanded accountability ecosystems to incorporate a complex fabric of civil society organisations, academic institutions, private companies and individual members of the public. When leveraged well through partnerships, external ecosystems actors can even help governments compensate for a lack of institutional capacity in this space, as seen in the OECD's work with cities (OECD, 2021[10]).

As governments continue to push for more transparency in source code and algorithms, the interactions within these broader accountability ecosystem actors are poised to grow. A cluster of interesting examples of this dynamic can be seen in the Netherlands, which is shaping up to be a leader in algorithmic accountability both inside and outside government. Algorithm Audit is a Dutch nonprofit organisation that strives for "ethics beyond compliance". It builds and shares knowledge about ethical algorithms, and includes independent audit commissions that shed light on ethical issues that arise in concrete use cases of algorithmic tools and methods. In another example, the Foundation for Public Code's "codebase stewards" help governments publish transparent code in alignment with its Standard for Public Code, which aims to enhance trustworthy codebases.

Additional relevant examples include:

- **European Digital Rights (**EDRi**)**, the biggest European network defending rights and freedoms online, consisting of 47 non-governmental organisation members and dozens of observers.
- AI Sur, a consortium of organisations that work in civil society and academia in Latin America, which seek to strengthen human rights in the digital environment of the region.
- AlgorithmWatch, a non-profit research and advocacy organisation committed to watching, unpacking and analysing automated decision-making systems and their impact on society.

The emergence of a growing body of GovTech startups (see Box 1.5 for a definition) is also helping governments and other organisations achieve algorithmic accountability (Kaye, 2022[11]). Forbes has listed the rise of GovTech startups as one of the five biggest tech trends transforming government in 2022, and there are signs of these companies entering the algorithmic accountability space. For instance, Arthur, Fiddler, Truera, Parity and others are actively working with organisations on explainable AI, model monitoring, bias identification and other relevant issues. While most activities so far appear to support private sector companies, the public sector potential is significant, as is evident in the selection of Arthur by the United States Department of Defense (DoD) to monitor AI accuracy, explainability and fairness in line with the DoD's Ethical AI Principles.

Box 1.5. Definition of GovTech

GovTech is the ecosystem in which governments co-operate with startups, SMEs and other actors that use data intelligence, digital technologies and innovative methodologies to provide products and services to solve public problems.

They propose new forms of public-private partnerships for absorbing digital innovations and data insights to increase effectiveness, efficiency and transparency in the delivery of public services.

Source: http://scioteca.caf.com/handle/123456789/1580.

The emergence of external accountability ecosystem actors is a positive development. One of the most positive outcomes of algorithmic accountability policies and processes, such as the Open Government Data efforts that preceded them, is to empower non-governmental actors to scrutinise and shed light on public sector activities. As governments continue to empower these players through the provision of open data and algorithms and develop accountability mechanisms for better responsiveness, OPSI and the MBRCGI expect to see continued growth of these types of initiatives in the near term.

Additional action needed going forward

Governments and other ecosystems actors have made tremendous progress in this area in just a few years. A spectrum of approaches is unfolding with efforts exhibiting differing levels of maturity. For instance, most standards and principles around the world represent high-level, non-binding recommendations, but concrete laws like the EU's AI Act and US Algorithmic Accountability Act are coming into focus and have the potential to catalyse and align progress in this area.

In addition, most algorithmic accountability initiatives now focus on aspects of transparency, with many also incorporating elements of risk-based mitigation approaches. Fewer, though, demonstrate the ability for hands-on auditing of algorithms, which would close the loop on front-end accountability efforts to help ensure trustworthy use of AI in real-world use cases. Recent research from the Stanford Institute for Human-Centred AI (HAI) identifies nine useful considerations for algorithm auditing that can help inform these efforts (Metaxa and Hancock, 2022[12]) (Box 1.6).

Box 1.6. Nine considerations for algorithm auditing

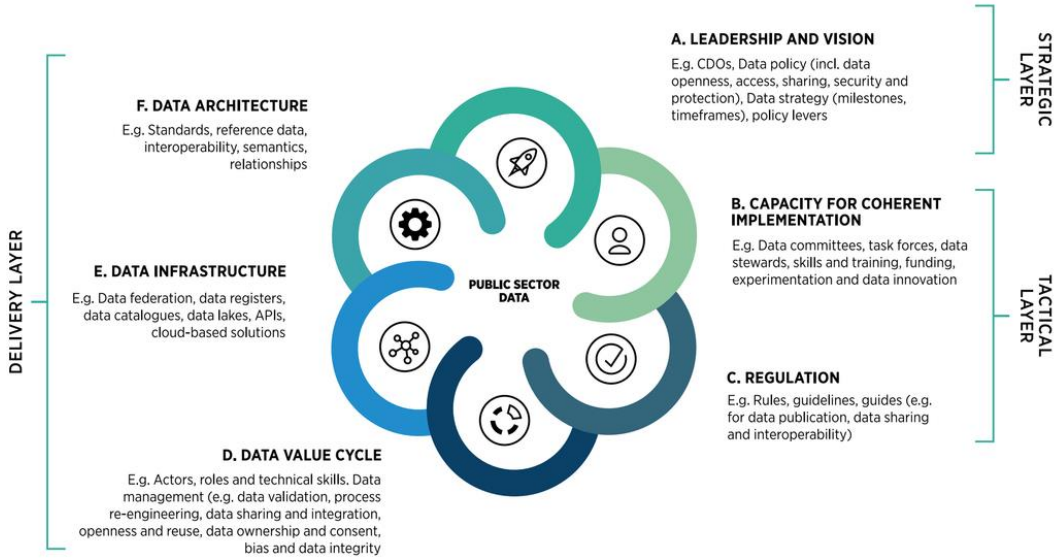
1. **Legal and ethical considerations** include relevant laws, the terms of service of different platforms, users involved with or implicated by audits, and personal and institutional ethical views and processes.
2. **Selecting a research topic** can include weighing discrimination and bias issues and political considerations (e.g. political polarisation, a technology's political impacts).
3. **Choosing an algorithm** to audit includes factoring in international considerations (e.g. which algorithms are popular where) and comparative factors (e.g. auditing one versus multiple algorithms and then comparing them).
4. **Temporal considerations** include how often the algorithm is updated and how the data might change before, during and after an audit is conducted.
5. **Collecting data** requires consideration of the possible available data sources and how analysing the data might scale.
6. **Measuring personalisation** involves considering how personalisation might change algorithms from person to person and how that might impact audits
7. **Interface attributes** require examination of the relationship between interfaces and metadata (e.g. how searches are displayed on a webpage)
8. **Analysing data** involves filtering the data, merging it with external data and choosing points of comparison.
9. **Communicating findings** requires considering the wider public discourse concerning the algorithms.

Source: https://hai.stanford.edu/policy-brief-using-algorithm-audits-understand-ai.

In addition to deepening and iterating their efforts, going forward, governments should work to ensure that public servants involved in building, buying or implementing algorithmic systems are informed about the AI and data ethics principles discussed in this section, and how they can play their part as stewards in ensuring such systems are accountable and serve the public good, alongside other actions in the accountability ecosystem. Such essential efforts range from basic definitional areas up to more sophisticated concepts and approaches. The challenges here have been cited in several studies which found that "in notable cases government employees did not identify regulated algorithmic surveillance technologies as reliant on algorithmic or machine learning systems, highlighting definitional gaps that could hinder future efforts toward algorithmic regulation" (Young, Katell and Krafft, 2019[13]). Furthermore, "definitional ambiguity hampers the possibility of conversation about this urgent topic of public concern" (Krafft et al., 2020[14]). AI Now's Algorithmic Accountability Policy Toolkit can assist in this effort. It provides "legal and policy advocates with a basic understanding of government use of algorithms including, a breakdown of key concepts and questions that may come up when engaging with this issue, an overview of existing research, and summaries of algorithmic systems currently used in government".

Finally, while this section has focused generally on algorithms and AI systems, governments must also pay close attention to issues related to the underlying data that are used to train modern AI systems. These are touched on in the OECD Good Practices Principles for Data Ethics in the Public Sector (Box 1.3) and can be seen in the penumbras of examples in this section. To achieve this in a holistic manner, governments must develop and implement robust data governance frameworks and processes across different layers (Figure 1.2).

Figure 1.2. OECD Framework for Data Governance in the Public Sector



Source: https://oe.cd/ddps.

As can be seen in Figure 1.2, data governance in the public sector comprises a broad, cross-cutting set of factors that serve as the foundation of a data-driven public sector, the use of data to increase public value and the role of data in building public trust (OECD, 2019[15]). Data governance intersects directly with and supports algorithmic accountability by helping to ensure the integrity and appropriateness of the underlying data itself along with algorithmic code and risk management processes. Good data governance is inextricably linked with algorithmic accountability but can also be supported by innovative governance techniques. For instance, data audits represent a powerful tool for auditors to assess the quality of data used by AI systems from different perspectives. For instance, auditors can assess if the data source in itself is trustworthy and whether the data are representative of the phenomena to which the AI algorithm is applied. Such data audits have been employed by governments, such as Ireland's Valuation Office, to ensure accurate evaluations of commercial property. In fact, in 2022 Ireland's Office of Government Procurement developed an Open Data and Data Management framework that includes data auditing as its primary focus.

The efforts discussed in this trend are building a strong, cohesive foundation to take this innovative area of work to the next level, although much remains to be done. Research is pointing to challenges as governments and private sector organisations move from fragmented and cursory algorithmic accountability efforts to systems approaches that can provide for explainability and auditability, all supported by quality data governance. For instance, without stronger definitions and processes in this space, there is the risk of false assurances through "audit washing" where inadequately designed reviews fail to surface true problems (Goodman and Trehu, 2022[16]).

With the AI Act and other international and domestic rules looming, both governments and businesses will need to make rapid progress at data, code and process levels. Although governments have trailed behind the private sector for many activities related to AI, they also have the potential to be global leaders and practice shapers when it comes to algorithmic accountability. OPSI believes that leading governments are ready to come together to build a common understanding and vocabularies on algorithmic accountability in the public sector, as well as guiding principles for the design and implementation of governmental approaches which could result in tangible policy outcomes. OPSI intends to engage in additional work in this area in the belief that standardisation and alignment of algorithmic accountability initiatives is crucial to enable comparability, while still leaving room for contextual and cultural adaptation.

Case Study: Algorithmic Transparency Recording Standard (United Kingdom)

Algorithmic tools are increasingly being used in the public sector to support high-impact decisions affecting individuals, for example in policing, social welfare, healthcare and recruitment. Research on public attitudes consistently highlights transparency as a key driver of public trust; therefore, building practical mechanisms for transparency is crucial to gaining and maintaining trust in governments' use of data and algorithms. In the United Kingdom (UK), for example, the OECD Trust Survey shows that only 52% of people trust their government to use their personal data for legitimate purposes (OECD, 2022[17]), while 78% of respondents to a UK survey on government data sharing wanted a detailed description of how their personal information is shared.

The United Kingdom's Algorithmic TransparencyRecordingStandard (ATRS) helps public sector bodies openly publish clear information about the algorithmic tools they use and why they are using them. The ATRS is one of the world's first policies to promote transparency in the use of algorithmic tools in government decision making, and it is positioned to serve as a key driver of responsible innovation and public trust in government.

Problem

In the UK, as in many other countries, algorithms are used by public sector organisations to support decision making and can have a profound impact on the lives of citizens and residents. Recent experiences have shown that their implementation without adequate safeguards can result in discrimination or encroach on civil rights. A recent British example of problematic implementation in the public sector is the failure of the A-level algorithm in 2020.

The Data Ethics Framework was established in 2016 to address such risks, laying the foundations of responsible data use in public sector organisations, helping them to address ethical considerations within their projects and encouraging responsible innovation. In 2019, the government commissioned the UK Centre for Data Ethics and Innovation (CDEI) to conduct a review into bias in algorithmic decision making, which confirmed that algorithms can lead to biased decisions resulting in significant negative impacts on people's lives. The CDEI further identified ways to address these risks through policy interventions, emphasising the importance of transparency.

The public has a democratic right to explanations and information about how the government operates and makes decisions, in order to understand the actions taken, appeal decisions and hold responsible decision makers to account. This is codified in the UK GDPR and emphasised in the OECD AI Principles of "transparency and explainability" and "accountability", adhered to by 46 countries. Nonetheless, there is still a lack of available information on how and why government bodies are using algorithmic tools, and in the absence of a standardised manner of presenting relevant data, citizens are unable to easily access this information. Lastly, public bodies that would like to be more transparent about how they are using algorithmic tools often struggle with how to communicate this complex information in an accessible manner. These are global challenges, and due to their persistence, many governments have adopted principles for ethical and trustworthy AI, but few have implemented them in meaningful ways.

An innovative solution

The Algorithmic Transparency Recording Standard (ATRS), jointly developed by CDEI and the Central Digital and Data Office (CDDO), establishes a standardised way for public organisations to proactively and transparently publish information about how they are using algorithmic approaches in decision making. The ambition of this project is to increase public awareness and understanding of the use of algorithms in the public sector, while enhancing the capacities of the public sector to benefit from data and automation, thereby ensuring safer implementation of algorithms and easing the diffusion of best practices. Greater

algorithmic transparency is essential to enable public scrutiny and improved accountability of public sector decision-making processes involving algorithms.

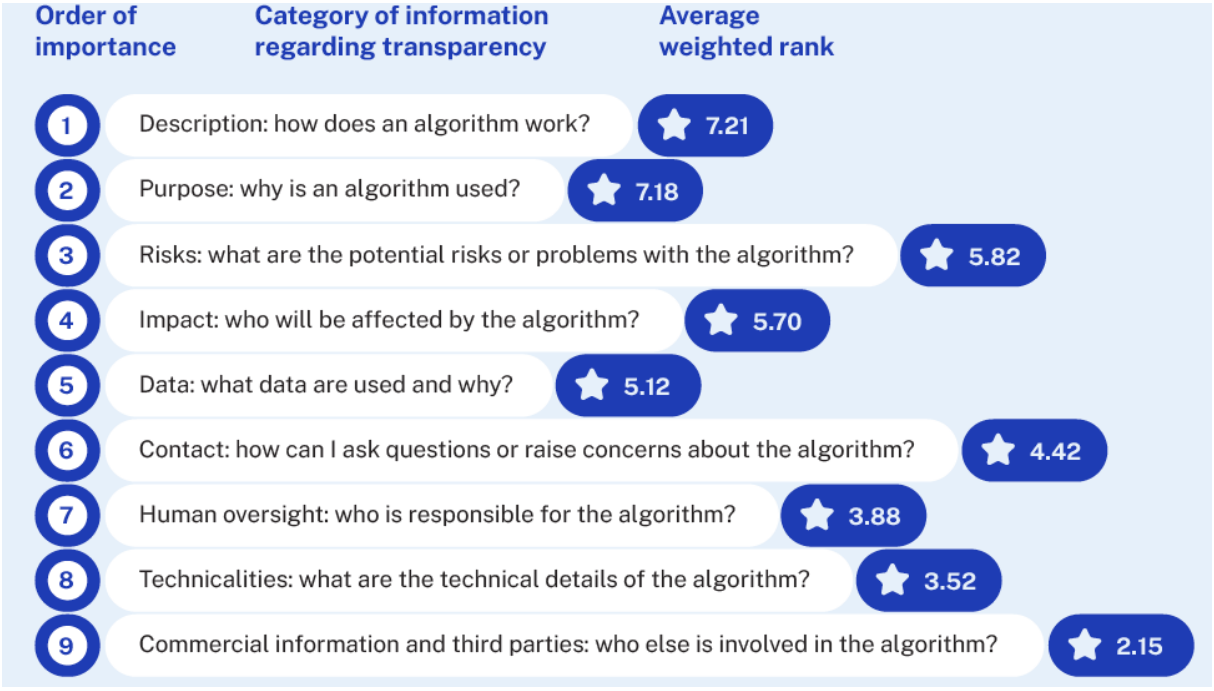
Work around the Standard comprises two elements. The first is the ATRS itself, which provides a structured schema that public sector organisations use to record and report information about the algorithms they use. The ATRS is divided into two reporting tiers. **Tier 1** is aimed at a general audience, and includes simple, concise details on how and why an algorithmic tool is being used, along with instructions on how to access more information. **Tier 2** is aimed at more technical or interested audiences, and is divided into five categories:

1. Information on who is responsible for the algorithm.
2. A description of the algorithm and the rationale for its use.
3. Details on the wider decision-making process and human oversight.
4. Technical specifications and data.
5. A breakdown of risks, mitigations and impact assessments conducted.

In addition to the ATRS, an important second element is the implementation guidance. This helps organisations identify if the ATRS applies to their activities, as well as how to report information correctly.

The design and development of the ATRS has been underpinned by extensive collaboration with public sector, industry and academic stakeholders as well as citizen engagement. The CDEI and CDDO worked with BritainThinks to engage with a diverse range of members of the public over a three-week period, spending time to gradually build up participants' understanding and knowledge about algorithm use and discuss their expectations for transparency (see Figure 1.3 for the results of a survey on the importance of transparency categories in relation to algorithmic decision making in the public sector). This co-design process – which included working through prototypes to develop a practical approach to transparency that reflected expectations – led to the two-tier structure of the Standard and informed objectives for implementation.

Figure 1.3. Respondents' rankings of importance for different aspects of transparency



Source: www.gov.uk/government/publications/cdei-publishes-commissioned-research-on-algorithmic-transparency-in-the-public-sector.

The first version was published in November 2021 and piloted with ten public sector organisations through mid-2022, ranging from central government offices to local police departments. To date, six completed transparency reports have been published using the ATRS. For instance, it is now possible to retrieve accurate information on DARAT (Domestic Abuse Risk Assessment Tool), an algorithm that is being developed to help police officers in some areas predict the likelihood of future incidents of domestic abuse. The report provides information about many aspects of the algorithm such as the identity and responsibilities of members of the project team and technical details of the model. Based on feedback and lessons learned from the initial pilots, CDEI and CDDO launched an updated version in October 2022 on GitHub, which enabled anyone to open a two-way dialogue and propose changes for future iterations of the ATRS. This version was published officially on gov.uk in January 2023.

Going forward, in the short to medium term, the project team is investigating better ways of hosting and disseminating transparency reports, scaling from the pilot phase to full rollout by applying the ATRS to more and higher impact use cases (e.g. medical technology, criminal justice applications, benefits entitlements), and considering how the Standard could be embedded into public procurement practices to further reinforce transparency and accountability. In the long term, the project team believes the ATRS – with leading work from other OECD countries – could form the basis for a global standard on algorithmic reporting.

Novelty

The ATRS is one of the world's first initiatives of its kind and is leading the way internationally. Increasing algorithmic transparency has been at the forefront of AI ethics conversations globally, but much AI ethics work has been conceptual and theoretical, with only limited practical application, especially in the public sector. The Standard is a comprehensive policy and one of the very few undertaken by a national government to enhance transparency on the use of algorithmic tools in government decision making.

Results and impact

As noted above, ten pilots have been conducted, resulting in six published transparency reports so far. The pilots have demonstrated widespread support for algorithmic transparency from pilot partners, who highlighted the benefits of the ATRS both in terms of helping public servants gain confidence and knowledge about algorithmic approaches, and public accountability. Consultation with members of the public and suppliers of algorithmic tools revealed widespread support for the ATRS (97% of suppliers supported the initiative).

An additional positive impact of the ATRS has been the increased attention paid by senior leaders to understanding the importance of algorithmic transparency. Public transparency around the uses of algorithms has encouraged greater awareness within organisations, and helped combat the mindset that algorithms are solely a matter of importance for data scientists.

Challenges and lessons learned

This innovation faced two main challenges. First, it proved difficult to articulate the importance of transparency and to build momentum for using the ATRS. The team therefore engaged widely within government and made the benefits clear. With private suppliers, the team hosted roundtable discussions to gather views and incorporate them into the policy development process. The second challenge concerned the need to involve different types of stakeholders in the development and iteration of the ATRS. This was addressed by carefully designing the engagement process to ensure the representation of a broad range of perspectives among participants.

The project team learned many lessons. First, they found that many public sector teams would like to be more transparent and consider ethical questions, but might lack the guidance, capabilities or resources to

do so. To support teams in such efforts, the project team holds coaching calls with interested organisations and published guidance on common questions. They also found that initiatives like this can encourage a proactive culture in the public sector around embedding ethics into data and automation projects from the start.

Second, the team found that placing public engagement activities early on in the project lifecycle enabled them to act on the findings in meaningful ways, using the insights to develop the initial two-tiered design. Furthermore, these activities helped them to understand that the general public may not necessarily be interested in examining the content of each transparency report, but are reassured that this information is available openly and can be accessed by experts who can scrutinise it on their behalf – a finding that has informed the implementation approach taken by the team.

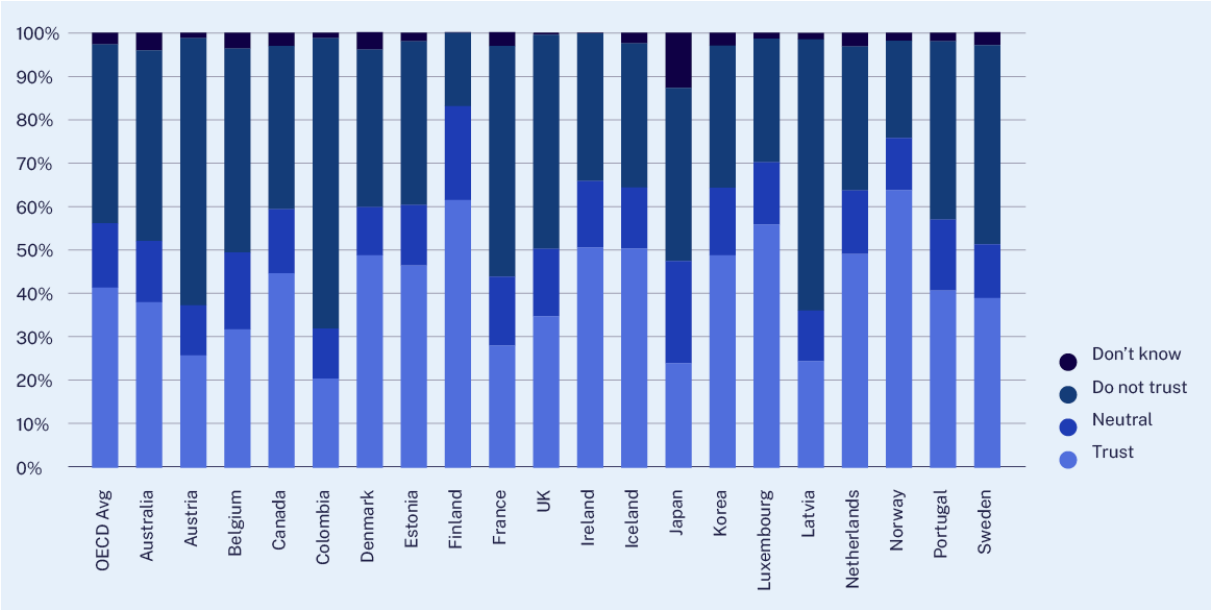
Replicability

There has been significant interest in replicating this innovation. The ATRS has featured in various international fora and working groups such as the Open Government Partnership's Open Algorithms Network. The team has also been in contact with officials from different national governments to discuss aligning policies on algorithmic transparency, such as through a Tech Partnership between the UK and Estonia. Even some private companies, such as Wolt, have leveraged the ATRS as inspiration in their own transparency policies. The problem posed by the opacity of automated decision-making systems is being recognised worldwide and, in this context, the ATRS appears to be a simple and effective innovation that is easily replicable. The aim is to see this innovation scaled internationally, becoming the standard for algorithmic transparency in the public sector, and perhaps beyond.

New aspects of transparency

Intersecting with the theme of algorithmic accountability, governments are building new dimensions to their open government approaches, inching closer to visions of radical transparency and helping to build trust with citizens, which has been at a near record low in recent years (Figure 1.4) (OECD, 2022[17]). Public trust helps countries govern on a daily basis and respond to the major challenges of today and tomorrow, and is also an equally important outcome of governance, albeit not an automatic nor necessary one. Thus, governments need to *invest* in trust. Transparency is not the only way to achieve this (e.g. citizen engagement is also important, as discussed later in this report), but is a crucial factor (OECD, 2022[17]). It has assumed even greater important in recent years, as aspects of transparency enable people to better understand and comply with government actions (e.g. COVID-19 responses).

Figure 1.4. Just over four in ten people trust their national government



Source: OECD Trust Survey (http://oe.cd/trust). Data available at https://stat.link/jlkt6v.

OPSI and the MBRCGI first explored transparency in the 2017 Global Trends report. The OECD has covered many different angles of public sector transparency more broadly, such as efforts related to Open Government, Open State, Open Government Data (OGD), promoting Civic Space, anti-corruption and integrity, as well as specialised issues including transparency in the use of COVID-19 recovery funds among others. Indeed, one of the key focus areas in the recently issued OECD Good Practice Principles for Public Service Design and Delivery in the Digital Age is "be accountable and transparent in the design and delivery of public services to reinforce and strengthen public trust" (OECD, 2022[18]).

When looking at the latest public sector innovation efforts, two leading themes become apparent. The first is the advancement of the Rules as Code concept, which has gained significant traction in the last few years. The second is heightened transparency around the thousands of monitors and sensors embedded in daily life, the existence of which is unknown to most people.

Bringing about Rules as Code 2.0

New technologies and approaches are leading to new aspects of transparency which empower the public while enhancing the accountability of governments. One area seeing growth in innovative applications is Rules as Code (Box 1.7), with some dubbing the new horizon Rules as Code 2.0. While RaC offers a number of potential benefits, including better policy outcomes, improved consistency, and enhanced interoperability and efficiency (Mohun and Roberts, 2020[19]), advocates have also highlighted the importance of transparency, as RaC has made the rule-creation process more transparent in some cases, and enabled the creation of applications, tools and services that help people understand government obligations and entitlements. This can help bolster important elements of the OECD Recommendation on Regulatory Policy and Governance (2012), which serves as the OECD's guiding framework on good regulatory and rulemaking practices.

Box 1.7. Rules as Code (RaC)

Rules as Code (RaC) is a new take one of the core functions of government: rulemaking. Fundamentally, RaC proposes to create an official, machine-consumable version of some types of government rules, to exist alongside the existing natural language counterpart. More than simply a technocratic solution, RaC represents a shift in how governments create some types of rules, and how third parties consume them.

Currently, governments typically produce human-readable rules that are individually consumed and interpreted by people and businesses. Each regulated entity, for example, must translate laws into machine-consumable formats for use in business rule systems. RaC could instead see official, machine-consumable versions of these rules produced by governments, concurrently with the natural language versions. This could allow businesses to consume machine consumable versions directly from government, while reducing the need for individual interpretation and translation for some types of rules.

Source: https://oecd-opsi.org/publications/cracking-the-code.

Since OPSI and MBRCGI's initial coverage of Rules as Code in the 2019 Global Trends report and OPSI's subsequent in-depth primer on the topic, the concept has reached new levels of adoption by innovative approaches within government, as it begins to embed a "new linguistic layer" (Azhar, 2022[20]) that transparently expresses rules in ways that both humans and machines can understand.

The Australian Government Department of Finance has sponsored a project that looked at how RaC could be delivered as a shared utility to deliver simpler, personalised digital user journeys for citizens. "My COVID Vaccination Status" served as the initial use case, drawing from publicly available COVID rules. The effort focused on the questions "Am I up to date with my COVID vaccinations?" and "Do I have to be vaccinated for my job?", using a built simulator website to provide a simple, citizen-centric user journey to provide answers. This project represents a global first in use of RaC as a central, shared, open source service hosted on a common platform, allowing government offices and third parties enhanced access to information and the ability to build additional innovations on top. The project has helped demonstrate a path for scalable RaC architecture that can take this approach to new heights.

Nearby, New Zealand is rolling out an ambitious project to help people in need better understand their legal eligibility for assistance – a process that can be incredibly difficult, as the relevant rules are embedded in different complex laws. Grassroots community organisations are implementing a "Know Your Benefits" tool to address social injustice by helping people better understand their rights. The tool leverages codified rules to help citizens and residents gain access to support to which they are entitled, and to invoke their right to an explanation about any decision affecting them.

Other, additional efforts have surfaced in this space:

- Belgium's Aviation Portal translates the vast set of aviation laws and agreements into a single online aircraft registration platform.
- The UK Department for Work and Pensions has initiated an effort to generate human and machine-consumable legislation in pursuit of a Universal Credit Navigator to clarify benefits eligibility.
- Many projects are underway in different levels of government in the United States in areas such as benefits eligibility and policy interpretation, as showcased in Georgetown University's Beeck Center Rules as Code Demo Day.

In general, these approaches involve processes in which a multi-disciplinary team works to co-create a machine consumable version of rules which will exist in parallel with the human readable form (e.g. a

narrative PDF). However, a new take on this concept provides a hint of potential future developments. The Portuguese government's *Imprensa Nacional-Casa da Moeda* (INCM – National Printing House and Mint) has created a functional prototype of laws related to retirement that applies AI to decoding laws to make them consumable by digital systems. AI can be used increasingly in this space, optimally alongside and as tools of the aforementioned multi-disciplinary teams, to accelerate the RaC movement. Like the efforts discussed earlier in this trend, such approaches should be done in a way that is consistent with the OECD AI Principles and other applicable frameworks.

However, RaC is not a cure-all when it comes to putting in place good rulemaking practices and ensuring positive regulatory outcomes. For instance, the effects of a single regulation or rule may be dependent on a range of external factors, and its scope is currently best applied to relatively straightforward legal provisions. Yet, OPSI believes that Rules as Code has the potential to be truly transformative. In addition to OPSI's RaC primer, innovators wanting to learn more can leverage the Australian Society for Computers and Law (AUSCL)'s excellent and free series of Masterclass sessions. Those who want to start digging into the models and code can check out OpenFisca, the free and open source (FOSS) software powering many RaC projects around the world, and Blawx. Interesting personal perspectives can also be found on blogs by Hamish Fraser and Regan Meloche.

The Internet of (Transparent) Things

Smart devices and the Internet of Things (IoT) have become pervasive, yet in some ways remain invisible. There are over 11 billion IoT connected devices around the world, with more than 29 billion expected by 2030 as 5G technology continues to roll out (Transforma Insight, 2022[21]). The potential public sector benefits are significant (OECD, 2021a), especially through the creation of smart cities – cities that leverage digitalisation and engage stakeholders to improve people's well-being and build more inclusive, sustainable and resilient societies (OECD, 2020[22]). In fact, four in five people believe that IoT can be used to "create smart cities, improve traffic management, digital signage, waste management, and more" (Telecoms.org Intelligence, 2019[23]). The research for this report surfaced several notable examples:

- Singapore's Smart Nation Sensor Platform deploys sensors, cameras and other sensing devices to provide real-time data on the functioning of urban systems (ITF, 2020[24]). Also in Singapore, RATSENSE uses infrared sensors and data analytics to capture real-time data on rodent movements, providing city officials with location-based infestation information.
- In Berlin, CityLAB Berlin is developing an ambitious smart city strategy, and the local government's COMo project is using sensors to measure carbon dioxide to improve air quality and mitigate the spread of COVID-19.
- Seoul, Korea is pursuing a "Smart Station" initiative as the future of the urban subway system. A control tower will leverage IoT sensors, AI image analysis and deep learning to manage subway operations for all metro lines.
- In Tokyo, Japan, the installation of sensors on water pipelines has saved more than 100 million of litres per year by reducing leaks (OECD, 2020[25]).

While research shows that the vast majority of people support the use of sensors in public areas for public benefit, and that citizens have a fairly high level of trust in government with regard to smart cities data collection (Mossberger, Cho and Cheong, 2022[26]), IoT sensors and smart cities have raised significant concerns about "invasion of privacy, power consumption, and poor data security" (Joshi, 2019[27]), protection and ownership over personal data (OECD, forthcoming-b, *Governance of Smart City Data for Sustainable, Inclusive and Resilient Cities*) as well as other ethical considerations (Ziosi et al., 2022[28]). For example, San Diego's smart streetlights are designed to gather traffic data, but have also been used by police hundreds of times (Holder, 2020[29]), including to investigate protestors following the murder of George Floyd (Marx, 2020[30]), triggering surveillance fears. Less than half of the 250 cities surveyed in a 2022 Global Review of Smart Cities Governance Practices by UN-Habitat, CAF – the Development Bank

of Latin America and academic partners report legislative tools for ethics in smart city initiatives, with those that do exist being more prevalent in higher income countries.

In many cities, sensors are ubiquitous in public spaces, with opacity surrounding their purpose, the data they collect and the reason why. Individuals may even be sensors themselves, depending on their activities and the terms accepted on their mobile device. These are important issues to think about, as "democracy requires safe spaces, or commons, for people to organically and spontaneously convene" (Williams, 2021[31]). The San Diego case mentioned above and others like it may serve as cautionary trends, for "if our public spaces become places where one fears punishment, how will that affect collective action and political movements?" (Williams, 2021[31]).

IoT and Smart Cities have been well documented by the OECD, with their concepts achieving a level of integration in many cities and countries that have arguably transferred them out of the innovation space and into steady-state. However, the new levels of personal agency, privacy protection and transparency being introduced to help ensure ethical application of smart city initiatives represent an emerging innovative element.

With regard to privacy protection, New York City's IoT Strategy offers a framework for classifying IoT data into "tiers" based on the level of risk:

- **Tier 1** data are not linked to individuals, and thus present minimal privacy risks (e.g. temperature, air quality, chemical detection).
- **Tier 2** data are context dependent and need to be evaluated based on their implementation (e.g. traffic counts, utility usage, infrastructure utilisation).
- **Tier 3** data almost always consist of sensitive or restricted information (e.g. location data, license plates, biometrics, health data).

While useful for conceptualisation, the tiers have not been adopted as a formal classification structure in government. Nonetheless, ensuring digital security is a fundamental part of digital and data strategies at both the city and country level, with some states according digital security a top priority in their digital government agenda. For example, Korea and the United Kingdom have both developed specific digital security strategies (OECD, forthcoming-b).

One of the more dynamic approaches is found in Aizuwakamatsu, Japan, which has adopted an "opt-in" stance to its city smart city initiatives, allowing residents to choose if they want to provide personal information in exchange for digital services (OECD, forthcoming-b). This represents "a markedly different approach to the mandatory initiatives in other smart cities that have been held back by data privacy" (Smart Cities Council, 2021[32]). Though this option applies only to public initiatives, it is difficult to envision how this approach would work with smart city elements that are more passive and not necessarily tied directly to specific residents.

Some of the most digitally advanced and innovative governments have taken new steps to make their IoT and smart city efforts open and transparent in order to foster accountability and public trust in government. One leading effort is the City of Amsterdam's mandatory **Sensor Register** and its associated Sensor Register Map, as discussed in the full case study following this section.

Other areas, such as Innisfil, Canada; Angers-Loire, France; and Boston and Washington, DC in the United States are leveraging Digital Trust for Places and Routines (DTPR) (Box 1.8), which has the potential to serve as a re-usable standard for other governments.

Box 1.8. Digital Trust for Places and Routines (DTPR)

The open-source communication standard Digital Trust for Places & Routines (DTPR) aims to improve the transparency, legibility and accountability of information about digital technology.

In 2019, experts in cities around the world took part in co-design sessions to collaborate and prototype an initial open communication standard for digital transparency in the public sphere. In 2020, this standard underwent numerous cycles of online expert charrettes and small meetings, iterative prototype development, and long-term inclusive usability and concept testing.

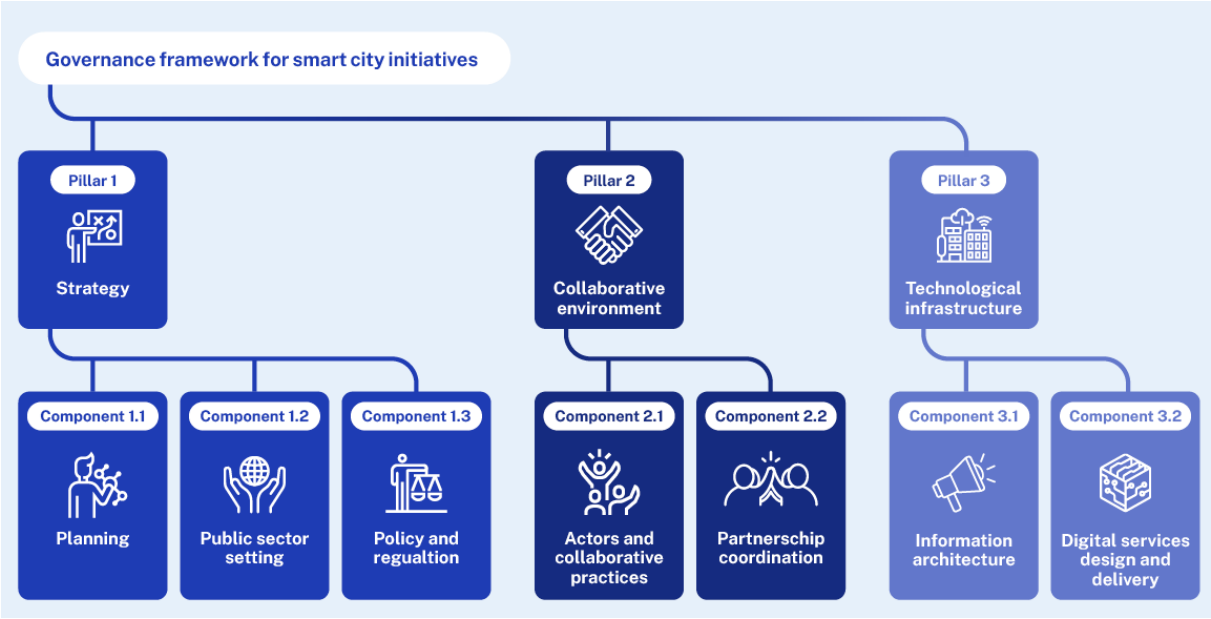
The final product, the DTPR, is a taxonomy of concepts related to digital technology and data practices, accompanied by a collection of symbols to communicate those concepts swiftly and effectively, including through physical signs or digital communication channels. Use of the DTPR provides a public, legible explanation of city technologies and their data footprints, enabling public input on city technologies and allowing the effectiveness of city technologies to be measured and evaluated.

Source: https://dtpr.helpfulplaces.com, www.weforum.org/agenda/2022/06/smart-cities-public-spaces-data.

Recent research has found that "cities today lack the basic building blocks to safeguard their interests and ensure the longevity of their smart city" (WEF, 2021[33]). As governments continue to deploy IoT sensors and pursue smart city strategies, they should follow the lead of the cities cited above, as "public trust in smart technology is crucial for successfully designing, managing and maintaining public assets, infrastructure and spaces" (WEF, 2022[34]). This is easier said than done, however, as governments face difficulties in establishing solid governance over such efforts – an important but often overlooked enabler of digital maturity that can help them move towards a more open and transparent approach.

The aforementioned *Global Review of Smart City Governance Practices* provides a number of recommendations and a valuable governance framework (Figure 1.5), Pillars 2 and 3 of which include elements relevant to transparency. In addition, researcher Rebecca Williams offers 10 calls to action for cities to consider in her report *Whose Streets? Our Streets! (Tech Edition)*. These include "mandating transparency and legibility for public technology & data" and "challenge data narratives" to ensuring "that community members can test and vet government data collection and the narratives they reinforce", and imagining "new democratic rights in the wake of new technologies." Ethical use of the technologies discussed in this section go far beyond transparency alone, and the guidance in these resources can provide food for thought on moving towards a more comprehensive approach with transparency as a key pillar.

Figure 1.5. Governance framework for smart city initiatives



Source: https://unhabitat.org/global-review-of-smart-city-governance-practices.

Case Study: Sensor Register (Amsterdam, Netherlands)

The Sensor Register is a tool of the City of Amsterdam used to obtain, combine and share publicly transparent information on all sensors placed for professional use in public spaces of the city. The Register is the result of an innovative Regulation which mandates the registration of all sensors of private, public, research and nonprofit organisations that collect data from public spaces. The registered sensors are visualised on an online map that allows any member of the public to see consult information on the sensor, including the kind of data it collects and processes and the responsible party. In addition, stickers are placed on sensors that collect sensitive information, providing details about their activity and showing an URL that directs to the online map, where citizens and residents are able to retrieve more information.

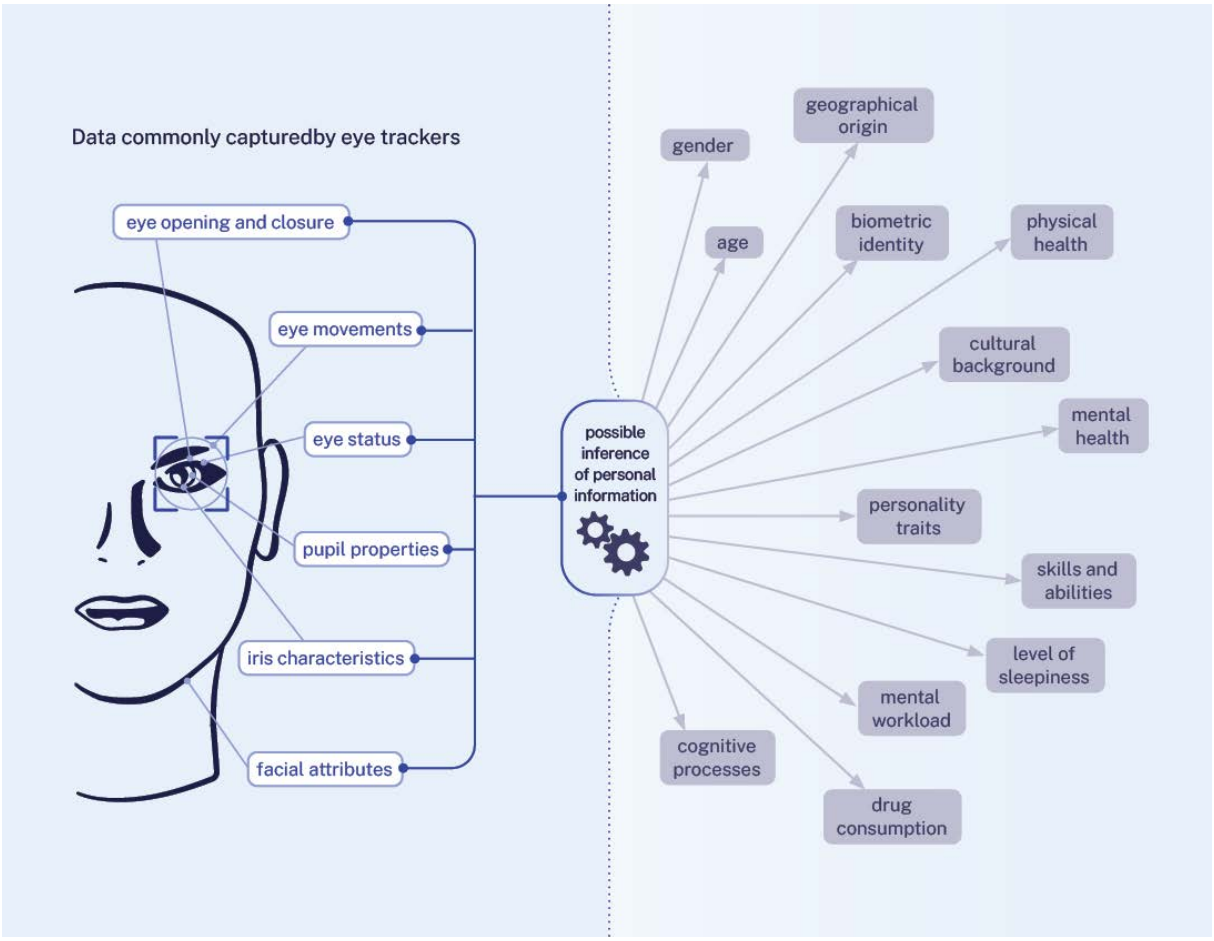
Problem

The widespread diffusion of new technologies capable of capturing and processing citizens' data in public spaces has given rise to heated debates about the threat of surveillance. Cities are becoming "smart cities" with a growing number of sensors collecting data and informing automated decision-making systems. An increasing number of billboards now have cameras installed that read spectators' glances, faces or body movements in reaction to the exhibited content. Such information when processed by advanced data analytics can reveal much more about a user than they may wish or expect to give away, as shown in Figure 1.6. These sensors were installed frequently without the city administration or passers-by being informed, as was the case in many Dutch cities.

To address these emerging issues, it has become imperative to elaborate new policies to safeguard the dignity of citizens and residents and to avoid excessive and undesirable intrusion into people's lives. The GDPR has made important progress in this area, demanding transparency with respect to how personal data are collected and processed in public space. Expanding this idea, many civil society organisations and policy makers, including members of the City of Amsterdam, also asserted that citizens hold digital rights which extend beyond personal data to also include, for example, air quality and noise. This concept is based on the idea that citizens have the right to know what happens in public space, which belongs to

everyone. As Beryl Dreijer, former Privacy Officer at the City of Amsterdam and project leader of the Sensor Register noted, “the municipality does not have the authority to prohibit the installation of sensors in public spaces”, but it can work to ensure their transparent and fair implementation, allowing citizens to be informed about what happens in public space, and thereby nurturing a fruitful debate on this issue. The City’s Privacy Policy has begun to codify residents’ digital rights, stating that people should be able to move about public spaces without surveillance, and seeks to put in place concrete mechanisms to achieve this end.

Figure 1.6. Capture and analysis of gaze data enables the inference of personal information



Source: (Kröger et al., 2020).

An innovative solution

After building a public register of all government sensors, in 2021, the City of Amsterdam decided to pass an unprecedented Regulation, requiring *all* parties that collect data in public space for a professional purpose to report their sensors and indicate which data are – or can be – collected by them. The Regulation imposes this requirement on public, private and research actors and non-profit organisations, and acts on all sensors placed in public space, excluding those for personal use such as smart doorbells.

Building on this adopted Regulation, and with the aim of ensuring transparency and privacy, different departments of the City of Amsterdam collaborated to develop the Sensor Register Map, an online tool that allows anyone to view all sensors placed in public space. The Regulation defines sensors as follows: *an artificial sensor that is used or can be used to make observations and to process them digitally or to*

have them processed. Various types of sensors required to be registered are shown on the map including optical sensors (cameras), sound sensors, chemical sensors, pressure sensors and temperature sensors (an exhaustive list of the types of sensors covered by the Regulation and displayed on the Sensor Register Map is available on the website).

Figure 1.7. The Sensor Register Map

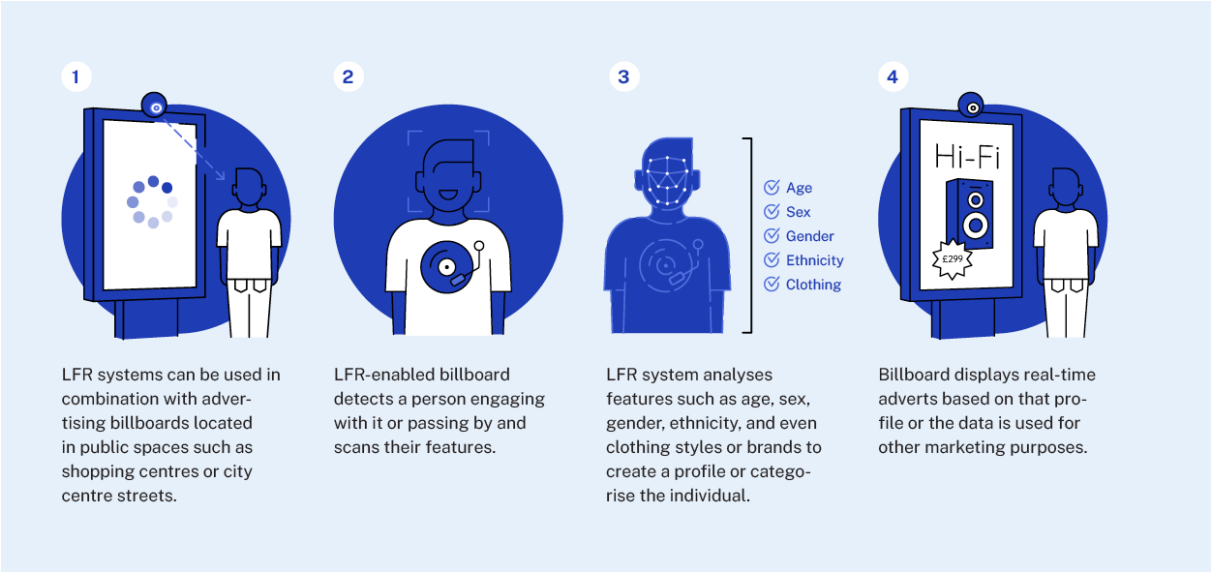


Source: Screenshot from https://sensorenregister.amsterdam.nl (retrieved 21 November 2022).

On each sensor that processes sensitive data, a sticker is attached indicating why it is there and what it does, along with a URL to the Sensor Map where further information can be found. At the moment, only sensors working with sensitive data are required to have a sticker, but the plan is to extend this requirement to other sensors to inform all passers-by about the project. The decision to use a URL instead of a QR code was deliberate because the latter can easily be hacked to direct users to another page where they could be misled or subject to fraud.

Public spaces will become increasingly populated with sensors. In the United Kingdom, London's King's Cross station uses facial recognition to track tens of thousands of people. These tools could be used to infer citizens' gender, sexual preference, emotional state and socioeconomic status, as stated by the UK Information Commissioner's Office (Figure 1.8). Under this scenario, citizens and residents become "unwitting objects of pervasive privacy infringements from which they do not have the chance to opt out", as a recent Nesta report, funded by the City of Amsterdam, warned. In this context, the Regulation and the Map are intended to spark a debate about the role these technologies should play in communities, by increasing the awareness of citizens and residents, which is the first step in enabling them to critically address this issue. The City of Amsterdam is looking to take even stronger action in the future, declaring in its coalition agreement 2022-2026, that "there will be a ban on biometric surveillance techniques, such as facial recognition".

Figure 1.8. How live facial recognition (LFR) can be used for marketing and advertising



Source: https://ico.org.uk/media/for-organisations/documents/2619985/ico-opinion-the-use-of-lfr-in-public-places-20210618.pdf.

Novelty

This innovation is a novelty in the international context. Although attempts are being made to ensure that inevitable digitalisation is inspired by transparency and openness, this innovation is novel because it focuses on sensors in public space, underpinning the development of a new, broad understanding of digital rights. Furthermore, this project ensures that transparency is not restricted to imposing reporting requirements but also gives the public the possibility to easily access the information they want via the online map.

Results and impact

Following publication of the first data on sensors, the project team received an influx of phone calls and emails from people saying that there were other cameras installed on the streets which were not represented on the map, which may result in field visits from the Amsterdam team. These immediate results demonstrated the interest of people in this issue. Indeed, contrary to the team's expectations, the project showed that many people care about digital rights and the potential dangers of new technologies in public spaces. In recent months, the innovation has garnered the attention of a researcher from Carnegie Mellon, who travelled to Amsterdam to understand more about the project to help inform their own sensor mapping efforts. The University of Amsterdam Institute for Information Law is currently developing a report due for publication later this year which will evaluate the regulation and the Sensor Register.

The Sensor Register project caught the attention of citizens and residents, and the City of Amsterdam is now looking to expand its work on similar topics. For instance, it is collaborating with the Responsible Sensing Lab on Shuttercam to design cameras that gather only the required type or amount of data necessary to operate and, in this way, safeguard the right of citizens to walk around freely and unobserved.

Challenges and lessons learned

The Sensor Register Map is the result of an initiative at the cutting edge of legal and digital rights recognition. As the first of its kind, despite the supportive and favourable political climate, unforeseen challenges have emerged. Beyond achieving registration compliance with businesses and nonprofits, the three main ones are:

- How to deal with moving cameras such as Google Street View and debt collectors' cars that move around in the public space of the city? Actors such as these are capable of capturing thousands of photos, which may present the same problems as the sensors, but are not required to report their data collection activity under the Regulation.
- How can mobile sensors be displayed on the map? The Regulation mandates reporting requirements for vehicles or vessels, but it is difficult to report information on such sensors on the Map.
- How should body cameras of enforcers and drones be regulated? The case of the latter is particularly complex because the Regulation does not directly cover sensors that are not connected to the ground. Such types of sensors are not reported to the city and cannot be displayed on the Map, though usage is fairly limited by rules due to proximity to the airport.

The Amsterdam team is working with researchers to explore some of these challenges. With respect to the success factors behind this innovation, the project team emphasises the fundamental role of the Regulation. Without this, the register would have been limited to public sector sensors. The Regulation widened the possibilities allowing the City to mandate transparency on all sensors, including those placed by private, research and nonprofit organisations.

Replicability

This innovation is highly replicable. Although it is clear that Amsterdam has a political climate attentive to transparent and privacy-friendly digitalisation, the Regulation and Sensor Register Map are easily exportable to other contexts. Such a move is important given the pervasiveness of sensors in public space around the world and the relevance of an informed debate. As mentioned above, the Association of Dutch Municipalities is considering whether to scale the Register to the national level, as has already happened with Amsterdam's register of algorithms used by public bodies.

Institutionalising innovative accountability

The approaches discussed in the previous two themes are positive developments, illustrating how governments are connecting the concepts of innovation and accountability. Bringing together these worlds, however, has been a longstanding challenge in the public sector.

In talking with public servants anywhere in the world about innovation, perhaps the most commonly cited challenge is "risk aversion". Many feel that trying new things in the public sector is difficult because of the negative incentives built into the system, and this sentiment can permeate the culture of government. The main issue that comes up tends to be accountability mechanisms and entities such as oversight and auditing agencies. Innovation is fundamentally an iterative and risky process. Yet, audit processes can sometimes adopt a more rigid interpretation of what risks could have been foreseen and should have been planned for. Both accountability and oversight processes sometimes seem to be predicated on the idea that a right answer existed that could have been known beforehand.

To be clear, such functions are very important for governments. They help ensure confidence in the integrity of the public sector, identify where things could be done better and create guidance about how to avoid repeating errors in the future. Like innovation, at the end of the day, accountability is about achieving

better outcomes. The interplay between accountability and innovation is multifaceted but is not yet evolving rapidly enough to match the disruptive nature of new approaches and technologies in the public sector. Some governments have sought to better balance these two seeming counterweights. Back in 2009, the National Audit Offices in both the United Kingdom and Australia published guides on how to promote innovation. However, some governments are adopting a fresh perspective on accountability and putting in place processes where new ideas, methods and approaches can flourish while also reinforcing key principles of efficient, effective and trustworthy government.

One of the most systematic approaches identified for this report is the Government of Canada's Management Accountability Framework, in particular its "Innovation Area of Management" (see Box 1.9).

Box 1.9. Management Accountability Framework – Innovation Area of Management (Canada)

The Management Accountability Framework (MAF) – a tool used by the Treasury Board of Canada Secretariat (TBS) to monitor the management performance of federal departments and agencies – has been expanded with the integration of a new Area of Management (AoM) dedicated to innovation. Thanks to this tool, it is possible to assess a public organisation's ability to plan, generate and use rigorous evidence to inform decision making on high-impact innovations and, in this way, support excellence in innovation management.

The assessment is carried out with a set of questions that cover the various dimensions of innovation management. By answering each question, the organisations are assigned points. The questions investigate an organisation's ability to (1) commit resources to generate evidence to support innovation, (2) use rigorous methods of comparison to support innovation, (3) engage in innovation projects of high potential, and (4) use the evidence retrieved to inform executive-level decision making. The sum of the points scored by an organisation in each question represents a measure of the maturity level of an organisation in the field of innovation management. By collecting the results and establishing a dialogue with public organisations' teams, TBS highlights notable work, supports the diffusion of best practices, and provides expertise and guidance to departments willing to increase their innovation management maturity.

Extensive consultations and engagement sessions were held with federal departments and agencies – the primary users of the MAF – in order to develop the Innovation AoM. This co-development proved essential to consider various perspectives, validate terminology and ensure that the approach was in line with how departments operate. The new AoM has been implemented for the first time in the 2022-23 MAF reporting cycle and will be included in future cycles to measure progress over time.

Source: https://oe.cd/maf-innovation, Interview with Government of Canada officials on 24 November 2022.

Another interesting approached is the Accountability Incubator, based in Pakistan, which seeks to infuse government with accountable practices by tapping into the potential of young people (Box 1.10).

Box 1.10. Accountability Incubator

The Accountability Incubator is a creative peer learning programme for young civic activists and change-makers who want to fight corruption and build accountability. It was developed to provide long-term support, networks and skills to people who are often overlooked by or left out of traditional civil society programmes. It is innovative in that it uses creative tools, a long-term approach and the very latest thinking to shape governance globally.

The Accountability Incubator provides tailored and hands-on support to activists and change-makers (termed "accountapreneurs") from civil society around the world. The support they receive takes a hybrid format as useful resources are shared online and in person at Accountability Labs in eight countries – Belize, Kenya, Liberia, Nepal, Nigeria, Pakistan, Uganda and Zimbabwe. The year-long programme provides accountapreneurs with everything they need – from learning opportunities to communications support, stipends and pilot ideas – to super-charge accountability within their communities and find new ways to solve entrenched problems of governance.

The overarching objective of the innovation is to build a new generation of accountability change-makers that can create a more prosperous, inclusive and fair society. So far, the project has supported over 200 accountapreneurs who have developed more than 150 new ideas for accountability. Some of these ideas include setting up the first tool to crowdsource information on public services in Nepal, establishing a film school for women to fight corruption in Liberia and building a local media outlet for verified news on issues of democracy in Pakistan.

Source: https://oecd-opsi.org/innovations/accountability-incubator.

Other identified efforts have tended to focus on specific aspects bridging innovation and accountability, but with a more specific tech focus than the Canada and Pakistan cases. These include:

- The Digital Transformation and Artificial Intelligence Competency Framework for Civil Servants by UNESCO, the Broadband Commission for Sustainable Development and the International Telecommunication Union (ITU), which aims to promote the accountable use of innovative technology with a key focus on promoting trustworthy, inclusive and human rights-centric implementation of AI among civil servants.
- A national certification programme in Ireland to upskill civil servants on the ethical application of AI in government.

Although these efforts are positive and emit signals pointing to growing activities in the future, they remain few. More needs to be known about the relationship between relevant aspects of accountability (e.g. oversight, audit) and how they might be changed for the better. How can accountability structures (ultimately about trying to get better outcomes from government) be used to drive innovation inside public sector organisations, rather than hinder it? Is there room to respect important tenants of the audit process (e.g. independence) while also forging closer ties and partnerships between oversight functions and those that they look over? How can new forms of accountability that integrate users into the processes of monitoring and assessing public actions (e.g. participatory audits) drive innovation in government?

Little work has gone into answering these questions, signalling the need for deeper research and analysis at a global level. The OECD Open and Innovative Government Division (OIG) is exploring avenues to fill this gap and expand upon this field of study.

Although not discussed as a specific sub-theme in this report, it is important to note that leveraging innovative approaches to transform accountability, oversight and auditing functions themselves is also an area ripe for deeper analysis, as discussed by the OECD Auditors Alliance. Some examples of this include Chile's development of a data-driven Office of the Comptroller General (CGR), as well as the creation of accountability innovation hubs and labs in Belgium, Brazil, the Netherlands, Norway, the United States and the European Court of Auditors (Otia and Bracci, 2022[35]).

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2 Trend 2: New approaches to care

This chapter introduces the trend on the increasing adoption of new approaches to care. It highlights the ways in which the COVID-19 pandemic placed care services under the spotlight with the rapid scaling of technological innovation, especially for healthcare at a distance. The chapter further presents global case studies and examples on innovative approaches taken in the face of increasing demands for mental health solutions, aging populations and growth in chronic diseases, including through the use Artificial Intelligence and behavioural insights.

The COVID-19 pandemic placed care services under the spotlight with rapid scaling of technological innovations, especially for healthcare at a distance. However, global population trends, notably aging and growth in chronic diseases, necessitated a change in approach even before the crisis. In the face of increasing demand, disjointed health systems have prompted calls for more people-centred, integrated approaches. Such systems can also yield better quality data to drive improved outcomes, enabling governments and other health systems to make use of emerging technologies to better understand patients and diseases. This requires a shift towards systems approaches, re-orienting government processes and data flows. OPSI and the MBRCGI also found a strong innovation focus on mental health – a major casualty of the recent pandemic – leveraging methods such as Behavioural Insights. Finally, the most powerful tool for revolutionising care seen in this cycle of work is Artificial Intelligence (AI), with powerful solutions coming from governments, GovTech startups and nonprofits, though hurdles to progress remain, including insufficient data and infrastructure and absence of agreement on tailored principles for ethical and trustworthy use of AI in healthcare.

Re-orienting care (eco)systems

People generally require different types of care at different times and points in their lives. In addition, issues like aging populations and increase in chronic diseases are shifting the focus of healthcare delivery beyond acute hospital care. For instance, almost two in three people aged over 65 years live with at least one chronic condition often requiring multiple interactions with different providers, which makes them more susceptible to poor and fragmented care. Such fragmentation has prompted calls for making health systems more people-centred, and has fuelled debate about the need for integrated delivery systems capable of continuous, co-ordinated and high-quality care delivery throughout people's lifetimes (Barrenho et al., 2022[1]).

In recent years, governments have introduced integrated care, holistic approaches aimed at ensuring individuals receive the right care, in the right place, at the right time, but existing organisational and financing structures appear to hinder their success. In general, healthcare systems remain fragmented, focused on episodic acute care and unsuitable to solve complex health needs (Barrenho et al., 2022[1]). Even within the same country, systems are highly unequal across regions and cities (OECD, 2022[2]). The COVID-19 pandemic has also amplified the need for various parts of the health systems to work together to deliver seamless care and to ensure clear co-ordination across levels of government (OECD, 2022[2]; OECD, 2021[3]). In addition to these integrated systems approaches, governments can also drive progress through innovation in how they leverage and activate all relevant actors in care ecosystems able to contribute to promoting health and wellbeing (Deloitte, 2020[4]) (Pidun et al., 2021[5]).

The research and Call for Innovations conducted by OPSI and the MBRCGI returned a number of interesting and innovative projects that demonstrate the re-orienting and strengthening of care systems and ecosystems through systems approaches (Box 2.1).

Box 2.1. Systems approaches

Complexity is a core feature of most policy issues today, including care, yet governments are ill-equipped to deal with the range of uncertain and complex challenges whose scale and nature call for new approaches to problem solving.

Such approaches analyse the different *elements of the system* underlying a policy problem, as well as the dynamics and interactions of elements that produce a particular outcome. The term *systems approaches* denotes a set of methods and practices that aim to affect systems change. Drawing on holistic analysis, they focus on the impacts and outcomes of policies, going beyond the linear logic of

"input-output-outcome" of traditional approaches to policy design. This is achieved by involving *all affected actors* inside and outside government, and leaving room for iterative processes to account for uncertainty.

These approaches are distinct from traditional approaches which address social problems through discrete policy interventions layered on top of one another. Such approaches may shift consequences from one part of the system to another, or address symptoms while ignoring causes. Conversely, looking at the whole system rather than the individual parts enables one to identify where change can have the greatest impact.

Source: https://oecd-opsi.org/publications/systems-approaches.

Re-orienting systems elements to provide integrated solutions

A number of the public sector innovation initiatives reviewed by OPSI and the MBRCGI focused on citizen-centred approaches to care that change the way services come together. Rather than requiring citizens and residents to go to different organisations and offices based on the functional structures of government, government absorbs this burden and provides holistic services that meet people where they are. One of the most compelling and innovative cases in this area is the Bogotá Care Blocks, presented as a case study later in this trend.

Another example – and perhaps one of the strongest proven leaders in this area – is Solid Start, a collaboration among cities, civil society organisations and the Dutch government. Launched in 2018, it seeks to ensure that every child in the Netherlands has the best possible start to life and the opportunity of a good future. As of early 2022, 275 of 345 Netherland's municipalities have built "integrated, multisectoral teams – local coalitions – that [have] brought together service providers working in both the health-care and social domains" (Innovations for Successful Societies, 2022[6]) to support children's first 1 000 days.

Figure 2.1. Dutch Minister Hugo de Jonge showing a map of the Solid Smart municipalities



Source: https://bit.ly/3Xqm9s2.

Another relevant example is the Plymouth Alliance Contract, which supports people with complex needs in the United Kingdom. Traditionally, contracts were "commissioned in separate silos, often resulting in duplication, inefficiencies and poor outcomes for the person using multiple services." Under the co-produced Alliance mode, a legal partnership agreement created by the City Council, "25 contracts spanning substance misuse and homelessness were aligned" (E3M, 2021[7]). Benefits include a range of newly developed practices that are co-operative and focused on the full system, treating more people, better and for less money (Wallace, 2021[8]). A more focused discussion on affordable housing and homelessness can be found in Trend 3.

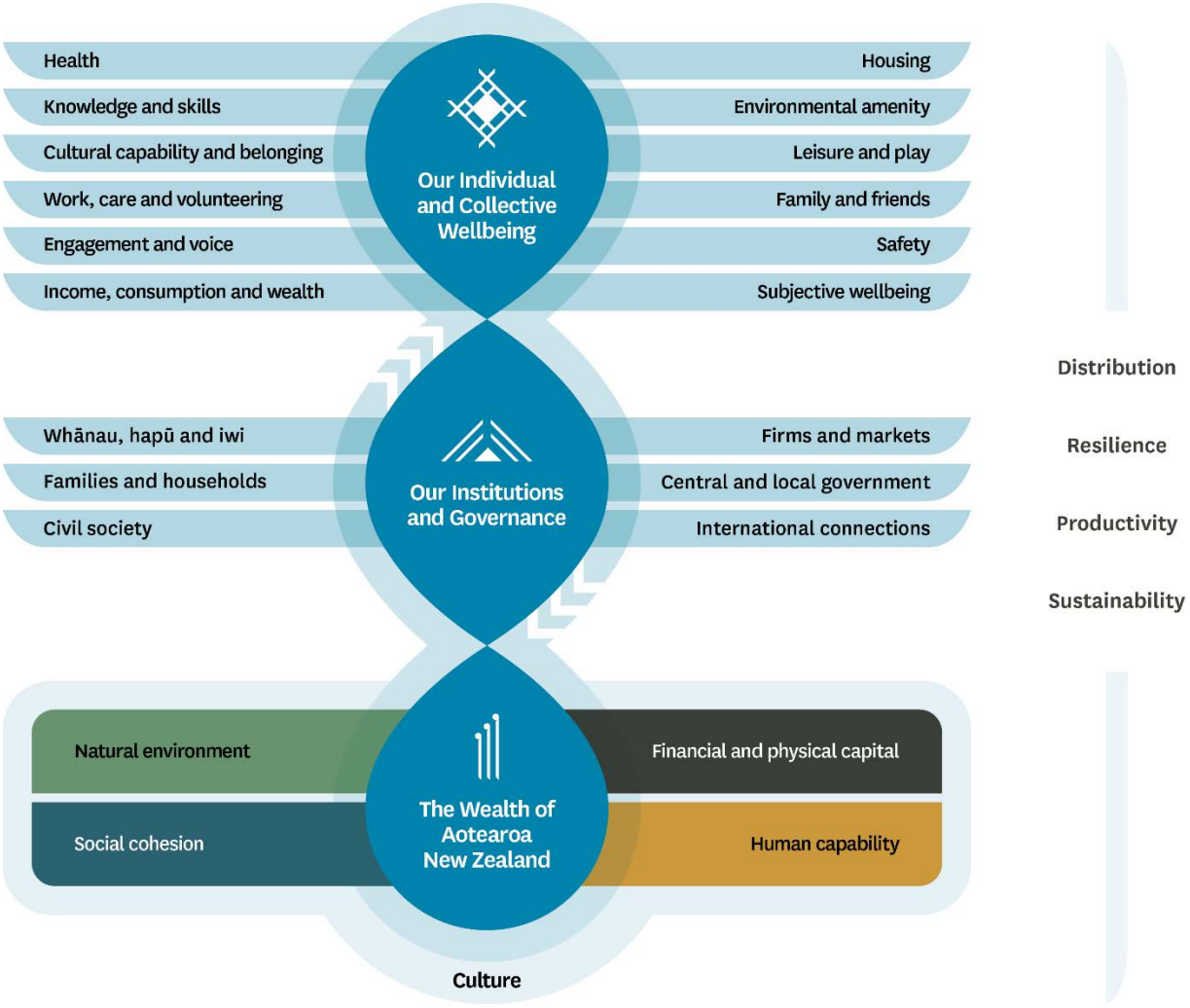
> "I can't remember how I found my way – who referred/sent me. What I do know is it wasn't just life changing, it was lifesaving. Slowly but surely, I began to feel safe, I began to trust someone. Within less than a year I have made giant leaps forward. I am forever grateful for the opportunities given to me."
> – Testimonial from a Plymouth Alliance service user (*source*)

In Scotland, the Healthcare Improvement Hub ("ihub") adds an additional layer to re-orienting, this time by focusing on building a human learning system using anticipatory innovation principles (see the Centre for Public Impact for more research on this field). While most systems approaches identified for this work focus more specifically on the challenges of today (or are still responding to the challenges of yesterday), ihub seeks to build crisis response and anticipation into Scotland's healthcare system, while adopting a systemic approach to innovation that supports long-term improvements. ihub tests, evaluates, shares, understands, adapts, assesses and evaluates the sustainability of findings and solutions for long-term improvement based on a four-step process:

1. Crisis response and initial reaction management.
2. Adaptation to the crisis.
3. Transition phase to emerge from the crisis.
4. Building new realities and learning from the crisis.

To be able to re-orient systems in innovative ways, governments need to acquire a fuller perspective of the complexities and activities of their systems, as well as how these align with positive health and wellbeing for their people. In New Zealand, the Treasury's 2021 Living Standards Framework (LSF) aims to help government understand interdependencies and trade-offs across the different dimensions of wellbeing in order to align government activities to achieve improvements in this area. It focuses on three levels, as captured in Figure 2.2. In the words of Caralee McLiesh, Chief Executive and Secretary of the New Zealand Treasury, the LSF "requires us to look beyond measures of material wealth and consider human, social and natural capital, broader wellbeing outcomes, risk and distribution" (CPI, 2021[9]).

Figure 2.2. The Living Standards Framework



Source: www.treasury.govt.nz/information-and-services/nz-economy/higher-living-standards/our-living-standards-framework.

As with many forms of public sector innovation, data is a critical factor. Integrated systems can yield better quality data to drive better outcomes, and likewise, better use of data is increasingly critical to providing integrated systems approaches to care – as recently highlighted by the former UK Secretary of State for Health and Social Care. Research (Seastedt et al., 2022[10]) shows that bringing together different types of data can promote fairness and enables governments and other health systems to make use of emerging technologies such as Machine Learning to better understand patients and diseases (see the "New Technologies" section of this trend). Furthermore, it is possible to achieve this goal and still protect privacy and avoiding issues such as bias. Yet, the pandemic has demonstrated the major weakness of health data systems, with data trapped in silos (Smith, 2022[11]).

A tremendous number of factors are involved in advancing the systemic use of data in the public sector, representing an entire field of study, as covered by the OECD Digital Government and Data Unit, and illustrated in the OECD Framework for Data Governance in the Public Sector (Figure 1.2 in Trend 1). However, certain government efforts are geared specifically to re-orienting systems in order to unite data for better care outcomes. Some advocate for secure, trusted data platforms (McKinsey, 2022[12]). The European Health Data Space, one of the EC's priority health initiatives through 2025, is an excellent example of this type of effort at the transnational level (Box 2.2). At the national level, domestic efforts like

France's legally mandated Health Data Hub also seek to bring data together by creating a unique multi-party collective organisation.

Box 2.2. European Health Data Space and Open Science Cloud

Proposed by the European Commission in May 2022, the European Health Data Space (EHDS) seeks to promote access to and interoperable exchange of health data to support healthcare delivery, research and policy making in ways that protect and support the portability of citizen's health data.

The EHDS will enable citizens to easily access their data in electronic form, free of charge, and enable them to share these data with other health professionals in and across Member States to improve healthcare delivery. Furthermore, under the EHDS, Member States will ensure that health documents are issued and accepted in a common European format. Lastly, the EHDS will create a strong legal framework for the use of health data for research, innovation, public health, policy making and regulatory purposes.

Similarly, the European Open Science Cloud (EOSC) provides 1.8 million European researchers and 70 million science and technology professionals with a virtual environment offering open and seamless services for scientific data across borders and disciplines.

The EOSC seeks to create a common data protocol based on a vision of making data findable, accessible, interoperable and reusable (FAIR). Furthermore, the EOSC provides value-added services such as visualisation and analytics to support the long-term preservation of information and the monitoring of open science initiatives developed in the context of the EOSC.

Source: https://ec.europa.eu/health/ehealth-digital-health-and-care/european-health-data-space_en, https://eosc-portal.eu.

Underscoring the importance of bringing together ecosystems, as discussed in the next section, the United States National Institutes of Health (NIH) has led the formation of the National COVID Cohort Collaborative (N3C), an innovative public-private partnership with more than 300 participating organisations that seeks to overcome privacy concerns and data silos to make over 13 million patient records interoperable and address particular challenges related to disease outbreaks. Indeed, as noted by the OECD (OECD, 2022[13]) "interest in strengthening health information systems has grown since the COVID-19 pandemic brought into sharp focus the importance of reliable, up-to-date information for decision-making".

The OECD Recommendation on Health Data Governance can help governments optimise the value and use of health data while also ensuring their protection, and comprises a set of internationally agreed principles (Box 2.3). Also with an international scope, the Healthcare Information and Management Systems Society (HIMSS) Digital Health Transformation toolkit is a comprehensive resource for governments, and the World Health Organization (WHO) has developed a Digital Health Data Toolkit to help disseminate health data standards. The University of Washington is also compiling a Global Health Data Toolkit. National efforts, too, can serve as excellent examples and may have potential for broader applicability, such as in Canada thorough the Health Data and Information Governance and Capability Framework and the proposed Canadian Health Data Charter. Ground-up efforts are also invaluable, as these are grounded in the perspectives of individuals. Good examples here include the Patient Declaration of Health Data Rights in Canada and the Data Governance Framework for Health Data Collected from Black Communities in Ontario.

Box 2.3. OECD Recommendation on Health Data Governance

Adopted by the OECD Council on 13 December 2016, the Recommendation provides a roadmap to achieve an integrated health information system that meets the health information needs of the Digital Age. It aims at encouraging the availability and use of personal health data to serve health-related public interest purposes, while promoting the protection of privacy and security. Key principles include:

- **Engagement and participation**, notably through public consultation, of a wide range of stakeholders.
- **Clear provision of information to individuals.**
- **Informed consent** and appropriate alternatives.
- **Maximising the potential and promoting the development of technology** as a means of enabling the availability, re-use and analysis of personal health data while, at the same time, protecting privacy and security and facilitating individuals' control over the use of their own data.
- **Establishment of appropriate training and skills development in privacy and security measures for those processing personal health data,** in line with prevailing standards and data-processing techniques.
- **Implementation of controls and safeguards.**
- **Requiring organisations processing personal health data to demonstrate that they meet national expectations for health data governance.**

In 2022, the OECD published a five-year update on the progress of the Recommendation.

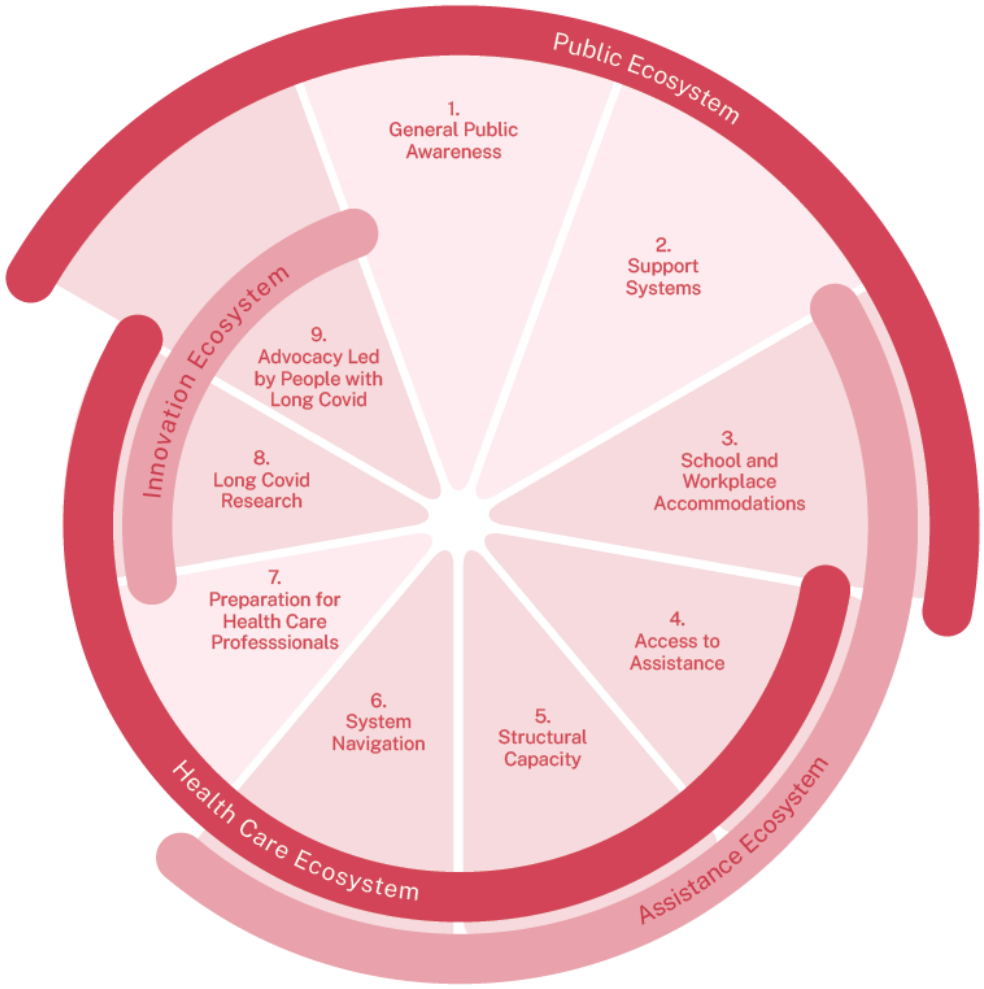
Source: https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0433.

Fostering care ecosystems and engaging relevant actors

In addition to systems approaches that re-orient *structures, processes and data* for care, OPSI and the MBRCGI identified an even higher rate of innovative initiatives that aim to re-orient and activate *people* to bring forth the collective power of care ecosystems. While these two approaches are presented separately for the sake of discussion, they are highly related and often overlap. The true potential of systems approaches is optimally found when governments unite structure and process transformation hand-in-hand with the array of relevant ecosystem actors within, across and outside the public sector.

Several of the identified innovations were among those catalysed by the COVID-19 pandemic. One example that united systems and ecosystems innovation to tackle a complex challenge is the US Department of Health and Human Services (HHS) Health+ Long COVID initiative. Designed in response to an Presidential directive calling for a government-wide response to the long-term effects of COVID-19, the initiative uses human-centred design to co-create patient-centred solutions with those impacted. A primary goal of the initiative is to improve healthcare provision and government services using human-centred innovation, while simultaneously advancing interagency efforts to address the longer-term effects of COVID-☐19, including Long COVID. The cycle culminates in a "Healthathon", a health-focused innovation sprint with hackathon roots designed to rapidly prototype and deliver solutions with the community. The Health+ team issued a funding report in November 2022, incorporating an opportunities framework to strengthen and unite innovation, public assistance and healthcare ecosystems (Figure 2.3).

Figure 2.3. Health+ Long COVID Opportunity Framework



Source: www.hhs.gov/sites/default/files/healthplus-long-covid-report.pdf.

Bibliovid represents an example of ground-up formation of an innovation ecosystem around the pandemic. It was developed to address the difficulties experienced during health crises by practitioners attempting to stay informed of the latest knowledge and recommendations, and to distinguish accurate and quality information from poor data and misinformation. Originated by four friends at the Grenoble Alpes University Hospital Centre in France, the project has grown and evolved into a collaborative ecosystem, whose resources pull together quality data and research through the combined efforts of a "monitoring unit" and suite of partners.

Of course, issues with underdeveloped and fragmented ecosystems predate the pandemic, and many innovation initiatives have sought to better tap into these ecosystems to address the root causes of care challenges. Governments in Australia have demonstrated leadership in this area, as shown by their Queensland Bridge Labs Programme (Box 2.4), and Victoria's Latrobe Health Innovation Zone, an umbrella effort housing the Mental Health Café case study presented later in this trend.

Box 2.4. Queensland Bridge Labs Programme: An ecosystem approach to care (Australia)

The Bridge Labs programme was conceived in 2020 to overcome internal deficits in innovation capacity through novel partnerships between the system, clinical teams and academic experts. This innovation was informed by an impactful but small experiment undertaken the previous year, the Healthcare Excellence by Design Symposium 2019, which sought to interlace the healthcare and creative design communities. That early trial provided crucial evidence that seeding an "adhocratic" (informal and flexible) ecosystem between clinical and academic communities was feasible and would create the conditions for innovation and co-evolution.

The programme started by setting up three Bridge Labs consisting of partnerships between health professionals and academic experts of design, systems safety and human factors research – areas of expertise sought due to their importance in healthcare and their relative lack of presence in the sector. The project team played a dual role: setting up the collaboration structures (flexible contracts and simple rules of engagement) and providing a primary sense-making and network cultivation function, achieved by creating the initial micro linkages at the team and project level – in other words, "bridging" communities.

The three Bridge Labs supported a significant body of very diverse work (over 30 projects undertaken in parallel) that reached over 300 clinicians and a multitude of consumers. Several disruptive innovations also emerged from the Labs, attracting over AUD 4 million in external funds and winning several local and national awards. Furthermore, the programme's many contributions to capacity development of design and human factors in the health workforce have helped grow a community of practice that now amounts to almost 1 000 members.

Source: https://oecd-opsi.org/innovations/queensland-bridge-labs.

Technology is also helping to activate engagement with relevant ecosystems actors, while promoting individual empathy and care. At the mass scale, CrowdBots is a fascinating and innovative project using crowdsourcing techniques to train AI models, dramatically accelerating Alzheimer's research (Box 2.5). At a more individual level, Israeli startup Alike Health has devised a compelling approach that may yield inspiration or lessons for governments. Its web platform uses health data and machine learning to match people who are alike on a holistic wellbeing level. Patients are put into contact with anonymised communities so that they can share or receive relevant and personalised insights that help them better manage their conditions. A more targeted discussion on tech for care can be found in "New Technologies Revolutionising Healthcare" later in this trend.

Box 2.5. CrowdBots

When AI models are unable to achieve required accuracy levels in biomedical analysis of very large data sets, they are often discarded, and research is severely hindered. To solve this problem, the Human Computation Institute created CrowdBots to derive utility from imperfect models that were previously shelved. This innovation was developed in the context of Stall Catchers, a citizen science game that leverages crowd-power to achieve rapid, expert-like analysis of Alzheimer's research data. Since its inception in 2016, 45 000 global volunteers have contributed, conducting decades of professional-level data analysis at an unprecedented pace.

Stall Catchers players analyse brain capillaries through an online virtual microscope to determine if they are flowing or stalled. Answers from several different people about the same blood vessel are combined

to produce a single expert-like crowd answer. This approach enables the discarding of individual errors, ensuring consistently high data quality. However, curating a large community of volunteers to participate in citizen science is a time-consuming and costly endeavour that is difficult to sustain. For this reason, CrowdBots was proposed as a new mode of human-machine collaboration able to reduce reliance on human annotators and augment analytic capacity by creating a hybrid crowd of humans and bots that work together.

By applying consensus methods to cohorts of humans and ML-powered bots, the CrowdBots project team has been able to reuse old data, increase platform sustainability and boost analytic throughput. The resulting process reduces the time needed to make these discoveries from approximately 20 to 5 years, and the outcomes were published in top-tier journals.

Source: *https://oecd-opsi.org/innovations/crowdbots-hybrid-intelligence*.

The ecosystem cultivation approaches discussed in this section represent an innovative and powerful shift to convening the knowledge, skills, expertise and insights of relevant and affected actors. Each represents a strong effort in its own right, but in a meta sense, governments will need to make such systems approaches more systemic. OPSI and the MBRCGI have found Finland's "Ecosystem School 1.0" to be a unique and interesting model in this regard. Inspired by *Collaborating for a Sustainable Future: Ecosystem guide* by the VTT Technical Research Centre of Finland, and designed in collaboration with 50 ecosystems actors, its objective is to develop ecosystem thinking in an agile and co-creative way, in order to push current boundaries and break silos in governmental ways of working. Moreover, it enables participants to work with a participatory mindset across organisational borders in multi-organisational teams. Finland is now scaling up the effort, including by developing a digital platform with information, tools and tips for multidisciplinary joint development and working in different ecosystems.

Case Study: Bogotá Care Blocks (Colombia)

Some 30% of women living in Bogotá, Colombia (1.3 million people) are devoted to full-time unpaid care work, dedicating an average of 7-10 hours per day. About 90% of these women earn low incomes, disproportionately hindering their access to wellbeing services, self-care activities and constitutional rights such as education or social benefits. Bogotá's Care Blocks offer a context-specific solution to this acute challenge employing a radical, ease-of-access modality never previously tested at this level. The City of Bogotá through the Secretariat of Women's Affairs developed this novel approach to the development of women and caregiver-centric infrastructure and service provision, hoping to make it more accessible, empathetic and closer to the needs of caregivers. The model introduces a new criterion for the city's decision making, budget allocation and urban planning that positions caregivers and care work at the centre of several of the city's services. So far, they have reached a total of 300 000 women across 15 Care Blocks, with 1 million beneficiaries expected by the end of 2023.

Problem

Informal care by family and friends makes a substantial contribution to societies. However, such care impacts the lives of caregivers in terms of employment, wages, health and social status, while governments accrue opportunity costs (e.g. social contributions and taxes lost) (Rocard and Llena-Nozal, 2022[14]). Across Colombia and its capital city Bogotá, the burden of home care and unpaid work falls disproportionately on women, resulting in what Bogotá officials describe as "time poverty". According to the city's most recent baseline study on home care and caregivers work, 30% of Bogotá's women (1.3 million) dedicate themselves to about 7-10 hours of exclusive and unpaid work per day on average. The evidence is overwhelming: caregiving in Bogotá is carried out by nine out of ten women, 90% of

caregivers live in low-income households, about 70% have only a secondary education, 21% experience untreated chronic conditions derived from home care, 0% have financial autonomy and so on. The Secretariat of Women's Affairs of Bogotá summarised the issue: *"women experience a kind of poverty reinforced by the burden of unpaid work and unfair time allocation for caregiving"*. Moreover, issues around home and caregiving are not properly assessed or addressed by local authorities.

Despite improvements in the availability of caregiving services, officers from the Secretariat of Women's Affairs describe *"a landscape of fragmented and siloed solutions"*, indicating a mismatch between services supply and the realities and conditions of caregiving. Moreover, the situation exacerbates several undesired patterns for women beyond monetary poverty, including gender inequality, restricted political participation and visibility in society, and entrenched cycles of domestic violence and physical isolation.

An innovative solution

How do women access care services? What do women give up because of the care overload? With these questions in mind, the team of the Bogotá's Secretariat of Women's Affairs began conceptualising the idea of a public service that is integrative and sensible, yet radical in its approach to the multiple realities of unpaid home and caregiving. Strictly speaking, caregiving work is highly feminised in the city; more than 90% of caregivers are women, and over 50% of citizens believe that this work should be performed by women. Furthermore, about 65% of citizens believe that men would face social sanctioning and bullying if they performed caregiving work.

Bogotá's Secretary of Women's Affairs Diana Rodriguez Franco explained that the first step in creating a wholesome care concept and prioritising actions was to *"understand what is care and what it is not"*. The Secretariat began by defining caregiving as any life-supporting activity regardless its degree of complexity. More mainstream caregiving activities such as cooking or cleaning were deemed equal and comparable to more complex ones such as taking care of people/relatives with disabilities or raising children. The concept of unpaid work was then integrated into the concept of caregiving. As most caregiving work takes place in the home and is women-led, it was a logical step to generalise the concept as a gender role that is unpaid and non-voluntary. Attaining a common understanding about these interrelations was key to calculating and increasing the visibility of the value of unpaid caregiving work. The overwhelming results showed that caregiving accounted for an estimated 20% and 13% of Colombia's and Bogotá's GDP, respectively.

Having clarified the nature of the challenge, the Secretariat embarked on the second step – building a concept model to shed light on the specificities of caregiving activities. Due to the extent of caregiving services provided in Bogotá, by 13 institutions, it was critical to understand the aims of service provision in a multidimensional manner. In early 2020, the Secretariat presented the idea that caregiving services should fulfil three main conditions to be considered as such: 1) they must *recognise* the nature of caregiving as unpaid, non-voluntary and feminised; 2) they must aim to *reduce* the burden of caregiving – long and non-stop working hours, and weak working conditions; 3) they must consist of activities that can be *redistributed* and equally exchanged between men and women. They were labelled as the 3 Rs in Spanish: *reconocer*, *reducir* and *redistribuir*.

Both the definitions and the concept model were key to identifying a set of prioritised activities for caregivers. The goal was twofold: to supply activities strictly related to caregiving (i.e. washing or child caring); and to shift attention towards neglected activities related to caregivers' wellbeing such as reading a book, lifelong learning, doing yoga and more. Amid the pandemic and with mental health conditions increasing among Bogotá's women, the Secretariat decided to develop a system that not only supplied caregiving services, but also focused on caregivers needs and provided women with options for self-care, wellbeing and self-development. The system, which is entitled Care Blocks (Manzanas del Cuidado), was conceived as a novel approach to women and caregiver-centric infrastructure and service provision.

In a broad sense, Care Blocks aims to provide services that contribute to the mitigation of the 3 R's, and to address the two abovementioned goals. Its operational design simultaneously provides care for those who need it (i.e. children, elderly) and educational and leisure opportunities for caregivers whose time is freed-up as a consequence of hyper-targeted and intensive delivery of public services.

Clustering services around the concept of a Care Block was not an easy task. Of a large list of 92 identified operational services, only 36 were considered essential for achieving the Care Block's aims. The number of services was downsized based on two guiding principles: proximity/availability to specific locations, and incorporation of a gender perspective. The latter implied asking caregivers about their needs, their schedules (free vs. busy times) and the activities they would like to engage in if their time was freed-up.

With an emphasis on the second principle, the municipality determined an initial set of core services to be mainstreamed across the Care Blocks. The next step was to add additional services according to the specific needs of the user population. To this end, the team evaluated population samples living in specific areas around a potential block, identified three groups to target, and produced a user and need-centric list of services to be provided in a targeted and dynamic way (see Table 2.1). For example, two Care Blocks can provide similar services to engage caregivers in completing high school while their grandchildren can take part in play-based activities that are also adapted to people with disabilities or any physical limitation. Alternatively, one facility can provide yoga classes or bike-riding lessons, while another focuses on recycling and woodwork teaching.

Table 2.1. Example of service delivery according to specific groups

Groups	Caregivers	Care receivers	Men and the family
Service approach	Education Spare time and wellbeing Income generation	Professional and palliative care services	Cultural change Home duties
Example of services	Secondary education, yoga, recycling	Nursery or physiotherapy	Gender mainstreaming, cooking, washing

Source: Bogotá's Mayor Office, Secretariat of Women's Affairs, 2022.

Having defined the services, the next challenge was to determine the location of the Care Blocks. The Secretariat was aware of budget constraints and the need to use existing infrastructure. Accordingly, the initial setup strategy sought to identify infrastructure with the potential to host several kinds of services, and that could be revitalised and expanded with furniture, equipment and new infrastructure. The initial location and installation of a Care Block would depend on four variables that would produce a ranking of locations:

1. **Demand for care**
   a. Percentage of children below 5 years old.
   b. Percentage of elderly above 80 years old.
   c. Dependency relationships
2. **Presence of caregivers**
   a. Percentage of women above 15 years old that exclusively work/perform household tasks.
   b. Percentage of women-led single-parent households with children below 15 years old.
   c. Percentage of women-led single-parent households with elderly above 64 years old.
3. **Poverty rate**
   a. Low scores on the city's Women Monetary Poverty Index (IPM Mujeres)
   b. Percentage of women-led households below the poverty line.

4. **A specific request in the participatory budget**
    a. Whether the citizens requested a specific budget allocation for caregiving services of different kinds.

These findings, together with the newly approved Bogotá's Urban Master Plan, were used to re-route and integrate various public services such as psychologists, legal advice, services for people with disabilities and physical limitations, social development, entrepreneurship and more. Foremost, they supported the creation of an Intersectoral Commission of Care System co-ordinated on a monthly basis by 13 Secretariats and permanent guests who determine the next steps to advance the implementation of Care Blocks and urban transformation. As the Secretary of Women's Affairs pointed out, *"it was critical to iterate, put on paper and implement in parallel. This allowed us to build a Care Block concept in less than four months and to open the first one three months later in October".*

Established at sites around Bogotá, the locations of the Care Blocks enhance the use of each district's facilities in favour of caregivers, and also ensure that services can be accessed within a 15–20-minute walk, eliminating the need to use public transport for most participants. Moreover, for citizens that live far from a Care Block in rural and peripheral areas of Bogotá, the city has supplied Care Buses to guarantee mobility and access to services.

Box 2.6. Care Buses

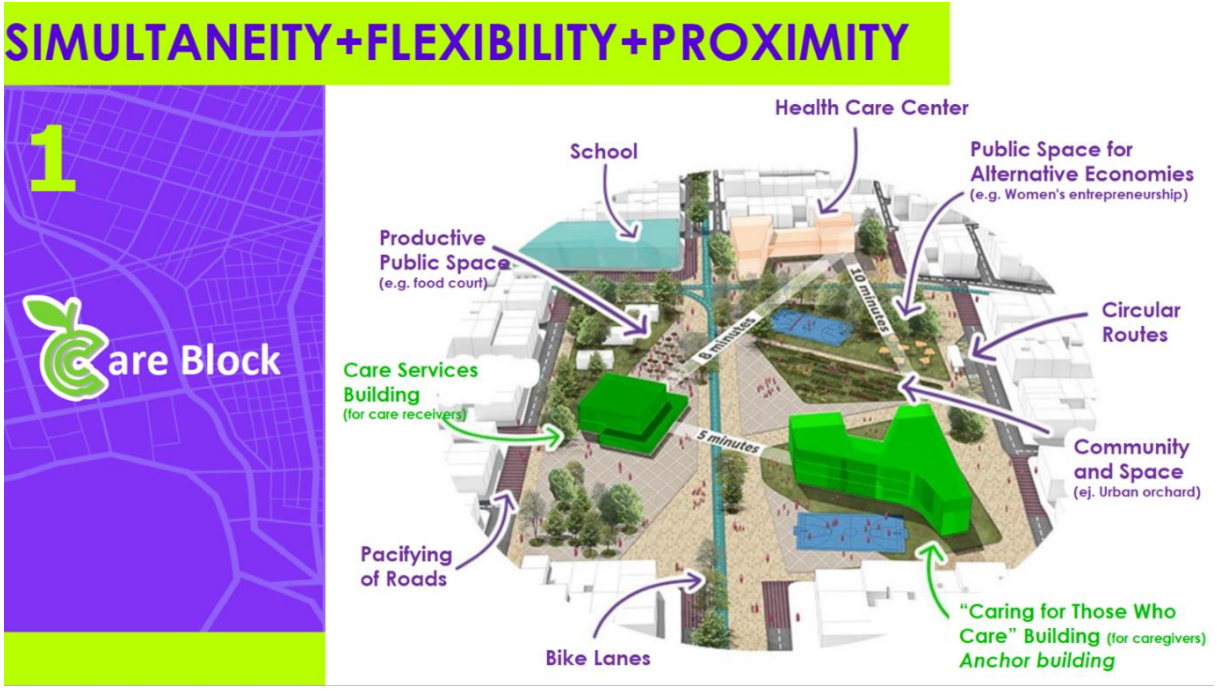
To address the limitations of physical access to Care Blocks, Bogotá implemented the "Care Buses". These free shuttles run from specific bus stops (points of proximity) or supply citizens living in rural areas with selected services. The prioritisation of Care Buses follows the same mechanism as the ranking of Care Blocks, focusing on areas without or with limited infrastructure, connectivity and basic services, and in high need of specific care services. The Care Bus concept rotates services, visiting different localities each time and ensuring services are adjusted to people's needs in line with the parameters of the 3 R's. However, the service is highly dependent on budgetary availability and on road maps which need to be updated regularly.



Source: Bogotá's Mayor Office, Secretariat of Women's Affairs, 2022.

While Care Blocks represent a good example of social innovation, they may also become a case study of urban and infrastructure innovation. Implementing this radical ease-of-access model required reorganising how the city was planned through the lens of women's unpaid caregiving work. Caregiving becomes the epicentre of urban transformation as the planning and use of existing and new infrastructures is funnelled through the lens of caregivers needs, profiles and characteristics as priorities. Moreover, the Secretary of Women's Affairs confirmed that "*the Legislative branch of the City of Bogotá has already approved a development plan that connects both concepts of infrastructure and caregiving, which is a major achievement for the next decades"*. Furthermore, the ambitious approach has resulted in the creation of a 15-30 minute city around the Care Blocks, for which mobility, housing and economic development policies will be updated accordingly.

Figure 2.4. Coverage of a Care Block and prototype of Care Block infrastructure



Source: Municipality of Bogotá, Economic Commission for Latin America and the Caribbean (CEPAL) 2020.

There are currently 151 Care Blocks spread around Bogotá. For the Secretariat, this represents "*a major success for the System as the plan was just to open a handful of pilots".* Going forward, the city plans to have 20 Care Blocks in operation by the end of 2023, and 45 by 2035. The leadership of current Mayor Claudia López has been key to transforming the initiative beyond improving administrative systems towards devising a whole caregiving-centric service delivery and policy making approach that will influence every aspect of life for Bogotá's citizens.

Novelty

Bogotá is the first city in Colombia and Latin America to have a Care System based on the 3 R's concept that recognises, redistributes and reduces the burden of care that falls mainly on women. According to the Secretary of Women's Affairs, *"the innovation was more on the administrative and organisational side – to reorganise and give purpose to services the City provides (…) We did not specifically invent anything new, until we saw its potential to transform the urban configuration of the city"*.

Like most Colombian cities, before 2020 the services the city offered were mostly siloed and had only a limited impact in terms of freeing up the responsibilities of female caregivers. They did not focus necessarily on caregivers' needs and failed to address in a holistic manner the root causes of women's limited access to self-care and spare time services. The Care Blocks are innovative because:

- They place caregivers at the centre of policy and service delivery design. The model foregrounds caregiving priorities including as a main driver of decision making about infrastructure, mobility and more.
- They re-organise the city to meet people's needs, instead of the reverse. The model integrates several administrative and infrastructures to build a system of care in specific areas of Bogotá.
- They address the inequality of the care burden from a cultural and societal perspective, thus ensuring long-term sustainable change.
- They provide a consistent approach to the diverse and multiple issues around caregiving.
- They incorporate a novel definition of and approach to caregiving in policy making. Similarly, Care Blocks incorporate concepts of free time and wellbeing as part of their service delivery model.
- For the first time, Bogotá's Urban Master Plan has a clear gender approach that places Care Blocks at the core of territorial planning. It aims to achieve an equitable and safe city for women and people in all their diversity.
- The project targets siloed entities, services, administrative systems and infrastructures, and integrates them under the logic of a one-stop shop for the provision of care.

Results and impact

Since the first Care Block was launched in October 2020, their number has expanded to 15, as noted above, and several Care Buses have provided over 200 000 services. With future expansion plans that aim to benefit Bogotá's society as a whole, benefits are sure to multiply. Caregivers and care receivers are increasingly meeting their specific needs, and the city benefits through a cultural transformation and the achievement of economic growth based on equity. During 2021, the Care Blocks served more than 54 000 women. Furthermore, Bogotá expects to launch 20 Care Blocks by 2023, which will serve more than 1 million Bogotán caregivers. By 2035, 45 Care Blocks will be operational, according to the Urban Master Plan which, once enacted, will make more underutilised infrastructures and empty lands available for the implementation of the project.

As noted above, practically none of the carers surveyed in Bogotá have financial autonomy, indicating the negative impacts of their role on their ability to participate in the labour market, which leads to gender gaps in employment outcomes, wages and pensions (OECD, 2017[15]). Recent OECD work has found that easing employment and other constraints requires a full set of policies, starting with needs assessments, access to information and advice, respite, training, financial support and flexible work arrangements (Rocard and Llena-Nozal, 2022[14]). The Care Blocks helps to achieve this end. For even greater impact, future iterations of this social innovation could consider a broader framework which would help such women to combine care and work, for example through tax deductions (as is the case in Spain), policies on paid leave for caregivers, telework and other flexible work arrangements (Rocard and Llena-Nozal, 2022[14]).

Challenges and lessons learned

Since their launch, the Care Blocks have faced multiple challenges, including the COVID-19 pandemic which aggravated the situation of caregivers by increasing their care work burden. The initiative also had to navigate legislative body politics to acquire a budget for the programme. Additional challenges involved reaching out to and raising awareness among the public and a variety of stakeholders, policy officers and entities related to the different categories of services the initiative sought to provide.

Another challenge concerns the integration and mainstreaming of all current information systems into a single data collection system for the care system. The innovation has grown faster than the related interoperability processes, placing the Care Block model under pressure to not only capture information but to do so in the same way across a service delivery journey. As the Secretariat of Women's Affairs points out: *"the idea is that women can access [the entire system] with a single number, their ID"*. For this reason, and to avoid duplication in measuring service delivery, services are counted by Care Block, not the number of people served. Looking ahead, the system needs to address the issue of simultaneous counting and verifying service users.

The Care Blocks team has also learned a number of lessons that have been critical to programme success. First, collaborating across silos and sharing responsibility is key. While the Care Blocks are led by the Secretary of Women's Affairs, they co-ordinate the provision of services from 13 other departments. Second, infrastructure can be a key enabler or blocker. Initially thought of as an administrative innovation, Care Blocks has turned into urban initiative that rethink how the city's services are organised based on a gender approach. This has required the city to rethink service availability based on whether the available services meet population needs and are available when and where they need them.

Other factors involved in success include guaranteeing the legitimacy and durability of the programme in law; ensuring the availability of financial resources; and communicating the need for citizen commitment, which in turn implies a cultural change around the perception of care work.

Replicability

The Bogotá Care System has been replicated in San Pedro Garza García, Mexico. The city has also received requests for technical advice on the implementation of other care systems from the cities of Medellín, Cartagena and Cali, the Colombian National Government, Peru, Argentina, Chile, the Dominican Republic and Mexico, as well as from city networks such as CHANGE.

The Care Blocks team, however, has stressed that the effort cannot be replicated or sustained without a vibrant network of committed partners across stakeholders, including civil society. On this basis, it has built the Care Alliance – a network of actors from the private sector, NGOs, academia and many locally based organisations. The Alliance is designed to function as a platform ensuring that caregivers have a voice and vote in decision making, for example, through participation in the Intersectional Commission of the Care System.

Empathy and care to support mental health

Mental ill-health can have devastating effects on individuals, families and communities, with one in every two people experiencing a mental illness in their lifetime. During the COVID-19 crisis, many people's mental health worsened, with prevalence of depression and anxiety increasing significantly at the height of the crisis, and even doubling in some countries (see Figure 2.5). The mental health of young people in particular has been impacted significantly by the pandemic (OECD, 2022[16]) Mental ill-health also weighs heavily on societies and economies; the economic burden of mental ill-health can account for up to 4% of GDP, while those with mental illness have poorer educational, employment and physical health outcomes than those with good mental health. However, as many as 67% of people say they do not get the mental health support they need (OECD, 2021[17]).

Figure 2.5. National estimates of depression or related symptoms before and after COVID-19



Source: https://doi.org/10.1787/0ccafa0b-enD. Data available at https://stat.link/mw2xro.

Perhaps triggered by increasing mental distress during and in the wake of the COVID-19 pandemic, OPSI and the MBRCGI have identified a stronger focus on mental health in this cycle of work compared to previous years, with a number of empathetic and innovative services coming on line. These cases often involve deep engagement with those whose lived experiences run counter to the philosophies of traditional mental health approaches, which may be less centred around the person who needs help – as seen in the Australian examples in Box 2.7 and the Mental Health Café case study featured later in this trend.

Box 2.7. A co-created Philosophy of Care (South Australia)

People experiencing mental health distress and crisis require a response system prepared to understand and adequately address their needs. When planning began for an Urgent Mental Health Care Centre, a new standard centred on people with lived experiences was sought by the Office of the Chief Psychiatrist (OCP). The Australian Centre for Social Innovation (TACSI) and the Lived Experience Leadership & Advocacy Network (LELAN) were commissioned to advise the OCP on how this could be achieved and suggested investing in the co-creation of a Philosophy of Care with a group of people who had specific lived experiences of distress and crisis emergency.

This Philosophy of Care provided the principles that guide the real-life implementation of the Centre. It represents a shift to a person-centred approach, impacting service modelling by incorporating the perspectives of the community that will use the service. The Philosophy of Care was a key reference during the commissioning process in which people with lived experience participated in an evaluation panel to select the service provider responsible for developing the Centre. It also provided key guidance on the recruitment of a workforce, about 50% of which have lived experience of mental distress and crisis.

The Centre operates 24/7 and has provided support to 5 029 people who self-refer or are brought by police or ambulance services due to acute mental health distress.

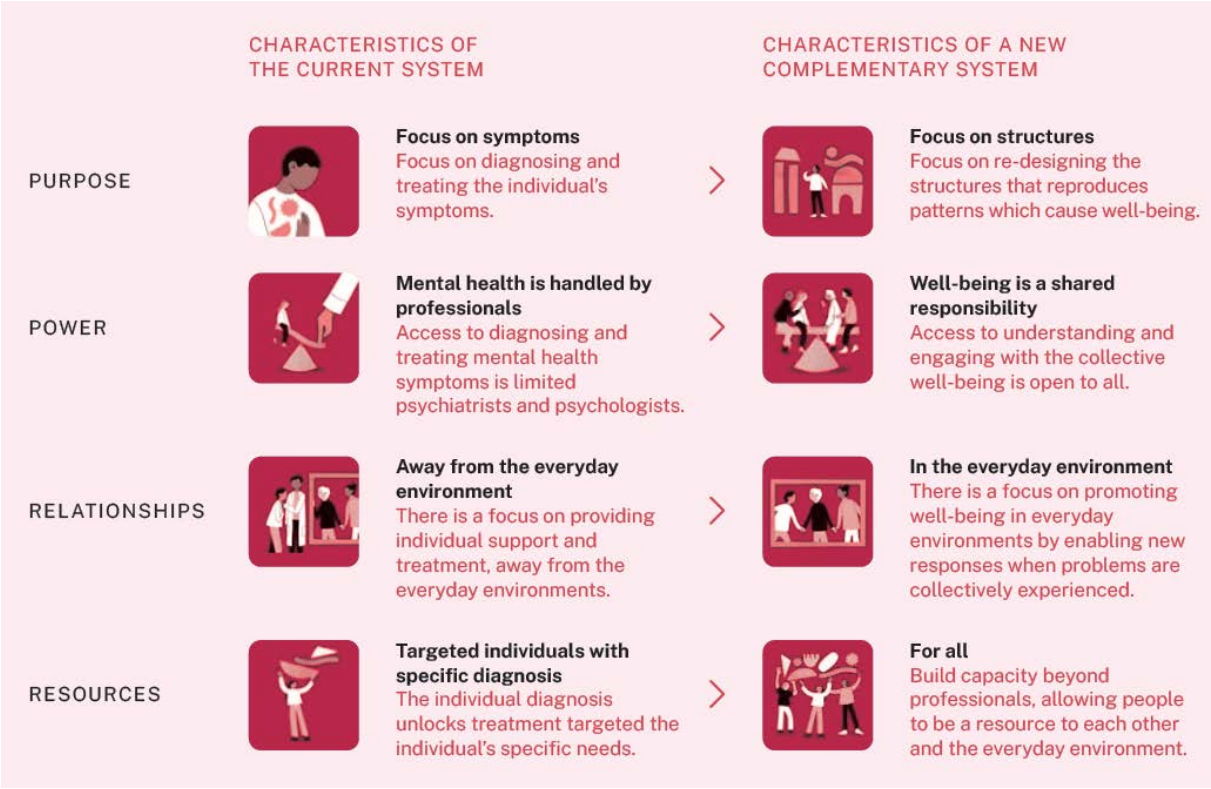
Source: https://oecd-opsi.org/innovations/co-created-mental-health.

Many initiatives also demonstrated the power of talking therapy to address mental ill-health. This kind of cure has proved particularly effective against mild-to-moderate conditions such as depression and anxiety. Indeed, as shown by previous OECD work on mental health systems, countries are increasingly focusing on scaling-up talking therapy initiatives and making these kinds of services more and more accessible. This has been achieved through community-focused initiatives – the Mental Health Café project presented as a case study below is a perfect example – but also by making talking therapy available through primary care practitioners. Indeed, in more than the half of countries considered in the OECD Policy Questionnaire, some or all primary practitioners provide talking therapy (OECD, 2021[17]).

As touched on in the Introduction, a secondary surfaced innovation trend is a focus on young people. A number of these collaborative efforts have focused specifically on this population, who are particularly vulnerable to mental ill-health (Kuyper and Fokkema, 2011[18]) (Mitrou et al., 2014[19]) (Sijbrandij et al., 2017[20]). Indeed, young people with a mental health condition are 35% more likely to repeat a grade at school and to leave school early (OECD, 2015[21]). One example of such an innovation is "Reversing Youth Mental Health Outcomes" by Mind the Class, an American mental health prevention organisation partnering with school systems to reduce the risks and reverse the rates of mental and behavioural health disorders through the creation of community ecosystems. The collaborative project worked with local public and private partners to design a preventive implementation plan using proven wellbeing research and data-driven solutions. Outcomes of the Plan include reduced stress and self-harm, as well as increased wellbeing, coping skills, family connections and achievement. In the United Kingdom, the MH2K programme also uses collaborative approaches to give young people a leadership role in addressing this challenge. It works with people aged 14-25 years old to identify the mental health issues they see as most important, and encourages them to engage with their peers to explore these topics as well as with decision makers to make recommendations for change.

In Denmark, the "Imagine if we" initiative by the Danish Design Centre (DDC) and the Rockwool Foundation is also working to promote mental wellbeing among young people through future-oriented anticipatory scenarios. The initiative aims for systemic shifts in mental health away from the individual and towards the community (Figure 2.6). DDC's work in this area represents a collaboration with the OECD Mission Action Lab (Box 2.8), spearheaded by OPSI, the OECD Directorate for Science, Innovation and Technology (STI), and the OECD Development Co-Operation Directorate (DCD).

Figure 2.6. The four shifts of "Imagine if We"



Source: https://ddc.dk/projects/imagine-if-we.

Box 2.8. OECD Mission Action Lab

The OECD Mission Action Lab unites diverse sets of international expertise to work with policy makers in order to establish and operationalise mission-oriented innovation in real-world contexts.

By working directly with policy teams to provide tailored strategic and tactical advice, the Lab supports countries in overcoming major mission challenges preventing them from getting started or meaningfully staying on course. In turn, the Lab seeks to leverage this work to build an evidence base and develop adequate mechanisms and practices on how governments are employing a mission-oriented innovation approach for the benefit of others.

The Mission Action Lab website provides an explanation of mission-oriented innovation, details of mission governance including how to manage a portfolio of innovations and evaluate missions, and a resource library.

Source: https://oecd-missions.org, https://oecd-opsi.org/work-areas/mission-oriented-innovation.

Behavioural Insights (BI) are also being used to help understand and improve mental health, as seen on OPSI's BI Knowledge Hub. The Hub is a suite of tools to support the global BI community and promote cross-border knowledge sharing. It includes interactive maps of BI units and projects and a portal for pre-registering experiments. Examples where BI have been applied for better mental health include the following:

- The Slovak Republic is working to improve prevention of mental health issues, destigmatise the topic, improve awareness of the possible forms of help for different types of mental health problems and gradually break down the barriers that prevent those in need from seeking professional help.
- Pakistan and the World Bank have collaborated on efforts to introduce group-based Cognitive Behavioural Therapy (CBT) training for entrepreneurs.
- Projects in the Philippines endeavoured to improve mental health and wellbeing among public healthcare workers during the pandemic (Mantaring et al., 2022[22]).

While BI techniques are used increasingly with demonstrated effectiveness, they can be controversial at times. In January 2022, dozens of psychologists, therapists and other health professionals raised potential ethical concerns in a letter about the use of BI, or "nudges", by government. A wide variety of frameworks and resources are currently available to help governments integrate BI into the policy cycle (e.g. the OECD BASIC framework); however, very few have the primary purpose of safeguarding the responsible use of behavioural science in government. This has at times left teams to establish their own ethical standards and practices, which has resulted in an uncoordinated mosaic of procedures. To address these challenges, OPSI has developed the first-of-its-kind *Good Practice Principles for the Ethical Use of BI in Public Policy* to advance the responsible use of BI in government. The Principles guide readers through four key phases (Figure 2.7).

Figure 2.7. Phases of taking an ethical approach to BI



Source: https://oecd-opsi.org/publications/bi-gpps.

As this area overlaps with many different approaches and techniques, a handful of additional tech-oriented mental health solutions are discussed in the "New Technologies" section of this trend.

Case Study: Mental Health Café (Latrobe City, Australia)

Latrobe Valley in Victoria, Australia has positioned itself at the forefront of efforts to promote better mental health and wellbeing for citizens and residents, and to provide early first-line support to patients or those

living with a mental health condition. The *Latrobe Health Assembly* is a community-led state government initiative that seeks to positively shape and facilitate new ways of working to improve health and wellness in Latrobe. Through a co-design process with service providers, public health and government bodies, and citizens, the Assembly has developed an innovative *Mental Health Café*, a physical space tailored to after-hours and non-emergency stabilisation of people experiencing mental health challenges. Driven by a community-centred approach, the café aims to increase opportunities for peer support and social connection, reduce emergency department presentations for non-emergency mental health issues, and improve mental health consumer experiences and outcomes.

Problem

Mental health in the state of Victoria and Latrobe Valley is a sensitive topic. The results of a 2020 Victorian Population Health Survey showed that 23% of Victoria's inhabitants present high or very high levels of psychological distress, affecting 35% of young adults aged 18–25 years old. Latrobe displays similar results, with residents 38% more likely to experience mental health conditions including depression or anxiety than the rest of the state. Statistics also show that recurrence of mental health episodes among the population have worsened in the wake of the COVID-19 pandemic. As a consequence, emergency and non-emergency services for mental health have seen their capacities pushed to the limit. In addition, Latrobe faced a handful of operational challenges limiting the delivery of mental health services. Traditional 9 am to 5 pm operation times for mental health services are insufficient to address current patient inflow, not to mention inconvenient for people that work. In addition, there is a critical shortage of trained psychologists and other mental health workers to meet current demand. Lastly, there has been pressure to fund the strengthening of innovative mental health services, but few indications of how to achieve this at the community level. Officers from the Mental Health Café stated that challenging existing thinking and taking mental health care to the next level was not only necessary, but urgent in small cities like Latrobe.

An innovative solution

Following recommendations from the 2016 Hazelwood Fire Inquiry on improving health impacts and transforming the future of health in Latrobe Valley, in 2020 the municipality launched a co-design process to address the issue of mental health in the community. The process sought to reimagine engagement with innovation and mental health in ways that would enable a broad range of stakeholders, in particular first-line service providers and citizens, to translate their experiences into a specific service delivery model.

> "To have people listen to you and consider your life and real experience is what's needed. If I can help the next generation by contributing to this, that's wonderful." (co-design participant)

Throughout 2021-22, Latrobe's Department of Health and Human services brought together hundreds of local and state-wide providers, doctors and carers, and experts, and prioritised their interactions with existing and prospective patients as the main priority group for engagement and empathy. As officers at the Mental Health Café explained, they created spaces to draw on diverse perspectives and experiences using a variety of engagement methods "*to check whether the concept resonates with people and to get a sense of the services to be provided".* From there, a series of co-design workshops was organized to translate every aspect of patients' needs into action.

These levels of engagement were fuelled by a strong bottom-up participatory approach that not only gave the patients a voice but also a direct influence in decision making, thereby ensuring their needs are at the heart of the process. In addition, the Latrobe Health Assembly further ruled that 1) the people's

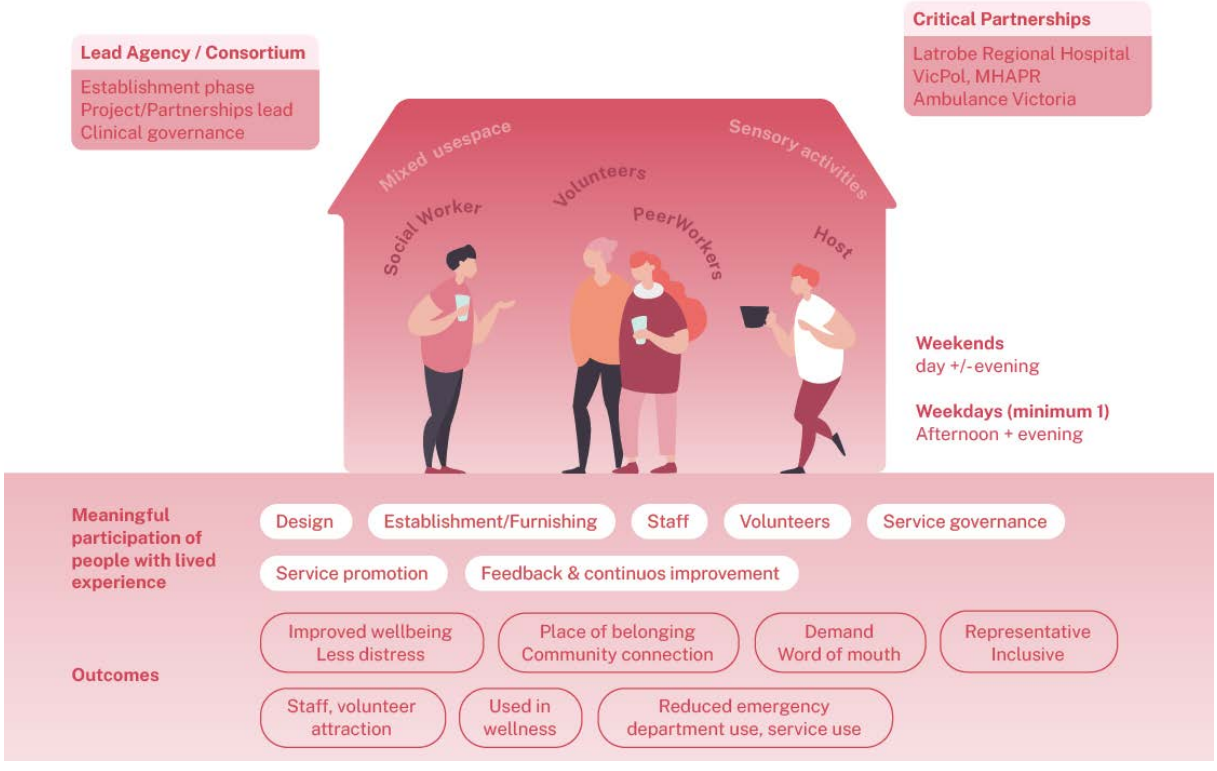
recommendations on service and delivery were non-negotiable, and 2) that the Assembly itself would be bound to implement the co-produced outputs.

These efforts culminated in the creation of the Mental Health Café concept, a peer-led model characterised by evening operating hours, wellbeing supports, a recovery-oriented approach and a commitment to meaningful, ongoing community participation, in particular of people with lived experience as experts, at all decision-making levels. Specifically, the Café seeks to:

- innovate upon the traditional medical model of mental health services
- harness lived experience expertise in the development of supports
- increase opportunities for peer support and social connection, including after-hours support
- improve mental health consumer experiences and outcomes
- reduce emergency department presentations for non-emergency mental health issues
- provide peer support in order to model recovery and build hope, confidence and self-esteem.

As one of its officers explained, the concept of the Café *"needed to scream service"*. Accordingly, the Café was configured around the idea of making patients feel comfortable, allocating caregivers and volunteers strategically to meet their needs and deliver the right set of services, including by redirecting them to other services. The physical space of the Café also serves to experiment with novel approaches, test new solutions and approaches to address the specific needs of patients, and register experience-based evidence related to emerging issues with a view to supporting better policy making at the local and state levels.

Figure 2.8. Mental Health Café for Latrobe Valley



Source: www.healthassembly.org.au/all-projects/mental-health-cafe.

To achieve the above objectives, the Café developed an Outcomes Framework (Table 2.2), a tool by codesigned people with lived experiences to assess all aspects of the model delivery process. The Framework seeks to assess programme fidelity (whether the programme is being implemented as planned) and to help all stakeholders assess and track the success of the programme's outreach over time (whether it is reaching the intended beneficiaries). As one Mental Health Café Officer explained, *"Listening to the community is compulsory (…) it frames our thinking and decision making at all times."*

The Framework is particularly innovative at integrating more traditional outcomes of service delivery with concepts related to the community, patient's and caregivers' wellbeing, and the specifics of its value proposition. It includes four goals that are evaluated using a mix of quantitative and qualitative indicators which will evaluate the extent to which the Café achieves the desired changes for individuals, the community and the organisation. This tool will also help to highlight systemic changes across different sectors, including in public health, and to assess the quality of human resources.

Table 2.2. Outcomes Framework

Goal	Outcome example
A space for positive mental health conversations	Guests (patients) and Café staff/volunteers report feeling safe and supported
A space that responds to community demand (expressed or otherwise)	The Café has guests throughout its opening hours
Building community connectedness	The Café is seen as a safe space in times of wellness as well as in times of need
Improved service access	Guests are provided with pathways to mental health services, as needed

Source: Mental Health Café team.

Having spent the past two years generating ideas, designing solutions, and developing a model and business case, the Mental Health Café has now reached the implementation phase and expects to start operations officially in February 2023. The Latrobe Health Assembly has partnered with Lifeline Gippsland – the largest nonprofit institution in Victoria State specialised in suicide prevention and support for mental health issues – to lead the establishment and operational phase of the service. Currently, the Mental Health Café is amid the first six-month phase of a two-year pilot, which includes validating the initial concept and, more importantly, guaranteeing its appeal as a community-centred solution to ensure its sustainability and replicability, where possible.

Results and impact

Much of the project work to date has involved the establishment of a strong governance and service model that capitalises on local strengths with an eye on the broader system, including building rapport and evidence for institutional support. For this reason, the Café is currently undergoing an external evaluation with a particular focus on how the Café is developing (here the Outcomes Framework will be used), and how the extended hours are working (a cost-benefit analysis will be conducted).

It is expected that service provision will be tightened at the most granular level of the Café. This implies improving and adjusting the outlet's design, the opening days and times, the way volunteers and caregivers are recruited and the incorporation of living experiences into specific services, among others. This ongoing evaluation process forms part of the Mental Health Café's strong commitment to patient wellbeing and building trust among all stakeholders. According to the Café's officials, *"an initial screening of the co-design process showed … high rates of engagement among volunteers and stakeholders such as community members and service providers."*

Challenges and lessons learned

The first main challenges were the co-design and community-based model development processes. Latrobe's Health Assembly sought to avoid an overly complex concept to enable the Café to leverage novel methods of service design and delivery, and draw on flexible approaches in order to build institutional commitment and strength. This is reflected in a greater ability to show genuine commitment, empathy and understanding in regard to the lived experiences of people affected by mental health issues.

The Café's approach also demonstrated that policy making in mental health can be implemented at a granular level and that it is useful to avoid some of the consequences of government decisions (i.e. the politicisation of mental health outcomes among a population or the risk of only partially addressing a problem due to lack of understanding or cultural/social bias). In this sense, the non-negotiability of the recommendations related to the kind of services and the way they are delivered were key to building a strong community and bottom-up model. Furthermore, the Café understood the power of diverse conversations and inclusive decision-making for building a strong community.

> "When you work in a community, you need to bring together all the actors whose lives you plan to make better" (Mental Health Café Officer).

Additional lessons have come from early engagement of stakeholders and investment of time and resources in shared sensemaking to ensure that the vision is shared and has strong buy-in. Mental health and lived experiences are not only sensitive topics, but mostly unknown, not to mention difficult to approach and reflect upon. The Café, therefore, prioritised early learning opportunities, organising gatherings with a broad base of stakeholders, to hear from groups who would use the services and run them. Strategic tools that are wellbeing oriented, such as the Outcomes Framework, help to understand beneficiaries' experiences and expectations when interacting with the service. The fact that such tools are co-created with the beneficiaries add an important layer of "reality" in the way that results are measured and lessons are pulled out.

Replicability

Although it is too early to assess the replicability of the Mental Health Café concept, three key areas could be interesting and relevant for further study and assessment: 1) the creation of technical and community-centred policy bodies such as the Latrobe Health Assembly; 2) the co-creative process that led to the Mental Health Café concept; and 3) the codesigned Outcomes Framework which reconciles impact measurements with concepts of wellbeing and public value.

New technologies revolutionising healthcare

As can be seen in the previous sub-themes in this trend, emerging technologies and new digital approaches are transforming the ways in which governments and their partners are looking after the health of their people.

Leveraging tech for care at a distance

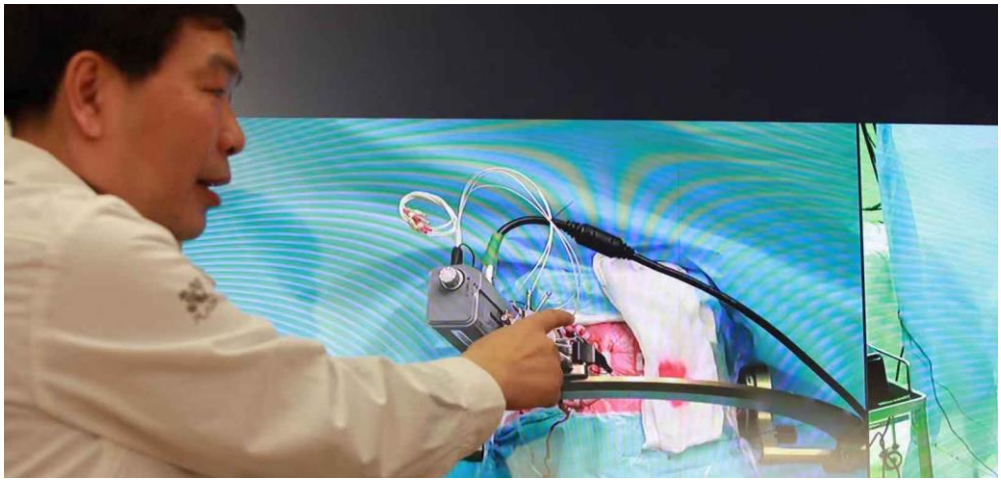
Back in 2020, OPSI and the MBRCGI reported that the rapid acceleration of digital innovation and transformation was a leading aspect of government responses to COVID-19, successfully compressing years' worth of technological advancements into a few weeks and months. While much of the world is

working to emerge from the pandemic, this trend has continued to flourish, with innovative digital approaches becoming more embedded into the business of government.

One area where this trend has advanced most is remote care, with innovative processes ensuring that people can access care even if they are hard to reach, or if health situations prevent person-to-person contact. Telehealth exploded during COVID-19 (Mantaring et al., 2022[22]), with nearly half of adults across OECD countries having a remote consultation during the pandemic (OECD, 2021[23]). Medical interactions online have evolved from band-aid responses such as Zoom consultations to sophisticated and transformative initiatives at scale. For example:

- Hospitals in China and France have used 5G technology to conduct real-time remote surgeries (Figure 2.9).
- In Greece, Cardiac Telerehabilitation is increasing participation in cardiac rehabilitation services through structured, real-time, supervised exercise.
- Israel has developed a Telemedicine Community, a cross-organisational multi-disciplinary health practitioners' community to advance wide-scale, informed and safe telemedicine practices through the creation of a learning environment, knowledge sharing and joint action.
- India's eSanjeevani National Telemedicine Service is a cloud-based telemedicine platform providing user-friendly, round-the-clock support tapping into an expansive ecosystem of 102 000 health centres and 208 000 providers that serve over 225 000 patients per day.
- Public healthcare and education in Serbia is being transformed through mixed reality technologies to improve patient care while reducing risks to medical staff (Box 2.9).

Figure 2.9. Remote brain surgery in China from 3 000 kilometres away



Source: Handout via https://engineerine.com/china-performed-its-first-5g-remote.

Box 2.9. Mixed reality technology for healthcare (Serbia)

Public healthcare in Serbia is being transformed through the innovative use of mixed reality technology powered by AI, increasing efficiency and quality of healthcare, minimising risks and efforts, and optimising procedures. This innovation was launched during the COVID-19 pandemic to reduce the exposure of staff in the red zone, and to minimise their levels of stress and exhaustion, which were manifested in the rising incidence of burnout.

With the support of the Office of the Prime Minister and through partnership with Microsoft, the University Hospital Centre piloted Hololens2, a mixed-reality device that revolutionised healthcare collaboration and improved the efficiency and quality of healthcare, as well as working conditions for doctors. Rather than the entire medical team, only one doctor enters the red zone with the mixed-reality headset and views all relevant medical documentation and images as 3D holograms, while other doctors monitor from outside providing input and advice.

Beyond the excellent results during the pandemic in terms of medical service delivery and education, mixed reality can play a key role in providing the highest level of healthcare even in the most remote areas, saving time and money, and raising the quality of the service, as top medical teams can remotely treat patients whenever they are located. Indeed, the Serbian Government has recognised this initiative as a promising innovation and has decided to equip all medical centres with mixed-reality technology as part of long-term plans.

Source: https://oecd-opsi.org/innovations/mixed-reality-healthcare.

Governments and health providers have also been using robots and drones to help care for citizens and residents at a distance. For instance:

- Singapore's "BeamPro" robot can deliver meals and medication to hospital patients, is programmed to chat with patients in four different languages and allows doctors to routinely monitor them (Thomas et al., 2021[24]).
- The Dominican Republic is using flying and driving cargo drones for public health to autonomously deliver medicines to remote areas.
- In Rwanda, the government is using drones to deliver blood and essential drugs to rural hospitals.

While many of the issues surrounding robot and drone usage discussed by OPSI and the MBRCGI involve public safety and policing, with some forms becoming increasingly controversial in recent years, these care efforts illustrate how this technology can be used to provide critical medical aid. As these practices continue to become embedded, they may move from the realm of innovation to standard practice, with Forbes indicating that they may become "the next big thing" in healthcare delivery.

Artificial Intelligence for real outcomes

Of all emerging technologies, AI is the most strongly leveraged in care. As touched on earlier in the section on Algorithmic Accountability, AI holds tremendous promise for the public sector, and government are tapping into this potential in a variety of ways. OPSI work has repeatedly identified healthcare as one of the top areas globally where governments are investing time an energy in exploring and adopting AI. For instance, the recent OECD report on *The Strategic and Responsible use of AI in the Public Sector of Latin America and the Caribbean* highlighted the use of AI for personalised outreach for pre-natal and baby care in Argentina, early detection of anaemia in Peru, and detecting depression, anorexia and other disorders

through social networks in Mexico, not to mention a slew of projects focused specifically on COVID-19 response.

The work of OPSI and the MBRCGI also uncovered the growing innovative use of AI in more refined and well-informed ways. For instance, the UK'S NHS AI Lab is bringing together cross-sector stakeholders for co-creation and experimentation around AI to revolutionise healthcare (see Box 2.10).

Box 2.10. NHS AI Lab (United Kingdom)

The NHS Artificial Intelligence Laboratory (NHS AI Lab) was created to accelerate the safe and effective adoption of AI in health and care by bringing together government, health and care providers, academics and technology companies. Its mission is to create a sustainable health and care system which achieves better outcomes, equality and fairness for all.

This innovation comprises five main programmes:

1. The *AI in Health and Care Award* supports AI technologies across the spectrum of development.
2. *AI Regulation* operates programmes to build a safe and robust regulatory ecosystem.
3. *AI Skunkworks* helps the health and care community experiment with AI projects and develop capabilities.
4. *AI Ethics* applies a patient-centred approach to ethical and effective adoption.
5. *AI Imaging* supports the development of imaging technology.

Source: https://transform.england.nhs.uk/ai-lab, https://bernardmarr.com/4-powerful-examples-of-how-ai-is-used-in-the-nhs.

GovTech startups in particular have been a driving force in innovative forms of care. In leveraging techniques to foster care ecosystems (see earlier section), governments are seeking to better tap into these GovTech ecosystems to bring fresh ideas and techniques to the public. Indeed, some of the most powerful and innovative solutions being used by governments today have come from agile GovTech startups. Tucuvi, a "virtual nurse" for automating medical phone conversations through empathy AI, is an excellent example and is covered in an in-depth case study later in this trend.

Beyond granular projects, Israel's Challenge Tenders demonstrates an innovative method of engaging GovTech ecosystems to solve urgent health problems not often the focus of startups, such as fall prevention among older people and improvement of geriatric care. Once the Ministry of Health defines a problem, it invites the GovTech community to submit proposals. Those selected receive funding for a 6-12-month test pilot in a real-world setting. For instance, "GAITBETTER" combines AI and virtual reality for fall prevention and reduced falls by 71% in the senior living community where it was tested. Brazil has also launched an AI solutions challenge for the public sector, including a focus on health.

In another example bridging the aforementioned topic of mental health with new technologies, GovTech partner NeuroFlow is working with governments and health systems in the United States to streamline the collection of behavioural health data at scale from different types of public servants (e.g. for firefighters, medics and dispatchers), via an app. An AI then identifies the most at-risk users for mental health issues (Shein, 2021[25]). Such practices highlight a growing body of work on using real-time data and data science approaches to support mental health, including suicide prevention efforts (Amankwah, Pool and Nass, 2022[26]). The International Telecommunication Union (ITU) recently published a round-up of 14 tech-based innovations for promoting good mental health, especially among young people, a number of which involved AI from GovTech startups. Some examples include:

- ViveTeens, a personalised "wellness" companion providing teenagers with content, tools and services that can benefit them
- Wysa, an AI-powered chatbot that helps young people use proven cognitive behavioural therapy (CBT) techniques.

Other initiatives surfaced outside of government include projects initiated by civic tech organisations and nonprofits. For instance, the Information Society Foundation for the Americas in Argentina has used AI to create an integrated system of care for victims of gender-based violence (SIAVIGia). The objective of the platform is to provide governments with a tool that allows them to comprehensively assist victims of gender violence, including an anonymous data registry and an AI-based Risk Assessment system that can estimate the probability that a domestic violence case will escalate to greater conflict and even feminicide. The Civic Tech Field Guide has catalogued a number of additional cases involving AI for care.

However, despite this progress and some promising innovations, AI has not quite transformed care as radically or rapidly as expected, with hurdles including insufficient data infrastructure and a lack of collective, interoperable, quality data (Leonard and Reader, 2022[27]). As data are the foundation of practically all modern AI systems, governments and their partners will need to overcome this challenge if they are to harness the full potential of AI in this field and move beyond one-off, ad-hoc solutions in narrow environments. As noted in recent research on AI for health, "AI that adds value relies on good policy foundations, and, in particular, "strong health data governance – within and across countries – and developing better digital infrastructure and technological capacity" (Hashiguchi, Oderkirk and Slawomirski, 2022[28]). The discussion on data in the "Re-orienting systems" section of this trend has a major bearing on AI approaches.

Another limiting factor besides data is agreement on guiding principles for ethical and trustworthy use of AI in healthcare (European Parliamentary Research Service, 2022[29]) (Mittelstadt, 2021[30]) (Naik et al., 2022[31]). Key issues include the use of data, data privacy, safety and transparency, and algorithmic fairness. While the OECD AI Principles and the Good Practice Principles for Data Ethics in the Public Sector (Box 2.3) may be applied to any area, health is a specialised field with a high duty of care that may warrant a more tailored approach. As noted in the work of the EPRS, "use of AI in medicine and healthcare has been praised for the great promise it offers, but has also been at the centre of heated controversy", with risks including:

- patient harm due to AI errors
- misuse of medical AI tools
- bias in AI and the perpetuation of existing inequities
- lack of transparency
- privacy and security issues
- gaps in accountability
- obstacles in implementation.

These risks can be mitigated through (1) multi-stakeholder engagement; (2) increased transparency and traceability; (3) AI training and education for clinicians and other practitioners, citizens and decision makers; and (4) in-depth clinical validation of AI tools (EPRS, 2022). Recent research underscores the first point, demonstrating that strengthening co-design in health AI systems with end users can help anticipate and address these issues (Donia and Shaw, 2021[32]). This further emphasises the remarkable achievement of the NHS AI Lab case, which focuses explicitly on co-creation, including with potentially affected members of the public. In their work, Donia and Shaw also compiled some notable myths and misconceptions about co-design for ethical AI for health that practitioners should take into account. Trend 4 also includes relevant discussion on this point.

The efforts discussed in the Algorithmic Accountability section could go a long way to supporting the second point on transparency and traceability. With regard to the third point on training, OPSI and the MBRCGI's 2020 work on *Upskilling and Investing in People* helps to set the stage for AI training for both citizens and practitioners, such as through its case study on Elements of AI, a free online course taken by over 500 000 people. Such training of citizens can also help prevent negative trust cycles in which public distrust of AI leads to citizens withdrawing their data, thus exacerbating the issue of biased or skewed algorithmic results. Also relevant is the European Commission's Masters' degree programme on AI in Public Services (AI4GOV), albeit not in a way specific to the field of care. The last point on clinical validation of AI tools is generally outside the realm of OPSI and the MBRCGI's expertise, but such work may include:

1. A framework for validating AI in precision medicine (Tsopra et al., 2021[33]).
2. Key Principles for Clinical Validation, Device Approval and Insurance Coverage Decisions of AI (Park, Choi and Byeon, 2021[34]).
3. The WHO's Generating Evidence for AI-Based Medical Devices: A framework for training, validation and evaluation.

In regard to providing overall guidance on AI for care, Canada, the United Kingdom and the United States have collaborated on principles for good machine learning practices (Box 21). In the latter, the National Academy of Medicine's Committee on Emerging Science, Technology, and Innovation in health and medicine (CESTI) has also developed an ethical governance framework for using emerging technologies in this field.

Box 2.11. Good machine learning practices for health – guiding principles

The US Food and Drug Administration (FDA), Health Canada, and the United Kingdom's Medicines and Healthcare products Regulatory Agency (MHRA) have jointly identified ten guiding principles that can inform the development of Good Machine Learning Practice (GMLP). These guiding principles will help promote safe, effective and high-quality medical devices that use AI and machine learning.

1. Multi-disciplinary expertise is leveraged throughout the total product life cycle.
2. Good software engineering and security practices are implemented.
3. Clinical study participants and data sets are representative of the intended patient population.
4. Training data sets are independent of test sets.
5. Selected reference datasets are based upon best available methods.
6. Model design is tailored to the available data and reflects the intended use of the device.
7. Focus is placed on the performance of the human-ai team.
8. Testing demonstrates device performance during clinically relevant conditions.
9. Users are provided clear, essential information.
10. Deployed models are monitored for performance and re-training risks are managed.

Source: www.fda.gov/medical-devices/software-medical-device-samd/good-machine-learning-practice-medical-device-development-guiding-principles.

Case Study: Tucuvi (Spain)

The lack of nurses and doctors in Spain has led to an increase in unmet needs, insufficient medical availability and lower quality of health services. This has had a significant impact on patients with chronic

conditions who require recurrent visits to hospital. In this context, Tucuvi represents an innovative solution that can help both patients and doctors. It consists of a voice assistant that operates through phone calls providing an effective and accessible way to (i) reach users with standardised triage questions and retrieve information on a patient's status; (ii) support early assessment of a patient's health status; and (iii) inform the hospital facility and doctors and nurses about the results, which they can monitor using a dashboard. Using automatic speech recognition and natural language processing, Tucuvi makes remote patient monitoring possible, ensuring continuous care services.

Problem

In Spain alone, it is estimated that almost a third of the population suffer from a chronic disease or illness, a proportion that reaches nearly 60% for those aged over 65 (OECD/WHO, 2019[35]). This population is predicted to increase in line with the accelerated aging of the Spanish population and the impact of future diseases such as COVID-19 variants. According to a report on the chronicity of diseases, it is estimated that by 2025 a growing share of people over 65 years of age will require multiple treatments due to the increased presence of chronic illnesses or diseases. Likewise, a wave of post-pandemic chronicity is expected in the younger population, requiring an increase in follow-up and care from the healthcare systems, putting more pressure on nurses and doctors, as well as on scarce resources.

Spain has around 330 000 nursing professionals equating to a ratio of 625 nurses per 100 000 inhabitants, well below the European average of 827 nurses. This lack of nurses makes it difficult to transform the healthcare model towards one of prevention and care. Additionally, lack of information among the population about what care options exist and how to access them, can result in serious physical, emotional, social, financial and other effects due to the absence of such care. This mismatch between unmet needs, poor medical availability and lack of knowledge contributes to the erosion of trust in hospital and healthcare systems, with resultant impacts on the quality of life of patients, regardless of whether they have a chronic, terminal or other diagnosis.

An innovative solution

In recent years, caring for patients with chronic diseases has become a priority due to the high risk of hospitalisation and the associated intensive use of healthcare resources during and after the COVID-19 pandemic. According to the Spanish Society of Cardiology (SEC), the percentage of 30-day readmissions associated with post-operatory heart failures is about 9.5%. Post-surgery care continues at the home of the patient, who must feel safe and have sufficient knowledge of self-care procedures as well as those provided by nurses or doctors. Such situations underscore the importance of continuous and palliative care provision as part of medical treatments. As Head Doctor of the Spanish nationwide movement "#PatientsWithoutPause" (#PacientesSinPausa), Alfonso Micó, points out that *palliative care is fundamental to every step of a patient's recovery/treatment (…) Doctors and nurses know patients best and should be able to remain a step ahead of any condition, illness or disease".*

This shift in perspective is predicated on the introduction of new tools and knowledge for the Spanish healthcare system, including digital tools to support and monitor patient treatment as well as associated risk factors. In December 2021, the Ministry of Health published the Digital Health Strategy (EDS), a document that envisages an optimised healthcare model for Spain which takes advantage of the benefits offered by new technologies and makes better use of existing ones. The EDS prioritises assistance for primary care centres and encourages greater follow-up of patients after hospital discharge as a useful and cost-effective tool to avoid high volumes of emergencies, especially those that are preventable. The identification of patients who only require a single call, while respecting others who require more urgent care, represents an advance in the integration of voice systems, automatic call systems and implementation of new technologies in support of doctors and nursing staff. This approach represents an

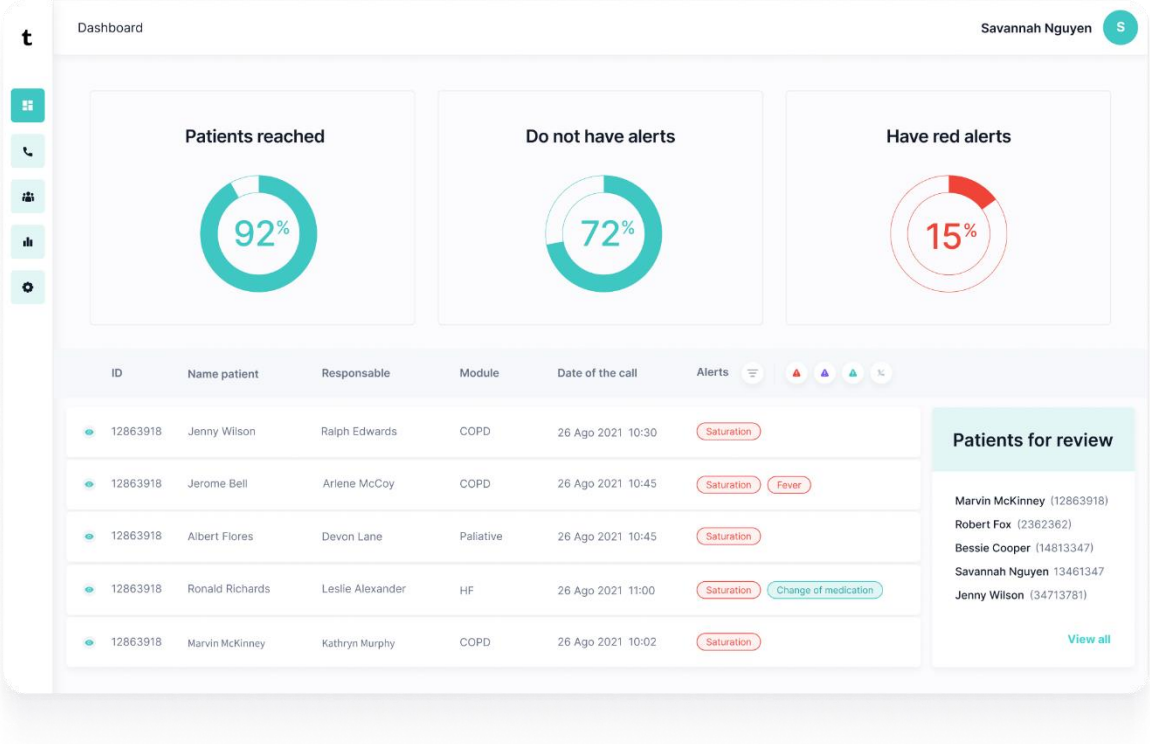
opportunity for telemonitoring, remote monitoring and surveillance of patients with chronic or persistent symptoms as well as those with a post-operative status or a diagnosis.

In this context, the innovative AI nurse "Tucuvi" has emerged to augment the capacity of healthcare professionals and provide continuous care for the elderly and chronic patients at home. Tucuvi is an AI voice-powered virtual caregiver who supports doctors and nurse professionals in three main ways:

1. Reaching out to users with standardised triage questions to learn about a patient's status;
2. Supporting early assessment of a patient's health status (e.g. determining whether the patient is potentially at risk and needs to go to an emergency ward); and
3. Informing the hospital facility and doctors and nurses about the results, which they can monitor using a dashboard.

Furthermore, Tucuvi accomplishes the above without requiring patients to download any software or app. Assessments are made by phone calls where callers interact directly with the AI chatbot "Lola".

Figure 2.10. Tucuvi's monitoring dashboard



Source: https://www.tucuvi.com/platform.

The nurse "Lola" operates regardless of a patient's location or technological capabilities. The AI caregiver talks to the user, analyses their conversations in real time using Natural Language Processing (NLP) techniques, and processes and shares the information to produce a specialised assessment. "Lola" thus enables remote patient monitoring to ensure that healthcare from any public or private facility is delivered more quickly and continuously, while maintaining safety standards and quality of care. The chatbot is also well trained in replicating a "common" interaction between a patient and their doctor.

Tucuvi's main goal is to help doctors and nurse professionals monitor their patients automatically using AI. This process constitutes first level of attention or triage, where the patient is asked frequently common

questions such as: How do you feel today? Did you have fever within the last 24 hours? Are you experiencing any side effects? Follow-up phone calls are made to patients at 48 hours, 7 days, 15 days and 30 days after performance of a specific medical process (i.e. any surgery) or after a diagnosis (i.e. diabetes, or COVID-19). In the event that the patient is not reachable on the first attempt, up to three more attempts are made for each scheduled call. In a user case conducted at the University Hospital "La Princesa" in Madrid, the virtual assistant enabled the follow-up of 100 patients with COVID-19, with an answering rate of 69% and a success rate of call finalisation of 62%. The average length of calls was 2.1 minutes, with alerts generated to be delivered to nurses and doctors for personalised follow-up.

Tucuvi also addresses the need for easy-to-use technologies for patients and healthcare personnel. María González Manso, CEO and co-founder of Tucuvi, explains that *"although several healthcare and patient-oriented instruments/technologies are available in the market, they are too complex to understand and use".* Using a diverse array of products and technologies to monitor and gather key information about patients' status and wellbeing is highly inconvenient, especially during a pandemic. Tucuvi's digital approach in the back end allows for:

- post-recovery monitoring and support for patients at home
- follow-up of high-risk populations without placing an extra burden on healthcare professionals
- remote monitoring of other pathologies without mobilising the hospital or emergency room
- rapid and scalable monitoring for elderly people living alone
- detection of patients' support needs, including cleaning, shopping, support with basic tasks, etc.
- dissemination of new measures and educational elements to people difficult to reach by digital means, such as the elderly
- ensuring the population are safe, informed and monitored through regular check-ups.

Novelty

Tucuvi's main innovation is twofold: (1) it uses a simple phone call-based approach to reach out to patients, reducing the impact of the technology gap; and (2) its powerful NPL-based processing technology manages to interpret what the user needs and is constantly trained to learn from every interaction. As Tucuvi is capable of communicating via a telephone line, the patient does not even require Wi-Fi or a smartphone to be monitored and assessed, only a landline phone. Tucuvi also personalises interactions and can quickly adapt to new use cases, as well as learn from those interactions, and according to different needs.

Crucially, Tucuvi is not an Interactive Voice Respondent (IVR) – a pre-set system that gives patients a default menu. It is an AI-based system that allows for a fluid conversation and interaction with the patient's needs. As Tucuvi's co-founder María González explains, the aim was to move away from the traditional "press 1 or 2" approach. Instead, the Tucuvi AI works integrates large amounts of data to generate predictive and interactive models. The innovation uses a generalist NLP model, which the designers hope to enrich in order to move towards the creation of custom models that can detect symptoms and target specific medical conditions and diagnosis requiring a tailored triage approach. Finally, in order to ensure these innovative processes are safe for patients, Tucuvi's AI and NLP models are certified as medical device software by the Spanish Agency of Medicine.

Results and impact

As of today, "Lola" the virtual caregiver has had over 1 million patient conversations and flagged thousands of risk cases that need particular attention. In the case of the University Hospital "La Princesa", Tucuvi's protocol was adapted to monitor patients experiencing post COVID-19 symptoms, including Long COVID.

One of the most notable features of the assistant "Lola" is its manner of expressing itself. The jargon, language and overall approach has been adapted to forms of speech used by the elderly and ways in which this group interprets indications.

> "We must start from the premise that a nurse's attitude towards his or her patients is usually accompanied by an affection and love that is not distilled in other personal interactions. Therefore, we had to nurture the personality of "Lola" with these characteristic traits using, for example, diminutives that convey more affection and closeness. All this has led us to patients describing Lola as affectionate, close, kind and polite." (María González, CEO and Co-Founder of Tucuvi)

In addition, "Lola" has proven to be versatile, adapting to different use cases, including by improving medication adherence, monitoring symptoms of some of the most prevalent chronic diseases in the elderly, conducting satisfaction surveys with caregivers and promoting good habits.

Challenges and lessons learned

Some key challenges affected the development of "Lola", which was driven by the ambition to infuse her with the intelligence and empathy necessary to communicate in a simple and effective manner with patients while providing useful information to healthcare professionals. These challenges involved:

- *Automatic speech recognition*. Capturing users' words accurately was crucial to obtaining relevant and accurate information on a patient's experience. However, poor acoustic conditions often made it difficult to distinguish a patient's voice from background noises. Furthermore, Lola encountered difficulties in understanding when patients' sentences started and finished due to the lack of trigger word and the frequency of long sentences. More accurate AI systems had to be developed to address these issues.
- *Latency*. Communication with patients needed to be natural and fluid but the ability to capture information and quickly prepare a reply is hard for AI models. Furthermore, the absence of visual elements to indicate that the system has received and is processing the necessary information, represents a disadvantage compared to systems such as Alexa or Siri. Following significant work on the underlying algorithms, Lola was able to achieve the desired low levels of latency.
- *Distrust*. Patients tend to distrust virtual assistants – indeed, initial interactions with Lola are often monosyllabic. The greatest benefits of Lola occur when patients elaborate about their condition. To ensure trust, it proved important to communicate clearly with patients about the purpose of Tucuvi – which does not replace human health professionals – and to diffuse information about its success. This is proven by the fact that on average patients rated their experience of talking with Lola as 4.7 out of 5.

Replicability

Tucuvi's applications are many and the innovation has high potential for replicability:

- *Estimating the number of infected people*: Tucuvi will be able to estimate the number of infected in a household. With a single telephone number more than 100 000 calls can be received and analysed each day.

- *Follow-up of chronic patients with other pathologies and diagnosed patients at home*. Through periodic calls, Tucuvi will be able to evaluate the evolution of symptoms among infected persons.
- *Identification of support needs*. Tucuvi can make calls to people living alone and in isolation, and identify their support needs. In Spain, the estimated population in this situation is 2 million people.
- *General information*: Tucuvi can act as a telephone number to resolve doubts related to most diseases and illnesses.

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3 Trend 3: New methods for preserving identities and strengthening equity

This chapter introduces the trend on new methods for preserving identities and strengthening equity. It highlights the pressures of globalization on increasing inequalities, particularly of Indigenous communities and the ways in which governments are developing inclusive, data-driven efforts to counter challenges and ensure rights, interests, identities and values are respected. Finally, the chapter provides practical examples and global case studies to help governments and their partners identify and develop innovative strategies to address the rising cost-of-living, unemployment, lack of adequate housing and homelessness, crime, rising poverty, gender discrimination, inequalities in the gig economy and ensure respect of workers' rights.

The pressures of globalisation are increasing inequalities. Indigenous communities are particularly at risk with governments developing inclusive, data-driven efforts to counter the challenges they face while ensuring their rights, interests, identities and value are respected. At the local level, government support for the digitisation of cultures is helping to ensure the fair distribution of benefits from innovations while driving sustainable development. Governments are also developing innovative strategies to address the cost-of-living crisis, unemployment, lack of adequate housing and homelessness, crime, rising poverty, gender discrimination and inequalities more broadly, including through data and systems approaches, while also working to tackle the digital divide. At the global level, governments are working to counter forms of inequality within gig economy platforms by creating alternatives and ensuring future expansion is socially sustainable and respectful of workers' rights.

Honouring Indigenous communities and local cultures

> *"Historic injustices have prevented Indigenous peoples from exercising their rights to development in accordance with their own needs and interests. Indigenous peoples have been colonised, dehumanised, subjugated and dispossessed of their lands and resources… Fortunately, in some places, reconciliation is starting to take root… As Indigenous peoples worldwide achieve growing legal recognition of their rights as well as title to land and sea, it is imperative that we overcome the implementation gap and translate these rights into better outcomes."*
>
> *Leaders of Indigenous peoples rights groups (McDonald, 2019[1]).*

The world is getting smaller with every part of the globe increasingly connected to the rest. A virus in a Chinese food market was able to spread across the planet within a few months, causing unprecedented changes in people's lives. It is recognised that globalisation is increasing inequalities but also making global value chains more resilient. Local levels have been disproportionately affected (OECD, 2021[2]), with local cultures threatened by the pressures of globalisation. The risk is particularly high for Indigenous communities, which have an history of exclusion. To address this threat, governments and their partners in industry and civil society are developing initiatives to ensure the flourishing of local communities and recognition of their value for society. OPSI and the MBRCGI have also identified a number of efforts to empower Indigenous peoples and safeguard local cultures. In both cases, data and digitalisation are seen as powerful means to protect cultures in the globalised world, ensure their diffusion and promote recognition of their value.

Indigenous communities

Approximately 38 million Indigenous people live in 13 OECD member countries. This number is due to rise as countries like Argentina, Brazil and Peru take steps to join the OECD. Indigenous peoples are defined by the United Nations (UN) as those who inhabited a country prior to colonisation, and who self-identify as such because they are descended from these peoples and belong to social, cultural or political institutions that govern them. Many Indigenous groups have unique assets and knowledge that address global challenges such as environmental sustainability and can contribute to stronger regional and national economies. However, across far too many indicators – income, employment, life expectancy and educational attainment – there are significant gaps between Indigenous and non-Indigenous populations (OECD, 2019[3]). While Indigenous peoples represent about 5% of the world's population, they account for 15% of the world's extreme poor and one-third of the rural poor, according to the UN.

Indigenous peoples worldwide have fought to achieve legal recognition of their rights. Such reconciliation demands involve their meaningful engagement in the planning and use of economic, social and human capital, and in the protection lands, water, natural resources and wildlife – all equally important elements of sustainable development. It also necessitates the inclusion of Indigenous peoples and perspectives in governance and policy design at all levels (OECD, 2019[3]). Improving the well-being of Indigenous peoples

in these and other areas is critical to achieving inclusive development and the promise of the Sustainable Development Goals: "to leave no one behind" (OECD, 2019[3]). OPSI and the MBRCGI have identified an emerging set of initiatives by governments and grassroot actors to ensure that innovation is inclusive and aimed at empowering historically underrepresented communities, including Indigenous peoples. These include Australia's upcoming referendum on "Indigenous Voice", which proposes amending the constitution to create a new body that makes representations to the Parliament and the government on matters relating to Indigenous peoples (McIlroy, 2022[4]). As Indigenous communities are often disadvantaged, engaging with them can help promote greater equality and inclusion. Furthermore, projects focused on Indigenous communities can help preserve and promote their unique cultural heritage and traditions, which have been recognised as crucial for sustainable development in the context of the SDGs.

One way to empower Indigenous communities is through data. Incorporating Indigenous cultures into data sets, and then visualising them, helps to counter the challenges these communities face (Kukutai and Taylor, 2016[5]). In fact, the importance of having data, especially disaggregated data on Indigenous peoples, has been recognised since the earliest sessions of the United Nations Permanent Forum on Indigenous Issues in 2002 as a key step towards realisation of their individual and collective rights. In addition, in 2019 the OECD underscored the need to improve Indigenous statistics and data governance, while also addressing their lack of access to technologies and the Internet. OPSI and the MBRCGI have identified numerous initiatives aimed at collecting data on Indigenous communities. The shared aim is to create more responsible and inclusive AI systems, and to help visualise the culture of these communities, based on the idea that "the social and the technical are interwoven, and technologies have immaterial as well as material impacts over specific gendered, racialised bodies and territories", as stated in the AI Decolonial Manyfesto. Many such initiatives intend to create data points on Indigenous communities to address their invisibility, a consequence of lack of interest in these cultures and an inability to capture their cultural relevance through traditional ethnocentric methods, as highlighted by Myrna Cunningham, a leading representative of Indigenous movements.

Examples of these initiatives can be found in the work of IVOW, which aimed to provide data on Indigenous communities in order to develop, train and test AI systems that are more culturally aware. One of their projects was the Indigenous Knowledge Graph, which was designed to collect and prepare data from Indigenous belief systems that reflect their culture (Box 3.1). On a similar topic, the initiative NativeDATA, whose primary users are native communities, has been developed to provide a free online resource to guide Tribes and Native-serving organisations on obtaining and sharing health data. On the platform it is also possible to find data-sharing success stories, as well as tips for those seeking to respectfully collaborate with Tribes and Native-serving organisations.

Box 3.1. Indigenous Knowledge Graph

The Indigenous Knowledge Graph (IKG) includes Indigenous stories, traditions and recipes that form the basis of their unique culture but are often absent from the digital world. Employing key elements (ingredients, method, story) of traditional food recipes, the team built the foundations of the IKG using culinary wisdom from Timor-Leste and Native American culture, which was shared by the team working on this project.

Through this innovatory approach, IVOW aimed to show how creating structure, or knowledge engines, around stories can foster reasoning and cultural intelligence in machines and conversational AIs. To sort information into logical hierarchical relationships, the team decided to incorporate the Sustainable Development Goals (SDGs) most relevant to each culture and recipe. These end up acting as an ontology that helps to shed light on the structure of the cultural engine.

To establish a connection with users, the data of the IKG cultural engine are shared via Sina, the conversational AI of IVOW, with which it is possible to interact by asking, for example, “Tell me a food story from the Navajo Nation”. Users can also interact with Sina on Google Assistant by using the invocation phrase, “OK Google: Talk to Sina Storyteller.”

Source: www.ivow.ai/ikgstories.html.

Several data-based efforts have focused on developing data visualisations of Indigenous cultures. Taking many different forms, these initiatives explore how the knowledge of these populations can be diffused and the ways in which it can provide a new non-Western lens to address the challenges affecting global communities. For instance:

- Relational Landscapes explores the numerous examples of ecological, social, economic and cultural relationships between South America and Central Europe, highlighting the erasure of Indigenous epistemologies and knowledge practices due to colonisation.
- AHI KAA Rangers, a mobile app developed by a Māori tech company, combines environmental science and Indigenous knowledge. In the game, the user is a planter who needs to take care of a living world, just as the Kaitaiki (Guardian) of Aotearoa (New Zealand) cares for Papatūānuku (Mother Earth).
- Climate Atlas is an interactive application that combines climate science, storytelling and maps together with Indigenous Knowledge, bring the global issue of climate change closer to home. It is based on the fact that “Indigenous peoples were amongst the first to notice climate change and also have critical knowledge for navigating and adapting to it”.

Governments, optimally working hand-in-hand with Indigenous peoples, need to ensure that Indigenous rights and interests are at the heart of data-driven efforts. Many resources have been developed to this end. For instance, the CARE Principles for Indigenous Data Governance help to recognise power differentials and preserve Indigenous rights (Box 3.2).

Box 3.2. CARE Principles for Indigenous Data Governance

The current movement toward open data and open science does not fully engage with Indigenous peoples’ rights and interests. Existing principles within the open data movement such as FAIR (findable, accessible, interoperable, reusable) focus primarily on characteristics of data that will facilitate increased data sharing among entities while ignoring power differentials and historical contexts. Such frameworks create a tension for Indigenous peoples who are also asserting greater control over the application and use of Indigenous data and Indigenous Knowledge for collective benefit.

The CARE Principles for Indigenous Data Governance are people and purpose-oriented, reflecting the crucial role of data in advancing Indigenous innovation and self-determination. These principles are intended to complement the FAIR principles, encouraging open data movements while considering both people and purpose in their advocacy and pursuits. The CARE Principles are:

- **Collective benefit** for inclusive development and innovation, improved governance and citizen engagement, and equitable outcomes.
- **Authority to control** which include recognising rights and interests, making data for governance available, and developing mechanisms for the governance of data.
- **Responsibility** for positive relationships, expanding capability and capacity, and Indigenous languages and worldviews.
- **Ethics** for minimising harm and maximising benefit, justice and future use.

Source: http://www.gida-global.org/care.

Beyond technological innovations, OPSI and the MBRCGI also identified a significant number of innovations aimed at making legal proceedings more inclusive and culturally sensitive for Indigenous communities, addressing the lack of discrete measures related to the engagement of Indigenous peoples, as covered previously in the 2019 Trends report. The activity of the judicial sector embeds and reflects cultural differences that include different notions of power, community, equality and justice (Greenberg and Colquitt, 2013[6]). For instance, "Indigenous approaches to justice emerge holistically from deep-seated beliefs of the interconnectedness of all life forms", and this understanding affects Indigenous perceptions of fairness and justice creating a potential clash with Western judicial activity (Whiteman, 2009[7]). One of the initiatives addressing this issue with a focus on child protection is Marram-Ngala Ganbu (Koori Family Hearing Day), a project designed by Aboriginal people that seeks to provide a more effective, culturally appropriate and just response for Aboriginal families through a court process that enables greater participation by family members and culturally informed decision making. In the Brazilian context, the expansive project Citizenship, Democracy and Justice for the Maxakali People was developed to address obstacles in access to justice for this people, their low engagement in the electoral politics of the area, and a deficit of social rights emerging from a lack of discussion of their needs. An in-depth discussion of this innovation can be found in the case study later in this section.

As shown, governments have undertaken notable efforts to level the playing field for Indigenous people through greater recognition of their cultures. Such innovative initiatives involving big data and AI aim at ensuring both cultural preservation and revival, and the development of culturally sensitive public services. However, improving Indigenous populations' access to the same rights and opportunities as others also entails tackling the discrimination faced by Indigenous individuals and their descendants who migrate to non-Indigenous settings. Particularly promising are initiatives that use objective measures to monitor the level of discrimination and inequalities they encounter in different areas of life.

In terms of the labour market, Indigenous people are less likely to become part of the workforce than non-Indigenous individuals (Bodkin-Andrews and Carlson, 2014[8]). Such differences seem to be driven more by inequalities in education than hiring discrimination, although instances of the latter have been recorded among the female Indigenous population (Button and Walker, 2020[9]) (Moreno et al., 2012[10]). Evidence of inequalities in education have been observed in Guatemala, for example, where only 54% of 7-year-old Indigenous girls are in school compared to 75% of non-Indigenous girls. There is also evidence that the overall quality of education in areas in which Indigenous children live – often more remote, poorer areas – is also usually lower, which results in higher dropout rates (Curtis, 2009[11]).

Local cultures

Beyond efforts in relation to Indigenous communities, governments are undertaking impressive efforts to support the digitisation of culture, in particular local culture, as a means to address the risk of cultural extinction, and to ensure that distribution of the benefits of innovations is fair. Initiatives of this kind have focused, for instance, on cultural heritage, where digitisation can represent a driver of sustainable development both in the case of tangible and intangible heritage (Macrì and Cristofaro, 2021[12]). The potential of digitisation in this area has been recognised by local actors as well as at the international level, as demonstrated by the ambitious Declaration of cooperation on advancing digitisation of cultural heritage, which was signed by 27 European countries in 2019 (Box 3.3). This international effort follows the realisation of Europeana, a digital repository consisting of more than 50 million digitised records from European cultural institutions, now available to all.

Box 3.3. Declaration of co-operation on advancing digitisation of cultural heritage

In 2019, the EU Declaration of co-operation on advancing digitisation of cultural heritage was signed by 27 Member States, who thereby committed to collaborate more closely to better utilise cutting-edge technologies to tackle the threats to Europe's rich cultural heritage, increase its diffusion and visibility, heighten public involvement and encourage spillovers in other sectors.

Three pillars of action support the Declaration:

- A European-wide programme for the 3D digitisation of artifacts, monuments and locations with cultural value.
- Repurposing of digitalised cultural resources to encourage public participation, creative use and spillovers into other fields.
- Capacity building and enhancing of cross-border and cross-sectoral collaboration in the field of digitised cultural heritage.

Source: https://digital-strategy.ec.europa.eu/en/news/eu-member-states-sign-cooperate-digitising-cultural-heritage.

OPSI and the MBRCGI have identified many initiatives that share these objectives but which also push for the unprecedented expansion of culture or cultural institutions. For instance, Collections of Ghent is an EU-funded project that intertwines the digitalisation of cultural heritage with the active involvement of citizens at the neighbourhood level, focusing on how digital cultural heritage can be used in co-creative and participative ways (Figure 3.1). The project is the result of a quadruple helix consortium, namely a partnership between government, industry, academia and civil society – a novel type of co-creation that can create public value by leveraging the diversity of involved stakeholders (OECD, 2022[13]).

Figure 3.1. Visitor to the Collections of Ghent exhibit



Source: www.collections.gent/cogentbox.

Governments and partners in industry and civil society have also shown interest in creating digitised versions of cultural elements in the form of audio data, including both spoken language and sounds. With respect to the former, the availability of speech corpora is a prerequisite for both research in spoken language and the development of speech technological applications, such as voice assistants. Still, in their current state, language technologies are far from being language agnostic and cannot realise their potential in terms of promotion of diversity, since only a very small number of the over 7 000 languages spoken worldwide are represented in available research and applications (Joshi et al., 2021[14]). For instance, in India, as studied by Making Voices Heard, the unavailability of audio data in languages spoken in the area represents a concern that limits the uptake of voice interface technologies and the realisation of their potential. Two notable examples of efforts aimed at increasing linguistic diversity in speech technologies are the following:

- Donate a Speech: Part of the Estonian Language Strategy 2021-2035, this project aims at creating an open database of 4 000 hours of spoken language, which will support companies, public sector institutions and research institutions in creating services and products based on speech technology. To retrieve the audio data, the Estonian government invited all people over the age of 18 to take part in the project during September 2022 and plans to have enough material for the database by February 2023.
- Abena AI: Developed by Studio Mobobi, Abena AI is the first voice assistant fluent in Twi (also called Akan Twi), the most widely spoken language in Ghana. It provides an inclusive alternative to voice assistants such as Alexa and Google Assistant, which lack sufficient coverage of African languages.

Governments have also focused on the collection of audio data to aid the preservation of culture beyond human languages. For instance, the City of Amsterdam, in partnership with Soundtrackcity, invited the residents of Zuid to participate in the Urban Sound Lab, collecting sounds of their environment to develop a collective sound map of the neighbourhood. The project promoted a novel awareness of urban sounds and provided the foundations and data for future municipal policies addressing what previously was considered noise.

With a similar focus on non-human sounds, Earth Species is an open-source collaborative and nonprofit project dedicated to decoding non-human language, rooted in the belief that having an understanding of non-human languages will change the ecological impact of humans on Earth. Based on an unsupervised ML algorithm, the project aims to reach an understanding of all the different ways used by animals of the same species to say the same thing. This approach helps to determine which part of the sound matters, making it possible to separate the true signal from the background carrier. This unprecedented decoding of non-human language is expected to improve awareness about ecological topics related to the climate crisis and, in this way, promote less anthropocentric interactions with nature.

Case Study: Citizenship, democracy and justice for the Maxakali people (Brazil)

Brazil is one of the most ethnically and linguistically diverse countries. With 305 Indigenous ethnic groups and 274 Indigenous languages, the challenges of inclusion and equity, as well as the promotion of human rights and protection of their individual characteristics, are huge and remain unsolved. The Maxakalís are a small Indigenous community living in the states of Minas Gerais and Bahia. With a population ranging between 1 500 and 2 700 inhabitants and speaking their own language (Tikmüün), they face challenges related to cultural isolation and lack of access to services that are enshrined as constitutional rights in Brazil. In 2020, the Court of Justice of Minas Gerais in conjunction with the Electoral Court launched a small but ambitious project in collaboration with the Maxakalís to co-create solutions that will allow them access to citizenship, democracy and justice, while working to resolve forms of structural and historical injustice from which Indigenous populations suffer. The project is an example of mobile justice ("Justiça Itinerante") which aims to help people exercise their fundamental rights in a contextualised and culturally sensitive manner. It also advance progress towards SDG 16.3: "promote the rule of law at the national and international levels and ensure equal access to justice for all".

Problem

The Maxakalís Indigenous people were once one of the largest communities living in what are today the Brazilian's States of Minas Gerais and Bahia. There are currently 19 Indigenous ethnic groups and a total of 30 000 Indigenous people living in Minas Gerais, of which 2 500 come from the Maxakalí ethnic group and live in the region of Aguas Formosas in the northeast of the state. They are spread out in two large villages: Água Boa and Pradinho. The Maxakalís represent 20% of the population in the region, and use their own language for the production and transmission of knowledge, as well as daily communication. This fact, added to the absence of initiatives by public agencies to train their agents in the Maxakalí language, makes them particularly vulnerable to rights violations that limit their access to justice, voting, civil participation, social rights, and protection from both the state and the federal government (Tribunal de Justiça do Estado de Minas Gerais, 2022[15]). Such a disadvantageous position is reinforced by the complexities of the federal and state system of justice and the most appropriate instances or institutions from which to seek protection. For example, while the federal government is responsible for processing constitutional rights such as human rights, rights of occupation or access to natural resources, more specific rights such as civil rights or those related to prosecution or economic activities fall within the purview of state courts. As a consequence, government presence at different levels is rather weak and distant, broadening gaps culturally, geographically and institutionally in access to justice, while reinforcing discriminatory actions and violence towards the Maxakalís.

An innovative solution

The initiative Citizenship, Democracy and Justice for the Maxakalí People (Programa Cidadania, Democracia e Justiça) began running in January 2020 as a joint effort of the Court of Minas Gerais and the Regional Electoral Court. The objective was to resolve long-lasting issues related to the state and judiciary system and their relationship and narratives in Indigenous territories. Accordingly, they embarked on a consultative and collaborative process with the Indigenous community of the Maxakalí, targeting communities in the Aguas Formosas region, which is characterised by rurality and difficult connectivity, where more than 2 000 people and 190 families live.

The initiative has taken a non-invasive approach with the aim of being perceived as guests and observers of the community, rather than alien institutional bodies in their territories. To this end, the project applied a methodology based on anthropological evidence collected from the Maxakalís in order to pilot an approach that is culturally sensitive and based on active listening. The first field trip to visit the Maxakalís leaders (Caciques) took place in February 2020. It was led by the Court of Minas Gerais and co-ordinated with the

National Indigenous Fund/Authority (FUNAI). The purpose was to gather their opinions about the justice system and judiciary institutions. As Matheus Moura Matias Miranda, judge of the Court of Mina Gerais Aguas Formosas, pointed out in an interview with OPSI, "it was the first time that some of them have seen a judge asking about things other than criminal hearings."

During the initial stage, the initiative conducted hearings and visits every 15 days, to become familiar with the experiences of the Maxakalís, gain their trust and acquire a reputation for reliability. This step was key to building a new narrative for their relationships, in particular between the Maxakalís and the judiciary, which had been perceived as repressive and not as an institution geared to protecting or guaranteeing constitutional or human rights. Changing this perspective required not only stronger presence of the state and its institutions, but a shift in the way the relationships were built. A critical component of the collaboration was the decision to respect the self-determination of the Maxakalí, including their decision-making process and the outcomes of the visits. After almost six months of intensive interaction, the Maxakalís gave clearance to develop a joint project with the Tribunal and the Electoral Court, and to continue consultations with a view to involving other government agencies. The initiative officially started in the spring of 2020 amid the COVID-19 outbreak.

With a mission to alleviate long-lasting problems faced by the Maxakalí communities, the project was conceived as a form of "travelling justice", especially given the nature of the interactions. These consisted of two components: the first was an intercultural dialogue held in the Tikmüün language to allow all involved parties to address each of their issues; the second was the institutionalisation of such meetings as civil hearings in order to establish legally binding commitments between the Tribunal and the Maxakalí. This approach aimed to incorporate these communities into the state's judiciary system in a way that respected their culture while expanding and protecting their human rights and enabled them to participate more actively in Brazilian democracy.

Following the lead taken by the two institutions, other state and federal-level institutions began to join the initiative including the state and Federal Public Ministry, the Public Defender's Office, the State Public Prosecutor's Office, and the Civil and Military Police. By 2021, the group consisted of eight federal and state entities.

In order to identify and make sense of the needs of the Maxakalís, the Tribunal and the Electoral Court organised two kinds of hearings: audiences and the public hearings. These varied in format and content depending on the target audiences and the objectives to be achieved:

- **Audiences** are open spaces set up for multi-party and leadership meetings, designed to bring people from different government institutions together with community leaders and other people of interest. Such spaces are relevant for agenda setting, prioritising issues and needs, and providing accountability among the parties involved.
- **Public hearings** are open spaces for listening to relevant and unique cases that serve to exemplify a problem/issue identified during the audiences. These spaces are relevant for understanding the specifics of people's needs and to empathise with their struggles.

Figure 3.2. Public hearings between the Maxakalís and government institutions



Source: https://bit.ly/40SOvOm.

During the audiences and public hearings, the Maxakalís provided details of several of their main requests and challenges. These included accessing basic services for their families and children as well as specific social protection benefits, cattle invasions, and a premium charged to Indigenous people by shopkeepers when selling them food and electronic products. Several audiences and more than 50 public hearings were carried out in the villages of Água Boa and Pradinho. These served to identify key areas where public institutions should focus their attention.

The conversations identified three main areas (or axes) of action, as discussed below. As the issues facing the Maxakalí people are multidimensional, these axes were intersectional and aimed at gathering interoperable information and evidence about them and the status quo of the community:

- **Citizenship**. The main critical issues identified were lack of identity and electoral documents, which makes it impossible to vote and undertake simple day-to-day processes such as legalising unions (marriages), or more complex ones such as fighting illegal land invasions. The meetings were equipped with simultaneous translation and brought public institutions in charge together with the people to determine roadmaps for action. For example, the Maxakalís explained their process of getting married and provided evidence about such unions so that the State Court of Justice could legalise them and update their information.
- **Democracy.** To help familiarise the Maxakalís with election processes, mock elections were held in Tikmüün and contextualised in terms of local culture and educational level. The Electoral Court inserted animals and elements from familiar local fauna as fictitious candidates in the electoral sessions. For instance, one candidate that received the most votes was the “Ant”, as it was characterised as hard working and well-organised. Two mock elections took place, representing the two rounds of the typical Brazilian electoral process – the first time that Indigenous peoples in

Brazil had participated in such a format. The President of the Electoral Court and other judges from the state capital visited the villages during these simulations.

- **Justice.** The main problems and demands of Indigenous people were mapped by the Brazilian Public Defender's Office and the conflict resolution sector of the Court of Justice of Minas Gerais. Based on this mapping, more than 50 judicial hearings were held in the Maxakalí villages, which consisted mostly of procedural check-ups and documental and/or on-site verification accomplished by talking with the people.

The three axes converged in the adoption of a new collaborative paradigm – one which centred the Maxakalís as the protagonist and main drivers of the process. The innovation thus sought to move beyond active listening by working to build readiness for the process and tailor mechanisms of social participation, bringing Indigenous peoples closer to the Judiciary and protecting their rights.

Figure 3.3. Maxakalí women dancing to celebrate the new processes for strengthening citizenship



Source: https://bit.ly/3Elu3wi.

Table 3.1. Examples of project efforts

Example	Area	Description
Co-created approach	Democracy/ elections	The Electoral Court simulated two voting sessions with co-designed imagery, drawings and photos of animals that the Maxakalí drew/took themselves. The animals corresponded to fictional parties and candidates that they would vote for according to their values and beliefs, and that related to their expectations about what a political representative should do.
Process adaptation	Civil rights	The Maxakalís have their own marriage tradition which is different from the process implemented by the Brazilian state. Several Maxakalí marriages lacked official recognition, so the Court of Justice of Minas Gerais, the State Public Ministry and the State Public Defender's Office established an on-site simplified marriage process to validate them and provide access to social protection services such as pensions in the event of death of a spouse, or loss of family income.
Collaborative dialogue	All (justice, democracy, citizenship and more)	The approach was based on cultural sensitiveness, active listening and partnership development, in order to build trust between government institutions and the community. This approach also incentivised changes in perception regarding these institutions from a coercive to a supportive role.
Co-created approach	Democracy/ elections	The Electoral Court simulated two voting sessions with co-designed imagery, drawings and photos of animals that the Maxakalí drew/took themselves. The animals corresponded to fictional parties and candidates that they would vote for according to their values and beliefs, and that related to their expectations about what a political representative should do.

Figure 3.4. A Maxakalí couple securing legalisation of their 40-year union



Source: https://bit.ly/3Elu3wi.

Novelty

Although several procedures were newly implemented in the Maxakalí territories, the degree of hyper contextualisation and incorporation of the local mindset as part of citizenship, electoral and justice procedures is important to highlight. Moreover, the valorisation of the local culture in order to establish a collaborative dialogue and to transform state agents into collaborative, dialogue-oriented and culturally sensitive bodies can also be considered as innovative.

Results and impact

Throughout the conversation rounds held between the Tribunal and the Maxakalí, the most robust results were achieved in the citizenship and justice axes. For the first time, 256 Indigenous people received identity cards, 81 acquired voting titles and 543 families gained access to direct support under the social protection system. In addition, 105 lawsuits were filed by the Maxakalí to protect their rights to social security and to gain legal recognition of their marriages.

In the democracy axis, the Maxakalí were exposed to the federal and state electoral systems and took part in two mock elections with a participation rate above 75%. The Tribunal gained knowledge from the process as they trialled new, more contextualised ways of providing information about such processes and the benefits of engaging in democratic means of participation. As a result, two new voting spaces were created for the Maxakalí for which two voting machines were provided. In addition, the community elected two Indigenous councilmen and a vice-mayor in the city, showcasing high levels of participation.

At the process level, the project has attracted various actors who were absent at the outset and had little or no presence in the Maxakalí territories. Nowadays, more than eight government institutions from the federal and state levels are present, as well as the civil and military police, working hand-in-hand with the Tribunal, the Electoral Court and FUNAI. To date, more than 50 public hearings have been held in their local language.

Challenges and lessons learned

The Aguas Formosas region in Minas Gerais is one of the poorest in the state and the least prepared in terms of court infrastructure and resource availability for the judiciary system. With the local court overloaded with cases and experiencing a shortage in specialised servers from the Tribunal, it proved not only difficult to deliver justice, but also to promote it at the local level through partnerships with potential local collaborators.

Distance also represented a challenge. Accessing the villages from the city requires a journey of 80 km on a poorly maintained road, complicating any efforts to operationalise actions at the villages level. The displacement of the Indigenous people themselves is also perceived as a major barrier. Furthermore, most procedures to guarantee communal and individual rights are available only in Portuguese and requires special procedure to advance beyond translation. These issues were resolved by implementing programmed visits every 15 or 30 days, depending on the authority, to receive updates on needs through live translation – a process that helped close the cultural gap.

Replicability

The Court of Justice of Minas Gerais and the Regional Electoral Court aim to institutionalise these actions during 2023, ensuring they become recurrent with associated processes and jurisprudence. This will enable the adoption of this approach by other communities and courts across Brazil. The Judge in charge of overseeing the initiative, Matheus Moura Matias Miranda, stated that “the goal is to make the process sustainable over time”. In this way, replicability should not depend on a judge in particular, but rather in co-ordinated actions among the different actors.

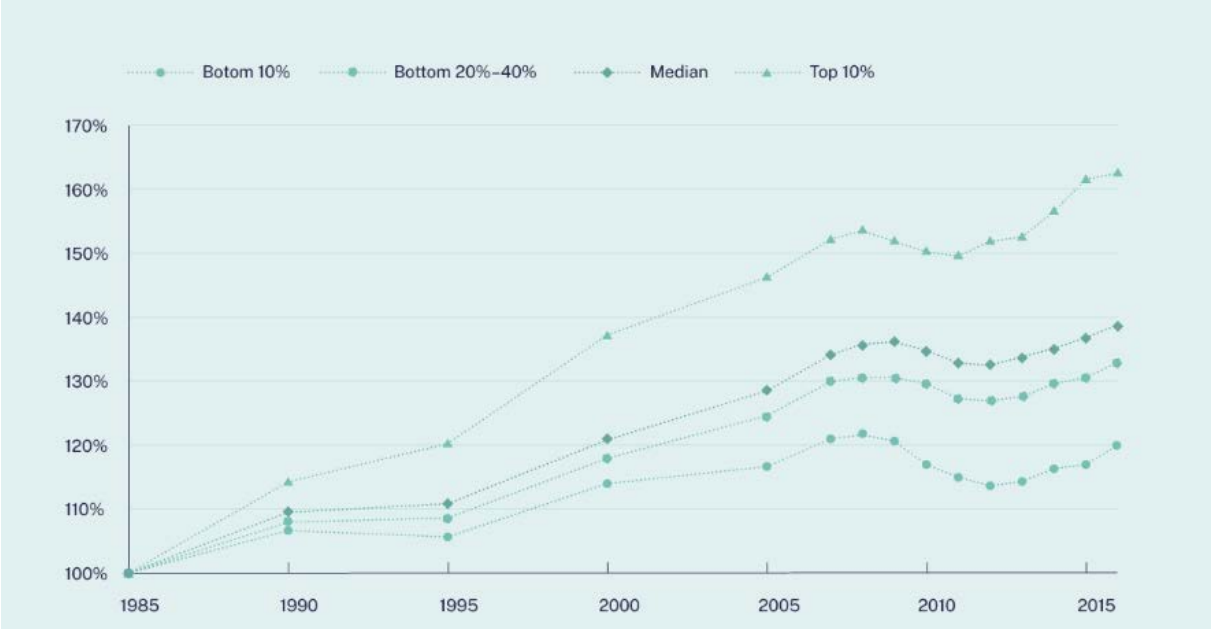
The project also aims to expand to other Indigenous and native communities (i.e. African Brazilian communities). A meeting has just been held in Roraima, a northern state bordering Guyana and Venezuela, to inform local leaders and institutions there about lessons learned from the initiative and to discuss its replicability and feasibility in such territories. This is particularly challenging as one of the main factors required for continuation of the initiative is training judges in intercultural dialogue. In the meantime, the project team is also working on replicating the experience across Minas Gerais.

Finally, as Judge Matheus Moura Matias Miranda and his team pointed out, *"this project is an example, but it is not a model (…) Every state is different and this is the most critical aspect to consider (…) Replication can occur on two levels: (1) training of magistrates based on the experience accumulated in the project (facilitation), and (2) absorption and articulation with FUNAI (since FUNAI is federal, it can take the experience to other states and work to accomplish Indigenous acceptance)."*

Enabling families and communities

Over the past three decades, median income growth in OECD countries has decreased, as shown by the famous "elephant curve" of (Lakner and Milanovic, 2013[16]) (Alvaredo et al., 2017[17]). In the general context of low growth, low and middle incomes have grown substantially less than higher incomes (Figure 3.5), widening income inequality. Moreover, during the financial crisis and the COVID pandemic, growth among the lowest earners fell the most rapidly (OECD, 2019[18]). These dynamics have resulted in a long-term trend towards higher inequality.

Figure 3.5. Real disposable income growth by income position, average for 17 OECD countries



Note: Disposable incomes in: Canada, Germany, Denmark, Finland, France, the United Kingdom, Greece, Israel, Italy, Japan, Luxembourg, Mexico, Netherlands, Norway, New Zealand, Sweden and the United States.
Source: OECD Income Distribution Database (http://oe.cd/idd). Data available at https://doi.org/10.1787/888933954950.

Due to the abovementioned widespread, increasing inequalities, life has become increasingly expensive. Following Russia's full-scale invasion of Ukraine, inflation has imposed sacrifices on many families as food and energy prices increase. In European OECD countries, one in five households now find it difficult to make ends meet, and across the OECD nearly one in eight live in relative income poverty (Balestra and Ciani, 2022[19]). Against this backdrop, governments are undertaking notable initiatives to address poverty and inequalities in innovative ways, with a view to providing more sustainable, human-centric and efficient results.

New approaches to sustainable public employment and subsidies

About 33 million people are unemployed across OECD countries. Furthermore, due to their disproportionate representation in low-paying industries, racial and ethnic minorities, young people, low-educated workers, migrants and workers facing language barriers have experienced more severe and long-lasting effects on the labour market as a result of the COVID-19 crisis, as shown by the OECD Employment Outlook 2022 (OECD, 2022[20]).

To address these challenges, governments are playing an active role in job markets. In particular, OPSI and the MBRCGI identified efforts aimed at combining public intervention on employment with novel attention to other issues such as sustainability, gender equality and vulnerability. Such efforts often seek to subsidise entrepreneurs of the social economy (see more below) and support work integration social enterprises (WISEs), organisations that focus on improving employment prospects for those furthest from the labour market (OECD/European Commission, 2022[21]). For instance:

- South Africa's Presidential Employment Stimulus, devised as part of efforts supporting economic recovery from the pandemic, has successfully re-imagined public employment as an instrument for social innovation and managed to create over a million jobs for disadvantaged workers (Box 3.4).
- The Austin Civilian Conservation Corps (ACCC) in Austin, Texas began as programme to help residents earn income and access green careers, and has grown into an established model for equitable and climate-focused workforce development. More than ten city departments and community partners have collaborated through ACCC to provide living-wage opportunities with supportive services, training and career pathways for Austin's underserved residents.
- In Mexico, the project Biciclando addressed unemployment by involving women in recycling waste management. The project was developed as a response to the pandemic and its impact on unemployment, which has affected women more than men, giving rise to the term "shecession" (Alon et al., 2022[22]).
- In seeking to catalyse employment opportunities in the private sector, the City of Rotterdam launched Rikx, a new digital marketplace that connects local social entrepreneurs with investors to incentivise the hiring of vulnerable residents. The system is based on digital tokens which can be bought by companies with a corporate social responsibility policy or social return on investment obligations.

Box 3.4. Presidential Employment Stimulus: Building a society that works

Since late 2020, South Africa's Presidential Employment Stimulus has created over a million jobs and livelihood opportunities, mainly for young people and women, across all skills levels and spread equally in all the areas of the country. The Presidency provided strategic input, oversight and an authorising environment for innovations undertaken by departments, who owned and implemented the programmes. Funding was approved for programmes on the basis of scale, quality of social outcomes, partnerships, efficiency and additionality, ensuring that the intervention not only positively impacted the status quo, but also provided outcomes that would not have otherwise existed. As a result:

1. The Department of Basic Education placed almost 600 000 young people as school assistants in over 22 000 schools in every corner of the country.
2. A Social Employment Fund was set up to support "social employment" allowing over 45 000 people to work 16 hours a week on areas including food security, early childhood development, gender-based violence, place-making, catchment management, community arts and more. Another 45 000 people are working as part of Youth Service, a similar model.
3. The creative sector has benefited from the creation of over 32 000 jobs. These positions were created by inviting artists to produce new creative work.
4. Over 100 000 subsistent farmers received production input vouchers to help them return to work after lockdown disruptions.

To date, over 1 million people have participated, with 15 national government departments benefiting from their work. Of the total number of participants, 83% are young and 62% are women, indicating that the project successfully opened new opportunities for citizens who are relatively disadvantaged in the job market.

Source: https://oecd-opsi.org/innovations/presidential-employment-stimulus.

Beyond government efforts to actively intervene in public employment to address economic difficulties, OECD and the MBRCGI identified several innovative initiatives aimed at stimulating the economy and supporting households' financial situation through new subsidy programmes. A notable example is the project Bogotá Local in Colombia, thanks to which more than 22 000 citizens received support to sustain and build their businesses during and after the pandemic. Through payroll incentives, the City of Bogotá helped micro-business owners to consolidate the relationship with their workers, hire new people, and generate training processes in business and digital skills. The aim was to strengthen the popular economy, an informal and space-based economy that consists largely of small producers and family-run businesses (Dürr and Müller, 2019[23]). More focused on establishing an alternative model for poverty policies, , the Empowered Families Initiative in Singapore demonstrated how social assistance can move beyond cookie-cutter programmes by investing in their hopes and strengths, as discussed in the case study later in this trend.

Countering expensive housing and homelessness

Access to affordable housing – a basic human right and central dimension of wellbeing – has become increasingly challenging in many countries. The OECD Horizontal Project on Housing has found that low-income households are struggling with rising housing costs, and as shown on the Affordable Housing Atlas, this issue is affecting the entire globe as a result of lack of adequate housing policies. In the last 20 years, the real prices of houses and rents increased in most OECD countries at a faster pace than inflation, and

now accounts for a disproportionate part of household budgets – more than health, transport, communication or education (OECD, 2021[24]).

To address these challenges, governments have developed innovative strategies to provide affordable housing. For instance, the Mataró City Council (Spain) developed Yes, We Rent! to leverage the combination of private rental property – particularly property that has been vacant and off the market for an extended period – and the potential of community initiatives to provide affordable housing. One outcome of this project is Bloc cooperatiu, a newborn co-operative of tenants willing to search, renovate and rent collectively empty apartments. The initiative is currently managing 61 apartments rented at prices at least 30% below market prices thanks to the financial support of the municipality, and has trained 24 vulnerable young people in renovation skills.

With a focus on energy prices and the increasing importance of energy independence – the focus of renewed global attention following Russia's full-scale invasion of Ukraine – South Australia has developed a Virtual Power Plant, the largest network of home solar and battery systems in the world (Box 3.5).

Box 3.5. Virtual Power Plant

South Australia's Virtual Power Plant (VPP) is an innovative concept aimed at reducing the energy bills of vulnerable South Australians by constructing a decentralised power plant using the roofs and walls of public housing assets across the state. VPP is already lowering energy costs for thousands of vulnerable public housing tenants and providing critical energy network services. In so doing, it ensures that the most vulnerable energy consumers can share in the benefits of the transition to renewable energy.

Developed with Tesla technologies, this innovative project installs solar photovoltaic and storage facilities in public housing and automatically sends electricity to energy markets when prices are high and pulls electricity from the market when prices are low or even negative. This process results in lower prices and greater grid stability, which will greatly assist these tenants, as energy prices in Australia are expected to increase 50% over the next two years.

South Australia's VPP is currently in the implementation phase. Trial phases 1 and 2 developed and demonstrated the technology, streamlined customer acquisition and deployment, and proved the retail model and commercial business case, which were prerequisites to scaling the project to full commercial operation. Phase 3 involves scaling up VPP to install home energy systems on over 4 000 public housing assets across the state, enabling private customers to enrol their home energy systems into the VPP through a separate retail plan, and exploring augmentation options to allow a greater number of public housing households to participate.

Source: https://oecd-opsi.org/innovations/south-australias-virtual-power-plant.

The situation described above, characterised by increasing inequalities and poverty, exclusive housing markets and strong labour market changes, suggests a worsening of the structural factors that lead to homelessness. Indeed, despite difficulties in measuring this phenomenon, the number of homeless people has increased in one-third of OECD countries (OECD, 2020[25]). To address this challenge, governments have engaged in innovative projects that seek to tackle this issue through different lenses, including systems approaches, anticipation and data. Among these initiatives is OneView, a platform for predictive analytics and natural language generation capabilities, which enabled participating agencies in Maidstone to bring together data to identify residents at risk of homelessness, and then intervene before they were forced to live on the street. The platform combines data from various service providers to create unified household profiles and sends an alert to the Housing Team for each person at risk of losing their home. In

the initial pilot year, almost 100 households were prevented from becoming homeless, even as the COVID-19 pandemic took hold and grew. In the same year, the rate of homelessness fell overall by 40%. In using human-centred design, Edmonton, Canada has created a human-centred framework using social innovation to improve urban well-being, with the initial case focused on the perspectives of residents experiencing homelessness (OECD, 2021[26]). Another interesting initiative is Activation Anti-Displacement in Austin, Texas (Box 3.6).

Box 3.6. Activation Anti-Displacement in Austin, Texas

Activation Anti-Displacement comprises a broad set of initiatives that seek to address rapid gentrification. The programme develops anti-displacement insights, accelerates community co-created anti-displacement strategies, and makes available an interactive data tool to stimulate driven approaches, and a co-created equity tool to mitigate displacement risk.

The team synthesised insights on displacement at a local level, where most available insights to date were not Austin-specific, and published a first-generation decision support tool, the Neighbourhood Stabilisation Strategy Tool, which is available for public use. The tool was the first of its kind for the city and it made it possible to provide information on more than 100 displacement-related factors and allow the direct interaction of users with the data sets.

After the first results of the initiatives were public, the City Council invested USD 300 million in anti-displacement strategies. Such strategies ranged from micro area resident-led planning at the block and neighbourhood level, and a universal basic income programme, to an open data tool that would allow community organisers and lawyers to access resident files to fight evictions, and an intervention that provided advocacy and access to case management to women facing evictions directly at Justice of the Peace Courts.

To date, no other city in the United States has invested at this level in anti-displacement strategies. In order to ensure that this investment benefits all, the project decided to develop a racial equity tool for anti-displacement to guide the adoption and implementation of the projects resulting from the USD 300 million.

Source: https://oecd-opsi.org/innovations/anti-displacement-in-austin.

Previous OECD work provides useful guidance for governments willing to address issues related to housing and homelessness. With respect to the topics covered in this section, this report offers two key recommendations. First, make housing policy an integral part of an inclusive growth strategy. This implies the co-ordination with other policy domains such as health and transport, which would ensure that "vulnerable groups do not fall through the cracks of social support systems" (OECD, 2020[27]). Second, governments should invest in homelessness prevention and provide targeted support to the homeless. Beyond broader investments in affordable housing, strategies at all levels of government should be directed specifically at tackling homelessness and should incorporate social economy actors (including associations, nonprofit organisations, co-operatives, mutual societies and social enterprises) and academic organisations, all of which have a long history of partnering public authorities to address social needs (OECD/European Commission, 2022[21]). Because of their social goals and specific business models based on collaboration and proximity, such actors can act rapidly to implement place-based solutions, develop partnerships in an effective manner though their networks and function as a trusted partner. Governments should also seek to strengthen their data collection efforts in order to better understand the complexity of the condition of homeless people.

The OECD Housing Policy Toolkit can assist governments in understanding housing challenges and taking action. It provides a narrative for the complex societal, economic and environmental interrelationships rooted in housing markets, and also allows policy makers to identify strengths and shortcomings and make informed policy choices when designing national housing strategies.

Digital technologies as a cause of inequalities and an antidote

Digital technologies now affect every aspect of social and political life, and have created new divisions between winners and losers in the algorithmic era. Proponents' claims that digitisation and automatisation can promote social equality by generating new opportunities have been dampened in the face of evidence that many of these opportunities are available only to those who already had them, reinforcing existing inequalities (OECD, 2019[28]) (OECD, 2021[29]). Furthermore, given territorial divides in access to connectivity within countries, this also means that digitalisation and automatisation can widen existing territorial disparities (OECD, 2021[30]) (OECD, 2022[31]). During this complex transition, governments have acknowledged that "we cannot expect natural adaptation by workers and labour markets to produce equitable results, especially with huge differences in household resources as a starting point", as articulated by Nobel laureate Michael Spence. However, in the face of these tensions, governments are engaging in remarkable efforts to ensure that the benefits of the digital transformation are fairly distributed and accessible.

With respect to citizens, in addition to instilling digital rights as discussed in Trend 1, governments have focused on helping them to develop the digital skills necessary to navigate and offer value to the job market, while providing access to digital government services. In the United Kingdom, for example, the Mapping Career Causeways project, which was developed by Nesta with state-of-the-art machine learning methods, has shown that some occupations are at high risk of automation, and stresses the fundamental importance of ensuring that workers are informed and able to develop skills to benefit from new opportunities. To address this issue and tackle the problem of gender disparity in regard to ICT skills, the Italian region Emilia Romagna has launched an interesting project called Digital Girls (Box 3.7).

Box 3.7. Digital Girls Emilia-Romagna

Companies in Emilia-Romagna in Italy are in strong need of personnel with ICT skills. Unfortunately, the education system is currently unable to meet this demand, with too few young people following STEM courses. In particular, a comparatively small number of girls are taking university and specialist courses in science and technology. The strategy of Digital Girls Emilia-Romagna is to use an innovative method to introduce girls to computer science and programming.

The project consists of free Summer Camps, lasting three weeks, which are hosted by the universities of Emilia-Romagna. Under the supervision of university teachers and tutors, girls in the last years of high school who attend the camps are able to learn the basics of the programming languages Python and Arduino and work in groups on practical tasks. By the end of the three weeks, girls are able to create software for use in products such as robots.

The project has run for more than eight editions with almost 800 girls participating. The latest editions expanded the curriculum to cover topics such as gaming, app creation and website programming. The camps also placed great focus on putting girls in contact with experts in the IT sector with whom they explored specific topics such as AI and computer security.

Source: https://oecd-opsi.org/innovations/digital-girls-emilia-romagna.

OPSI and the MBRCGI's past work has shown how governments around the world have made significant efforts to shift away from traditional processes and services towards fully digital solutions, especially in the context of the COVID-19 pandemic. Although the benefits at the aggregate level are indisputable, some citizens and residents still find it difficult to interact with the public sector digitally. To ensure that digital government is inclusive and accessible to all, a number of innovative projects have been carried out, including the following:

- Digital outcasts (Excluídos Digitais). This Brazilian innovation addresses the problem of unequal treatment of handwritten communications sent to public organisations by citizens unable to use digital tools. Previously, such communications were read and registered manually, a lengthy process that often fell short of internal deadlines and was subject to human error. The new process established mechanisms for automated content screening and developed an automated solution which registered and addressed handwritten requests within 48 hours instead of 20 days.
- Purple HATS. This open-source customisable and automated web accessibility testing tool allows software development teams to find and fix accessibility problems. Developed by the Government Technology Agency of Singapore, it helps to ensure that all users have access to inclusive digital services, especially the elderly and persons with disabilities.
- Connectoo Training. As shown by a recent World Bank report, the development of digital skills within public administrations is an essential factor for successful and inclusive digital government projects. This free online course for civil servants in Belgium provides training and certifies their ability to address digital challenges.

The opportunities provided by the digital transformation can have a positive impact on the personal life of citizens and their interaction with the public sector, but can also influence companies, making them more competitive. Companies with a high level of digital maturity are about three times more likely than those with a lower level of maturity ones to report annual net revenue growth and net profit margins significantly above the industry average (Deloitte, 2020[32]). OPSI and the MBRCGI have identified an increasing number of efforts from governments providing guidance to non-digital businesses on navigating the digital transformation, one example being Spain's Digitized and Connected 360. Furthermore, governments are playing a role in ensuring that businesses, especially young and small ones such as startups, are able to access the expensive technologies they might need, including computing power or investments in AI. For instance, in Korea, the government developed AI Friends as a set of initiatives to alleviate barriers to AI adoption for small and medium-sized enterprises. OPSI and the MBRCGI were particularly impressed with Serbia's National AI Supercomputing Platform, as discussed in Box 3.8.

Box 3.8. National AI Supercomputing Platform (Serbia)

Recognising the importance of AI as well as the innovative capacity of startups, and to support the development of innovative products and ideas, the Government of Serbia deployed a National Supercomputing AI Platform and offered its resources and training free of charge to innovative companies and startups through a public call for proposals. The platform aims at developing and applying AI technology in public administrations, scientific research organisations, universities, as well as small and medium-sized enterprises and startups that are unable to provide compute-intensive infrastructure themselves.

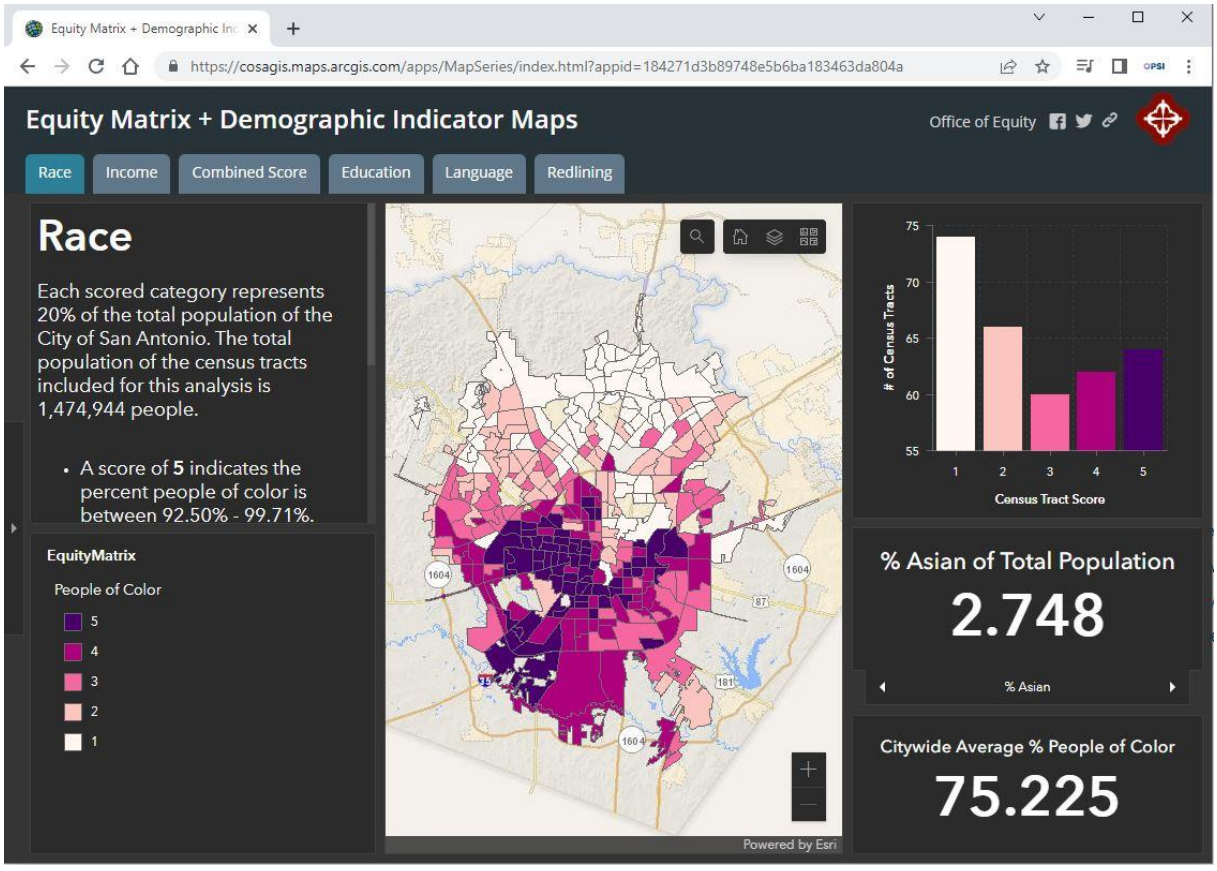
The platform is a universal system for AI computing tasks, from analytics via training to inference. This unrivalled power provides the fastest time to solutions for training, inference and analytics, allowing users to engage with challenges that were not previously possible or practical to address. In total, 15 startups have been provided with the necessary support to access the AI platform, with 62 accounts

created to enable them to work on their projects. These users were also provided with free training (theoretical and hands-on) to familiarise them with the AI platform and data science software.

Source: https://oecd-opsi.org/innovations/ai-supercomputing-platform.

Governments are also striving to reduce the potential harm of digital technologies beyond addressing aspects of the digital divide. Here, digital technologies can be the antidote to longstanding problems in society, as well as a possible cause. In this regard, the availability and possible visualisation of data has emerged as powerful way to recognise the existence of problems, create awareness about them and address them through an evidence-informed approach. For instance, the San Antonio Equity Atlas and Matrix was developed to make data-informed decisions and to address disparities across a variety of indicators that affect communities in different ways (Figure 3.6). This innovation consists of an interactive tool that highlights demographics, disparities and infrastructure distribution within the city, and is currently used to inform the municipality's work and guide investments to achieve equity goals.

Figure 3.6. Representation of race distribution in the San Antonio Equity Atlas and Matrix



Source: https://cosagis.maps.arcgis.com/apps/MapSeries/index.html?appid=184271d3b89748e5b6ba183463da804a.

The potential of data as a tool against inequalities has also been leveraged to address, for instance, the lack of adequate housing, poverty, crime and gender discrimination. Notable examples include:

- Precarious Lives Mapper, a platform that documents processes and mechanisms that generate housing precarity in Beirut. Through data collection, analysis and visualisation, the initiative highlights patterns of deprivation, overcrowding, unaffordability, displacement, eviction and foreclosure that characterise the city. This material is then placed at the disposal of activists, researchers, journalists and city-dwellers to trigger debate, denounce and resist the devastating impacts of neoliberal urban policies and real-estate speculation.
- Millionneighbourhoods, an initiative that provides maps of a selected group of cities from the global south so densely populated that the movement of people and the construction of vital infrastructure becomes difficult. The maps are crowdsourced from OpenStreetMap and enable the generation of new models of urban planning that are people-centric, assembled from local knowledge and enhanced with technology. In the hands of communities and local governments, this tool has the potential to become a powerful resource to support decision making and action.
- AIJO Project, an international project that aims to leverage the power of AI to understand, identify and mitigate newsroom biases in relation to gender. AIJO seeks to uncover binary gender representations in various news and publications and the overall media, and has three main components: (1) understand how biases shape news, (2) identify how AI can help uncover biases, and (3) mitigate identified gender discrimination.

Case Study: Empowered Families Initiative (Singapore)

Social assistance for low-income families in Singapore is often premised on their needs, rather than their ambitions or abilities. Empowered Families Initiative (EFI) is a developmental initiative that hopes to harness the strengths and willingness of low-income families to invest in their aspirations with the support of grants, savings matching and group support. EFI empowers people to enhance their life circumstances by improving their socio-economic position and wellbeing.

Problem

Traditionally, social assistance for low-income families is remedial and reactive in nature, and often premised on the idea of families as “needy recipients”, rather than on leveraging their assets. As such, this model can perpetuate situations where families are always “in need”. Moreover, traditional assistance largely focuses on and is intended for basic needs, meaning that low-income families remain in a state of survival rather than prosperity, lacking the opportunity to improve their condition and the agency and opportunity to freely change their lives. Furthermore, initiatives that help low-income families are often programmatic in nature, employing a one-size-fits-all approach rather than being customised to the unique needs and circumstances of low-income families and their specific plans and aspirations.

An innovative solution

The Empowered Families Initiative (EFI) aims to “invest” in the hopes and plans of low-income families to improve their life circumstances, leveraging their strengths, motivation and creativity to improve their socio-economic position and build a better future. Developed as an independent social service sector project with a leadership team consisting of social workers and civil servants, EFI is inspired by a successful initiative in the United States called UpTogether (formerly the Family Independence Initiative), where families set their own priorities and drive their own efforts, within an environment of strong social connections that also provides access to initiative-based resources. EFI also aims to provide seed funding

and a platform for families to connect with and encourage each other, hence activating and enhancing families' social capital and networks. The initiative consists of three essential components:

- **Resources**. Families have access to funds and are provided with non-monetary support, based on their respective plans and goals to better their lives. For instance, some families with a home-business were provided training on how to develop a business plan and improve their social media presence. In general, since families structure the project, they have the autonomy to choose how to utilise the resources for their goals.
- **Savings matching**. Families are able to tap into the above funds to save each month. The initiative then matches these savings on a 1:2 basis. These savings can be used by families to support their current or future income-generating plans.
- **Meetings**. Regular group gatherings among families provide mutual support and encouragement, thereby increasing their social capital and network.

The EFI's initial pilot involved families with a per capita income below SGD 650 (EUR 460 equivalent) per month, the level at which most families would qualify for some basic financial assistance. Fifteen families were invited to present their ambitions and plans and four were selected. The chosen families all demonstrated clear aspirations and a readiness to implement their plans, but had not been able to access the necessary support or capital through existing initiatives. A pilot was held from September 2021 to March 2022 for which the families were provided a lump sum of SGD 500 (EUR 352 equivalent). Each family shaped the process based on their ambitions and plans. Facilitated by the project team, the families formed a network of peers where they could discuss progress and learn from one another – a component that proved particularly useful for business owners. During this period, the families were free to decide how to spend the funds but all of them invested in their plans and demonstrated the motivation to work towards their achievement. The project team is currently incorporating lessons learned from the first pilot into the second iteration. Chief among these are providing more financial resources and involving the families over a longer period of time.

For the project team, EFI is not an end in itself, but part of a greater movement reimagining how the public sector can reframe social assistance as investment in the potential of low-income families. In future iterations of the initiative and with greater funding, the team hopes to increase the amount of available grants, create scholarships for low-income families who wish to upskill, and build capability among social service professionals to engage in developmental, aspirational conversations with low-income families, rather than merely focusing on "here and now" needs. Furthermore, the team plans to co-create future iterations of EFI with low-income families, who would play the role of mentors and facilitators for other families who participate in the initiative.

Figure 3.7. Families co-facilitating sessions to collaborate and update each other on progress



Source: Shared by the project team.

Novelty

Unlike social assistance and programmes for low-income families which are mostly premised on basic needs, EFI is innovative in the sense that it invests in families based on their motivation, and harnesses and leverages their assets and strengths. The design of this initiative incentivises progress and motivation to create a new trajectory and perpetuate a positive cycle of possibilities for the families, rather than remaining stuck in a cycle of need and challenges. Unlike traditional social assistance programmes, low-income families with lived experience of poverty are invited as experts to co-create the project as part of the organising team and as co-facilitators, thereby reinforcing this positive cycle. This approach increases the effectiveness and sustainability of EFI and is underpinned by a belief that families know better than professionals what support would be most appropriate for them.

Results and impact

The initial pilot has proven very successful. The impact of the project on the four families – represented by Danny, Lisa, Suzy and Fatima – was measured through observations and qualitative means to evaluate any increase in income level or potential for income-generation as well as social support. Lisa, Fatima and Suzy each have their own home-based business, an informal way to earn an income, and used the grants as capital to buy equipment to increase their sales. Lisa and Suzy collaborated to open a food stall which doubled their incomes by the end of the proof-of-concept. Fatima was also able to save up SGD 25 000 (EUR 17 500) to open a car-washing business. Danny, who works as a food delivery rider and used to ride

a bicycle, used the grant to apply for a motorbike license to increase his delivery orders, and thus his earnings. At the end of the initiative, Danny was able to complete half the requirements for his license.

All four families reported a higher level of social support after getting to know one another and declared that they had resources to achieve their aspirations which they otherwise would not have been able to access. They also felt a sense of empowerment and confidence from receiving support for their goals and their early success. As a result of this, they felt encouraged to work on their ambitions to improve their socio-economic status and wellbeing even beyond this initiative. Close to the end of the project, the four families communicated that they would benefit from being onboard for another three months and asked if they could apply for extra funding to boost their own ventures. They pitched their ideas to the project team and, since they showed great promise, they successfully received further SGD 500 each.

Challenges and lessons learned

The experience with the first four families presented the project team with two main challenges. First, the time available under the project was considered too short for families to benefit optimally from the project. Second, the resources provided to them were lower than ideal, with more benefits likely accruing with a higher amount. To address these challenges, the second iteration of the pilot has been adapted following consultation with the initial set of families. Participants will be enrolled in the initiative for more than six months and will be provided with SGD 1 500 (EUR 1 055 equivalent), three times the amount given to the families of the proof-of-concept.

The experience so far has provided valuable lessons on the elements necessary for a project like EFI to succeed:

- **Organisational willingness to overcome traditional models** of social assistance should be developed and paired with the establishment of a funding model that is open to experimentation and to investing in the aspirations of low-income families.
- **Families are often resourceful, very creative and have great ambitions**, they just lack the resources to move to the next stage. Such motivation and commitment, fuelled with a small grant, can enable them to achieve better conditions where they can make choices and work on the next phase of their plans to improve their lives.
- **It is critical to involve families as co-creators** of the initiative as they are the experts of their own lives, and are best placed to help other low-income families. By establishing co-design processes and sharing responsibilities, professionals and policy makers can ensure the effectiveness and sustainability of the initiative and better services.

Replicability

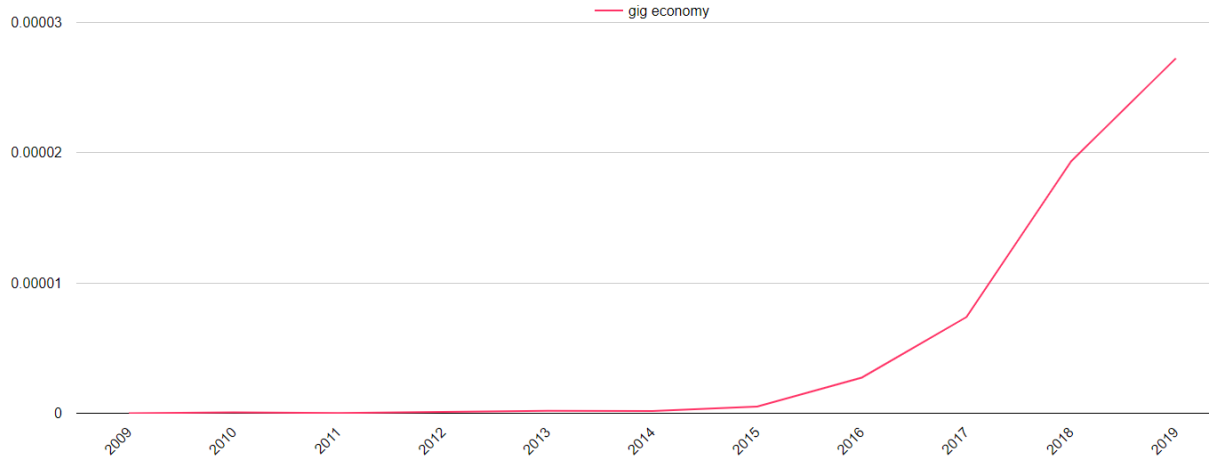
To explore the potential for replicability in the national context, a survey was conducted with professionals from various social service agencies in Singapore. The results highlighted demand for the initiative to be rolled out in centres across the country. Due to the positive outcomes from the pilot round and the keen interest shown by social workers, who believe that this initiative would help the families they serve, EFI has a high potential to be further replicated domestically.

In the international arena, this innovation is a highly transformative initiative with strong potential for replication in other contexts, providing similarly great results regardless of the different bureaucratic culture of the new adopter. The key aspect that enables the success of this project is the willingness to move beyond cookie-cutter programmes that are insensitive to the specific conditions of recipients, towards one that caters to the aspirations of the families involved.

Counteracting the creation of a gig economy underclass

The concept of the gig economy emerged fairly recently. The first traces can be found about one decade ago, and there is no evidence of its use before circa 2013 (Figure 3.8). The origin of the term relates to the precarity of short-term arrangements typical of a musical event ("gig"), with no certainty that the musicians involved will be invited to perform again (Woodcock and Graham, 2020[33]). On a more technical level, gig economy platforms – the main actors in this phenomenon – can be defined as two-sided digital platforms that match workers and content producers with buyers and users on a per-service basis (Schwellnus et al., 2019[34]). There has been great debate about the impact of the gig economy, focusing in particular on its effects on employment, taxes and labour conditions (OECD, 2021[35]). Governments have recognised that the gig economy has both benefits and drawbacks and are actively trying to counter the latter with innovative initiatives.

Figure 3.8. Use of the phrase "gig economy" in English language publications



Source: https://books.google.com/ngrams/graph?content=gig+economy&year_start=2009&year_end=2019.

The impact of gig economy platforms on employment

Some have argued that the gig economy can be a boon to productivity and offer workers and business the desired flexibility. Conversely, gig economy platforms operate by leveraging regulatory loopholes and imposing one-sided flexibility on workers. While OECD findings (Schwellnus et al., 2019[34]) indicate that the presence of platforms is small (around 1-3% of overall employment), more recent research has identified rapid growth, with positive and negative results continuing to accrue (Bulian, 2021[36]).

A deeper analysis of the employment conditions that link platforms and workers reveals that a gig economy underclass may be emerging (Qiao, Huang and Yeh, 2023[37]). Gig economy platforms have created creative business models where a reliance on self-employed contractors rather than employees enables capacity to adjust quickly to swings in demand. But the working conditions of these self-employed contractors have had a negative impact on workers: the majority of platform employees do not benefit from the protection of existing labour laws or collective bargaining agreements, and therefore experience low wages, precarious employment and hazardous working conditions. This was confirmed by the recent experience of a referendum in California which introduced an exception for app-based drivers regarding the determination of their status as independent contractors or employees. Strongly supported by Uber and Lyft, it led to a significant deterioration in drivers' labour standards.

It has been claimed that platform workers are exploited in three specific ways: legal uncertainties and insecurity, extreme degradation of working conditions, and the presence of new forms of "digital"

dependence and exploitation. To study these dynamics, the German Federal Ministry for Economic Cooperation and Development (BMZ) financed the Oxford Internet Institute to develop Fairwork, a project that evaluates the work conditions of digital labour and scores individual platforms on how well, or how poorly, they perform (Box 3.9).

Box 3.9. Fairwork

Fairwork is a research project initiated in 2018 at the Oxford Internet Institute and conducted in collaboration with more than 25 research institutions worldwide. The study analyses work conditions under the platform economy, and assesses them against the Fairwork principles, a set of five principles that should characterise fair work. It then scores companies accordingly.

The development of the Fairwork principles involved a thorough examination of the literature on job quality, years of research on gig workers and online freelancers, and the active involvement of workers, platforms, trade unions and labour advocates. The five principles are: fair **pay**, **fair conditions**, **fair contracts**, **fair management** and **fair representation**. Each principle is divided into two thresholds: if companies meet both thresholds, they receive ten points – the maximum a company can score. The data used to score companies are collected through desk research, worker interviews and surveys, as well as interviews with platform management.

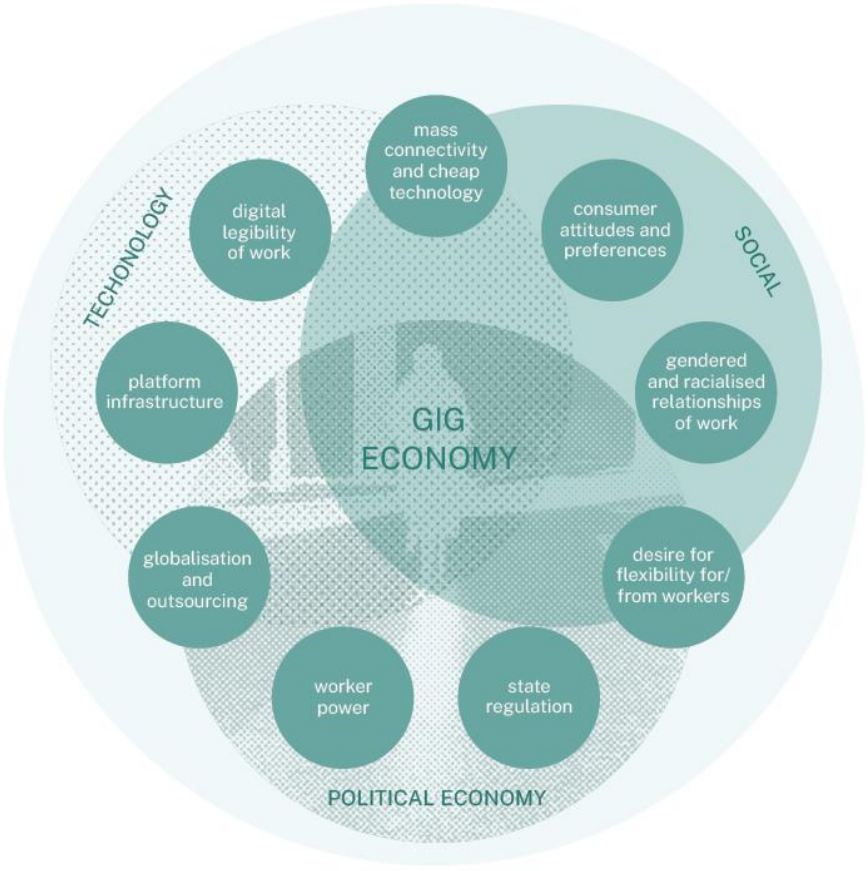
Beyond its research output – to date, 50 publications have been made available – Fairwork has had an impact on companies' internal policies, national and international legal frameworks, the conditions experienced by platform workers and consumers' behaviour. Through dialogues with platforms, Fairwork determined 131 changes to policies that improved working conditions. The project team is also in contact with policy makers and regulatory bodies of more than 25 countries worldwide and works with them to make evidence-based policy decisions and ensure the rights of all platform employees are respected.

Source: https://fair.work.

Towards an alternative gig economy

The current gig economy emerged from the interplay of a variety of factors including low worker power and a regulatory framework ill-equipped to handle the challenges related to platform expansion (see Figure 3.9 for a complete analysis of the conditions shaping the gig economy). In this context, OPSI and the MBRCGI have identified government and ground-up community efforts seeking to help ensure that the expansion of the gig economy is socially sustainable and respectful of workers' rights. This is the case in China where food delivery riders are building mutual aid networks on WeChat to support one other (Yu, Treré and Bonini, 2022[38]).

Figure 3.9. Conditions shaping the gig economy



Source: Design by Giorgio Marani from Woodcock and Graham, 2020.

OPSI and the MBRCGI have also identified efforts to actively develop alternative models for platform governance and the promotion of worker welfare through engagement with gig economy platforms. One example is the Driver Advisory Council for Uber India developed by Aapti with public bodies such as India's NITI Aayog. The Council consists of 35 members, and connects drivers from six different cities – Bangalore, Chennai, Delhi NCR, Hyderabad, Kolkata and Mumbai – directly with Uber. The model enables participatory action and reflexive praxis among workers and has established a successful and sustainable alternative for platform governance. As such, the Council represents an unprecedented mode of engagement between gig economy platforms, workers and public agencies. Beyond the satisfaction of drivers and Uber, this initiative has also pushed policy makers to address related legal loopholes, with the Indian Government proposing a Code on Social Security which introduces a co-pay system to cover health and other benefits for workers.

Figure 3.10. President of Uber India and South Asia addresses members of the Council



Source: https://oecd-opsi.org/innovations/driver-advisory-council-for-uber-india.

Governments are also increasingly recognising the specificities of gig economy workers and making efforts to integrate their perspectives in policy making. For instance, in Seattle (United States), the city used human-centred design to engage with drivers and gain a deeper understanding of their preferences with respect to potential policies on minimum compensation. To this end, the local government developed an engagement strategy including elements of ethnographic analysis that resulted in interviews, focus groups, a telephone town hall and an online survey. Listening to the voices of gig economy drivers enabled the city of Seattle to ensure that innovation efforts would actually address their needs, as evidenced by a recent OECD Innovation and Data Use in Cities report (OECD, 2021[26]).

Beyond their work with platforms, governments are also addressing the issue of the gig economy underclass by actively supporting the development of alternatives that can provide similar services. One example is Neighbourhood Joint Delivery (Box 3.10), an initiative recently developed by Seoul, Korea, to address traffic, environmental, safety and labour problems caused by the high increase in delivery volume. Platform co-operatives provide other examples (Mannan and Pek, 2021[39]) (OECD, forthcoming-c, *Platform co-operatives: an alternative model*). These initiatives offer new business models based on common ownership and democratic governance representing solidarity-based alternatives to gig economy platforms. Such organisations employ digital environments in which members interact to exchange commodities and services. Platform co-operative members, who are both users and owners of the platform, manage the technology tool collectively and make choices on production processes, conditions of usage and employment structures. This enables value distribution among all contributors to the platform, favouring people-centred approaches and maintaining produced value inside local communities. A great example of a platform co-operative is Ethical Deliveries, explored in a case study later in this section, which demonstrates how public sector organisations can nurture the development of such initiatives.

Box 3.10. Neighbourhood Joint Delivery

Neighbourhood Joint Delivery was introduced in Seoul in 2022 as a remedy to issues created by a rise in deliveries. Since 2015, deliveries had increased by about 2.8 times in the city, causing traffic, environmental, safety and labour problems. The proposed solution is Neighbourhood Joint Delivery Centres that integrate services from several couriers to deliver parcels collectively, reducing distance travelled by 50% and improving efficiency by 40%. The eco-friendly centres will also collect recyclables and serve as a base for unmanned autonomous vehicles.

The Seoul Metropolitan Government has invested KRW 3.2 billion (EUR 2.3 million equivalent) in the creation of three centres. After a trial period due to last from 2022 to 2023, the programme is expected to expand across the entire city. The establishment of the centres was done through an open call for tenders, and in 2022, the city government selected three organisations and provided them with subsidies to cover the first two years. The institutions must cover operational expenses through their own delivery fees, and after two years must finance all expenses themselves. This approach promoted greater sustainability and encouraged competitive companies to participate.

Seoul's Neighbourhood Joint Delivery is expected to improve delivery efficiency, transportation, environment, and safety and labour conditions by integrating the previously fragmented private-sector delivery system. The Seoul Metropolitan Government negotiated volume and commission through voluntary agreements with delivery drivers, agencies and firms, thereby ensuring that the business model was financially and socially sustainable, and thus able to provide riders with good working conditions, and counteract the creation of the gig economy underclass.

Source: https://oecd-opsi.org/innovations/neighborhood-joint-delivery.

Governments at all levels will need to ensure that the costs of expansion of the gig economy, such as consumer and worker protection, do not outnumber its benefits, such as productivity and overall employment. In particular, it is crucial that the costs do not emerge from the exploitation of a legal vacuum. Governments will need to balance costs and benefits; however, that specific equilibrium will ultimately be a political decision. Moreover, it is essential that the expansion of gig economy platforms, which involves thousands of workers and affects local communities, does not occur against a background of public unawareness. The European Parliament's recent work on a proposal to improve conditions for workers on digital labour platforms – particularly their employment status and the automated systems monitoring their work – represents a move in this direction. Previous OECD and non-OECD work has also highlighted some viable options concerning these challenges:

- **Costs related to platform flexibility should not be externalised and imposed on workers**. To address the precarity of workers, labour market regulations could be adapted to prevent the erosion of platform workers' bargaining position including rules for the termination of contracts, worker mobility and minimum pay (Schwellnus et al., 2019[34]).
- **Governments need to ensure that platform workers have access to basic social protection**, including for work-related accidents, parental benefits, health and pensions. To this end, it is essential to clarify the employment status of platform workers. Exploring third possibilities beyond employment and self-employment could be a valuable option – for instance, the creation of a new category of "independent worker" has been proposed (Stewart and Stanford, 2017[40]).
- Beyond the direct impact on workers, policy makers should regulate the gig economy by establishing the rights and obligations of the actors involved and also providing a legal definition of this economy to support related research. This will facilitate more accurate studies of the dynamics

around gig economy workers and help address the current lack of comprehensive documentation on this group (Bulian, 2021[36]).

- **In general, innovation-related challenges will often require more flexible and adaptive regulatory frameworks**, with room for discretion and case-by-case decisions. To address this issue while developing evidence-based, future-ready and trustworthy frameworks to address challenges such as those posed by the gig economy, governments should carry out broad-based, continuous public stakeholder engagement and close monitoring of outcomes (OECD, 2021[41]).

Case Study: Ethical Deliveries (Bologna, Italy)

To improve the rights and opportunities of gig workers in the wake of the COVID-19 crisis, Bologna, Italy launched Ethical Deliveries (*Consegne Etiche* in Italian), a home delivery platform that serves as an alternative to private delivery. Ethical Deliveries provides basic goods and services while respecting workers' rights and environmental sustainability. Developed on the basis of co-operative principles through an urban co-design process, based on a dialogue with citizens and small traders during the start-up phase, the platform is structured around two pillars: a fair rider salary and the use of vehicles that minimise environmental impact. Thousands of ethical deliveries have been made since the launch.

Problem

The COVID-19 pandemic caused an upsurge in the use of home delivery systems by citizens and residents. This trend highlighted the problems of the gig economy and, specifically, private delivery platforms. For instance, four companies were investigated by the Italian judiciary for imposing piecework payments and violating health and safety rights to their 60 000 workers. This led to growing awareness among government and the public of the problematic labour relationship between companies and the riders upon which these platforms rely. Citizens began to voice their criticisms of platform activities that failed to respect labour rights and characterised the relationship with local business as unfair, with no public purpose or interest in protecting the most fragile communities. Cities have often been seen as passive victims of large platforms, with some officials perceiving themselves as powerless to improve riders' and traders' working conditions. Local officials sought to handle things differently in Bologna.

An innovative solution

In response to the challenges above, the Municipality of Bologna and Fondazione Innovazione Urbana (FIU) – an urban regeneration centre founded by the Municipality and the University of Bologna –launched Ethical Deliveries. The project, which is in line with the innovative Charter of Fundamental Rights of Digital Labour in the Urban Context approved by the Municipality of Bologna, consists of a delivery system developed through a participatory approach that respects two key principles: a fair labour relationship with riders and minimal environmental impact. The aim of the project is to provide a collective and solidarity-based alternative to large platforms.

The project started with a clear aim – to involve all city stakeholders in a debate on the issue of home deliveries, and to imagine something different. At the beginning of May 2020, FIU held an assembly and conducted interviews with riders, trade associations, civil society organisations, researchers and the Riders Union, the first Italian organisation to address the precariousness and lack of protections for riders in Bologna. The aim was to identify an alternative ethical model to existing private platforms. It led to the creation of the Manifesto of Values (see Box 3.11).

Box 3.11. Manifesto of Values

Conscious that we will have to create a proposal with strong alternative values, the platform must:

1. Respect workers' rights and labour protection
2. Guarantee fair and decent remuneration
3. Guarantee the right to health and safety
4. Dismantle reputational mechanisms that fuel competition between workers
5. Be logistically sustainable or with minimal environmental impacts
6. Ensure the sustainability and transparency of the business-rider relationship
7. Give value to territorial service
8. Encourage synergies between actors at the expense of competition
9. Favour the principles of open source for possible technological support
10. Respect information obligations with customers
11. Recognise and be able to communicate the value of delivery
12. Keep the relationship between trader and customer alive
13. Facilitate citizen solidarity processes.

Source: https://consegnetiche.it/wp-content/uploads/2020/09/2020_Cantiere_ConsegneEtiche_manifesto.pdf.

From this basis, the project team started to co-design a collaborative governance model and a concrete prototype for a collaborative service for home delivery. After a first trial held between May and June 2020, carried out with two local co-operatives and resulting in the delivery of 1 700 masks to people's homes, the project team decided to enhance and expand the project.

In September 2020, they launched the website www.consegnetiche.it, which allows people to order groceries from two neighbourhood markets and two supermarkets, borrow books from 14 municipal and 32 university libraries, order food from three restaurants and purchase goods from local businesses. Ethical Deliveries provides riders with a minimum wage of EUR 9/hour – almost double the average wage that Italian riders earned at the start of the project – and worker protection against injuries, using only bicycles as a sustainable means of transport. Accordingly, Ethical Deliveries encourages citizens and residents to make conscious choices, by opting for an ethical home delivery service that respects the rights of workers, traders and the environment to the extent possible.

Figure 3.11. Ethical Deliveries rider stocking up at the local market



Source: https://oecd-opsi.org/innovations/ethical-deliveries-bologna.

Ethical Deliveries has shown that it is possible to offer an effective alternative to powerful private delivery companies in a manner based on collaboration and solidarity, in the process disproving the notion that citizens and cities are powerless against international corporations. The project team successfully engaged with the full ecosystem of relevant actors, including the public. Furthermore, the innovation took place in Bologna, a city characterised by strong co-operative movements, a strong riders' union, and several civil society and private organisations which demonstrated significant innovation skills during the lockdown. Bologna also has a bold political vision, as evidenced in its *Regulation on collaboration between citizens and the city for the care and regeneration of urban commons*, which enabled value-based direction by helping to clearly identifying the goal.

At present, the project is focusing its energies on the "social component" of the project, namely book delivery from public libraries, which has been reconfirmed by the Municipality for 2023. Going forward, the goal is to create a larger alternative business model. FIU is in contact with major logistics players in the city and intends to introduce Ethical Deliveries riders into their operations, rethinking their approaches to sustainable transport.

Novelty

Ethical Deliveries is one of the first projects led by public sector actors to address the challenges of the gig economy by actively engaging in the creation of an alternative to platforms. Ethical Deliveries is co-designed by citizens, traders, trade unions, riders and citizens, who together were able to generate a co-operative governance structure different from the vertical organisation of profit-oriented private platforms.

Results and impact

Nearly 4 000 ethical deliveries have been made with customers able to receive numerous goods and services due to the creation of a strong network of riders, civil society organisations, local business, the University of Bologna and the municipality. Thanks to Ethical Deliveries, a project for home meal delivery to vulnerable people was initiated in collaboration with local social services offices during the COVID-19 lockdowns. In addition, the project team produced a documentary on Ethical Deliveries and riders in Bologna, which is available for free online. The project also featured on Wired international, and received the Compasso d'Oro (Golden Compass) prize, one of the oldest and most influential design awards worldwide.

Figure 3.12. Ethical Deliveries rider collecting a box of groceries from a local market



Source: https://oecd-opsi.org/innovations/ethical-deliveries-bologna.

Challenges and lessons learned

The main challenge Ethical Deliveries has faced is scaling up the prototype. The team is still working to determine the best path for expanding Ethical Deliveries and is considering questions related to different potential service areas. The team now envisions enhancing the project to provide an ethical alternative to regular logistics routes.

Ethical Deliveries taught the project team that in order to reinvigorate the collective idea of the city, it was critical to discuss power, time, space and empathy. Specifically, the project team learned:

- **The significance of empowering stakeholders**. Redesigning a service, or a policy, means reimagining the power balance to give more resources to stakeholders, who became partners.
- **The need to give the community time to form and co-operate**. After years of approaches focused on individualism, time is needed to convey a new way of doing things: only with care and attention is it possible to rebuild relationships between people, civic organisations and institutions.
- **Existing neighbourhood relations often embody high levels of trust**. While people's needs can be addressed by creating new relationships, the potential of existing neighbourhood relations should be recognised and leveraged, as these often exemplify strong levels of trust and collaboration.
- **Empathy is crucial.** Despite digital tools and enormous capabilities, empathy remains the key skill. Otherwise, innovations will benefit only a few.

Replicability

Ethical Deliveries has not been replicated in other contexts, but as part of scaling up the initiative, the project team intends to reach out to other municipalities about potential diffusion. However, the project team is cautious about the ease with which this innovation may be replicated. The number of important pre-conditions which enabled its success are not common, including political vision, the ability and willingness to devote resources to create an alternative to gig economy platforms, the experience and ability to engage effectively with citizens and cultivate trusting and empathetic relationships with them, and finally a fertile and responsive civil society and landscape of co-operatives and private organisations.

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4 Trend 4: New ways of engaging citizens and residents

This chapter introduces the trend on new ways of engaging citizens and residents. It highlights the drive for increased engagement with citizens and residence as a way to enhance representation, participation and openness. The chapter future provides practical examples and global case studies to demonstrate the ways in which governments are using sophisticated techniques to connect and collaborate with the public and enhance public decision-making power. Initiatives include permanent citizens' councils, AI localism approaches, reimagining communities and physical and virtual community spaces, and leveraging technology to build public trust.

Engagement with citizens and residents is on the rise as governments work to enhance representation, participation and openness. However, confidence remains low among citizens regarding their influence on the design and delivery of public policies and services, especially among young people (OECD, 2020[1]). To remedy this situation, governments are using sophisticated techniques to connect and collaborate with the public. These include forming permanent citizens' councils, promoting Citizen Science and AI localism approaches, reimagining communities and leveraging technological innovations to build public trust, and collectively transforming both the physical and the virtual environment.

> "We commit to strengthening participation, combating undue influence on government policies and improving and promoting inclusion in civic and democratic processes and decision making, as well as within the civil service, including women, youth and other underrepresented groups in society."
>
> - 42 national adherents to the OECD Declaration on Building Trust and Reinforcing Democracy.

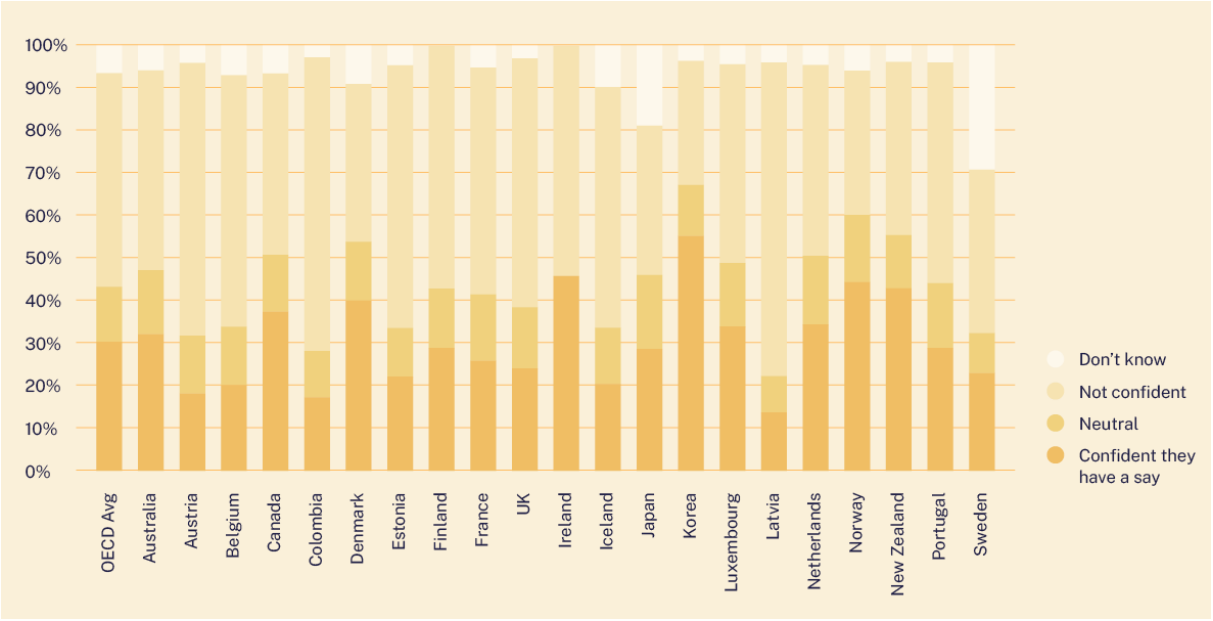
Empowering voices

The OECD (OECD, 2022[2]) has determined that enhancing representation, participation and openness in public life is one of the most important governance challenges. As with enhancing transparency (see Trend 1), governments have been working on stronger engagement with their citizens and residents for a number of years as part of their Open Government agendas. OECD work has previously covered a "deliberative wave" in this area that has been gaining momentum since 2010, and has built a database of 574 innovative approaches (e.g. civic lotteries, citizens' assemblies and juries). OECD work has also explored government efforts to empower young people to participate in public and political life within OECD countries (OECD, 2020[1]) and across public administrations in the Middle East and North Africa (OECD, 2022[3]).

OPSI and the MBRCGI have also discussed innovative approaches to engaging the public and surfacing insights for cross-border innovation, including large-scale democratic processes, as well as efforts to build open, matrixed governments where all actors have a say and can participate in governance. OECD work shows that these efforts can pay off, as cities with strong stakeholder engagement lead others by about 4 percentage points in terms of resident satisfaction (OECD, 2021[4]). Similarly, OECD analysis has found that where young people are involved in the policy cycle to a greater extent, they expressed higher satisfaction with government performance in key policy and service areas (OECD, 2020[1]).

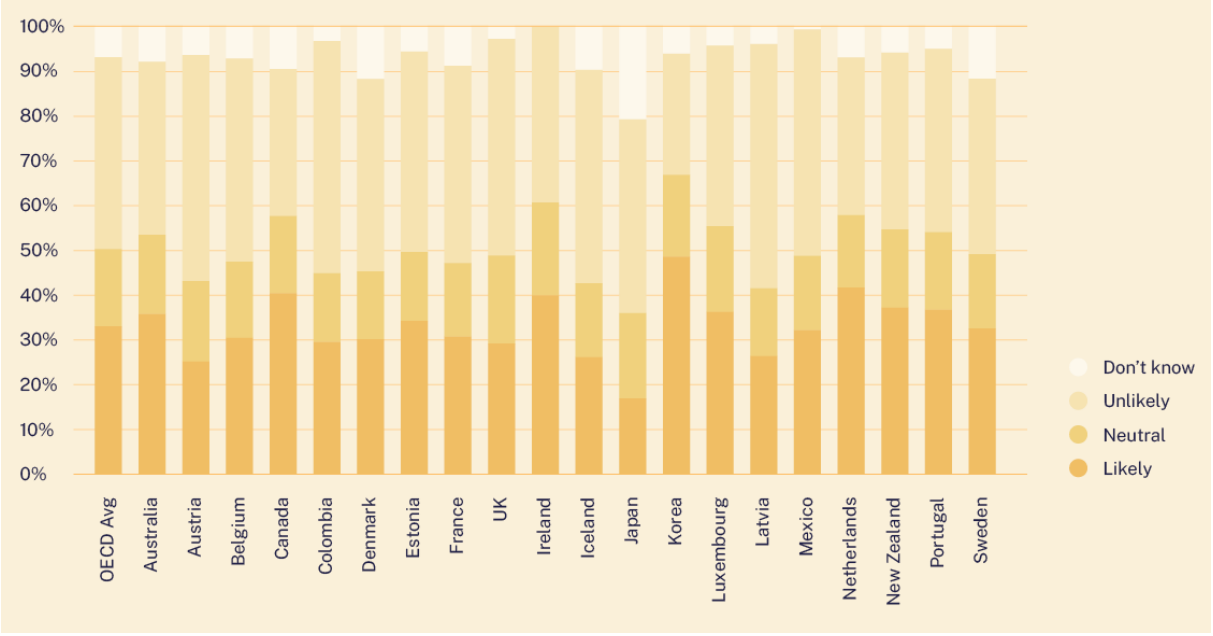
However, concrete evidence shows that more needs to be done. Half of the respondents to OECD's Survey on the Drivers of Trust in Public Institutions (OECD, 2022[5]) of 22 OECD countries stated that the political system does not let them have a say in government decision making (Figure 4.1), and less than a third are confident that the government would use inputs given in a public consultation (Figure 4.2). These perceptions persist regardless of OECD (OECD, 2021[6]) findings that in most cases, at least half of participant' recommendations are accepted by public authorities. Young people in particular tend to report lower trust in government (OECD, 2022[5]). Governments must do better, both at giving all people a voice and in responding to those voices to make their people feel heard (OECD, 2022[2]).

Figure 4.1. Respondents report that the political system does not let them have a say



Source: https://oe.cd/trust (2021). Data available at https://stat.link/8alv9m.

Figure 4.2. Few think that the government would adopt views expressed in a public consultation



Source: https://oe.cd/trust (2021). Data available at https://stat.link/6ihn02.

This situation calls for a move towards a more diffused and shared conception of democratic governance, including a more inclusive role for public institutions and officials tasked with ensuring that the polices and services they design and implement are more representative of society, at all levels of government (OECD, 2022[2]).

To help achieve this transformation, in November 2022, 42 countries adopted the OECD Action Plan on Enhancing Representation, Participation and Openness in Public Life as part of a broader OECD Declaration on Building Trust and Reinforcing Democracy (Box 4.1).

Box 4.1. OECD Action Plan on Enhancing Representation, Participation and Openness in Public Life

In late November 2022, 42 countries around the world adopted the Declaration on Building Trust and Reinforcing Democracy, including the action plan which includes key areas on:

- **Creating opportunities for inclusive public participation and deliberation**
  - Identifying opportunities, areas and levels of government where participative and deliberative processes can be established.
  - Encouraging the involvement of citizens and stakeholders in such a way as to ensure that their contributions have more transparent and measurable impacts.
  - Designing citizen participation and deliberation processes in a way that breaks down barriers to participation and encourages people to take part.
  - Fostering a culture of, and building capacities for, participation and deliberation in the civil service and in society at large.
- **Strengthening democratic representation**
  - Making executives and elected bodies more diverse and representative of the population by facilitating better representation of women, young people and other under-represented groups.
  - Delivering on the promise of more inclusive policies by developing explicit provisions to support the integration of the needs of underrepresented groups into policy making.

Source: https://oe.cd/participation-action-plan (as excerpted by OPSI).

OPSI and the MBRCGI uncovered many innovative initiatives where governments are engaging with their citizens and residents in new ways and activating them as change agents, including by using sophisticated techniques to connect and collaborate with them. This marks an important shift and prompts a fundamental questioning of the role citizens should play in public decision making and how public institutions, parliaments and governments can better represent them. More specifically, this raises the question of whether in a more representative, participatory and deliberative democracy, there can be evolution in the two-way relationship between people and their governments (OECD, 2022[2]).

Many of these initiatives align with discussions covered by OPSI and the MBRCGI in previous years, which although perhaps no longer at the leading edge, remain innovative and have an important impact. Examples here include:

- Participa.Gov.Pt. The Portuguese Public Administration's one-stop-shop platform where citizens can present their proposals and decide through their votes on relevant initiatives for their lives.
- Territorial Dialogue Initiative. A stakeholder dialogue methodology which generates spaces for collaborative co-creation in order to design public policy proposals to address local challenges in Colombia.
- Civic Laboratories. Spaces for participatory budgeting in Bogotá, Colombia.
- 365 Online Gwanak-gu Office. An online platform for direct democracy in Korea.

Some initiatives are more novel in the **approach**, **scale** or **focus areas** in which they engage citizens and residents. For instance,

- Our Europe, Our Future is a vast consultation of 95 000 young people in France and Germany carried out within the framework of the Conference on the Future of Europe. Similarly, My France 2022 allowed 1 million French people to express their priorities and to engage in a direct conversation with the candidates in the run-up to the presidential election. A number of other large, transnational efforts can be found in the OPSI-MBRCGI report *Surfacing Insights and Experimenting Across Borders*.
- Police departments are working with GuardianScore to allows community members to rate their interactions with officers. In Mexico City, Prebases promotes citizen engagement in high-impact public procurements. Lastly, in the United States, the Expert & Citizen Assessment of Science & Technology (ECAST) Participatory Technology Assessment is bringing public perspectives to bear on critical government science and technology decisions.
- Bordeaux, France is developing blended indicators on rising urban heat by creating tools to collect information from citizens on their physical sensations related to thermal comfort. This enables the generation of comfort maps to guide important decisions (e.g. planting trees, adding fountains, etc.).

One of the most notable ways in which governments have been evolving is a move towards *permanent* forms of deliberative democracy that create spaces for everyday people to exercise their civic rights and duties beyond voting. These permanent citizens' councils and other initiatives function alongside parliament, bringing people into the heart of public decisions in an ongoing way, as a complement to representative democratic institutions. These new institutions are not a replacement, but a complement to the existing democratic architecture, making it richer and more inclusive (OECD, 2021[7]). The OECD report Eight Ways to Institutionalise Deliberative Democracy outlines different eight models used by governments (Figure 4.3).

Figure 4.3. Eight ways to institutionalise deliberative democracy



Source: https://oe.cd/8-ways-delibwave.

OPSI and the MBRCGI have also identified a number of innovative efforts that take citizen engagement to new levels and serve to evolve upon and more strongly integrate participation. One of the most compelling examples is Brussels' Deliberative Committees, discussed in-depth in the case study presented later in this trend. Additional examples include a permanent citizens' assembly in Ostbelgien, the German-Speaking Community of Belgium, and Bogotá's Itinerant Citizens Assembly, which formalises a series of sequential assemblies, with each occurring at different stages of the policy cycle (OECD, 2021[7]). In Türkiye, the government has piloted a comprehensive effort integrating Participation Task Forces with three initial municipalities, where elected and appointed officials work together with citizens and residents

on developing participatory policy proposals, supported by a team of trainers who provide initial training on participatory processes and serve as ongoing coaches.

Some of the most innovative initiatives, though, come from using new methods and technologies to better connect elected leaders with their constituents, and engage with citizens and residents about their opinions and feelings. Deliberatura – Council to the Street in Buenaventura, Colombia turns some aspects of engagement exercises on its head. In one of the country's most impoverished cities that has faced years of corruption, the initiative brings the city's institutions out to listen and respond to citizens in public sessions. During these events, the leaders receive an institutional response and generate commitments that benefit the citizens. Deliberatura has been held seven times in different neighbourhoods of Buenaventura, and the City Council is expected to adopt this practice and institutionalise it through a municipal agreement.

Governments and their partners are also leveraging innovative technologies to engage with the public. As discussed in depth in recent OECD work on Transforming Public Governance for Digital Democracy (OECD, 2022[8]), digitalisation has opened up new channels for citizen empowerment, political participation and government transparency, enhancing people's civil liberties and political rights. Such efforts help bring together Public Interest Tech, Civic Tech and GovTech movements in ways that support democratic governance and seek to build public trust, which OPSI and the other teams in the OECD Open and Innovative Government Division (OIG) call **Democratic Technology** (**DemTech**)**.** Two efforts identified by OPSI-MBRCGI work illustrate different yet powerful ways in which DemTech is starting to be used.

Box 4.2. DemTech Efforts

In late November 2022, 42 countries around the world adopted the Declaration on Building Trust and Reinforcing Democracy, including the action plan which includes key areas on:

iMatr Democratic Technology (Canada)

Democratic Technology brings governments and citizens into the 21st century. It empowers real time engagement on daily issues between people and politicians in a seamless and transparent way. Using geolocation or an address entry, real verified users are shown their government representatives on their smartphones enabling direct one-to-one messaging on important events. Collected anonymised data enables evidence-based decision making for the public and governments.

Crea.Visions

Crea.Visions is an online, game-based, large-scale portfolio that enables the public to co-create with AI powerful and thought-provoking visions of utopias and dystopias. Its goal is to raise awareness about the climate change challenge and the importance of reaching the SDGs. This innovation was developed based on the strong belief that crowdsourcing concerns and solutions from the general public on both global and local complex socio-scientific problems could function as a cornerstone in participatory democracy for the digital age.

Stanford Online Deliberation Platform

The Online Deliberation Platform is a video discussion platform designed to facilitate a structured and equitable conversation with better opportunities for participants to speak up. The platform's design is based on the Deliberative Polling methodology which makes it possible to massively scale deliberation, allowing unlimited number of participants to deliberate in small groups together simultaneously. The platform presents many interesting features but the main one is the presence of an automated moderator that allows participants to form speaking queues, discuss in small groups with timed agendas and participate equally, ensuring inclusion.

Source: https://oe.cd/participation-action-plan (as excerpted by OPSI).

Governments at all levels will need to invest continuously in such efforts to build public trust. While national governments have been setting the overall tone and direction, such as adhering to the aforementioned OECD Declaration (Box 4.1), the majority of the implemented initiatives exist at the local level (OECD, 2021[6]), as can be seen in the examples presented throughout this section. OECD research shows that public servants and local governments are perceived as more trustworthy (OECD, 2022[5]), reinforcing the need to embed skills and expertise at local levels, with public servants as the face of the public sector. A growing body of relevant tools and resources exist to help bring about these skills and capacities, as listed below. In addition, the OECD is developing an Action Plan on Digital Democracy, to be published next year. This will support concrete actions to put in place the technology underpinning many of the approaches outlined in this section, while also mitigating the associated risks.

- The OECD's *Good Practice Principles on Deliberative Processes* provide guidance to public servants on ensuring high quality, impactful and trustworthy processes.
- The OECD's *Evaluation Guidelines for Representative Deliberative Processes* further operationalise these principles and help ensure that high standards can be met.
- OPSI's Toolkit Navigator includes dozens of practical resources for bringing new perspectives and stakeholders into the policy process.
- The OECD's recently issued *Guidelines for Citizen Participation Processes* walks interested public servants through ten key steps (Figure 4.4).
- The OECD *Recommendation on Creating Better Opportunities for Young People* provides guidance and policy principles for governments to strengthen the trust of young people in government and their relationships with public institutions.

Figure 4.4. Ten steps to plan and implement a citizen participation process



Source: https://oe.cd/citizen-participation-guidelines.

Finally, while OPSI and the MBRCGI identified many efforts promoting new forms of engagement, there were significantly fewer initiatives aimed at enhancing public sector responsiveness, with forthcoming OECD work identifying weaknesses in this area (OECD, forthcoming-d, *Understanding and Tackling the Territorial Divides in Trust in Government*). OECD Trust Survey data of a number of countries (e.g. Finland and Norway) has found that responsiveness may be an even stronger driver of trust than participation. Indeed, responsiveness is central to engagement efforts as a means to convince citizens and residents that their participation has made a difference. The forthcoming OECD report sheds additional light on this topic.

Case Study: Deliberative Committees (Belgium)

> "With the deliberative commissions, we want to revitalise democracy, and do it together with the citizens. We want to involve them more in the decision-making process and encourage the participation of people who might not have spontaneously expressed themselves when talking about political projects."
>
> Rachid Madrane, President of the Brussels Regional Parliament (extracted from the opening session of the deliberative committee on biodiversity in the city).

In order to bridge the gap between representatives and represented, the Brussels Parliament decided to open its doors to all the inhabitants of the Brussels-Capital Region. To achieve this, the Parliament incorporated a system of direct participation for the region's residents into the formal rules of procedure. These were the Deliberative Committees (*commissions délibératives* in French). The committees comprise 15 members of the Brussels Regional Parliament and 45 residents chosen by lottery, and are responsible for drawing up recommendations on a given topic, to which the Parliament must respond.

Problem

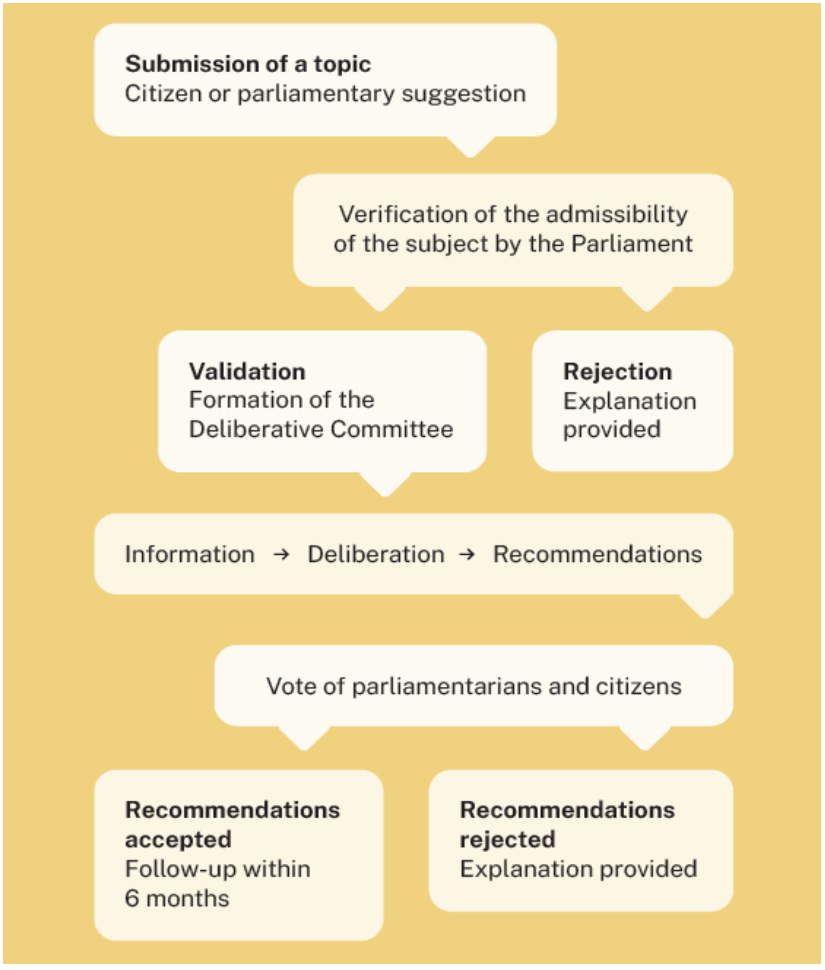
Citizens and the public should be able to see, contribute to and evaluate public policy making, with stakeholder participation constituting an essential element of open government. Informing and involving citizens in the development of policy solutions can improve decision-making outcomes and increase their legitimacy, as shown by the OECD's 2022 Guidelines for Citizen Participation Processes. In particular, deliberative processes can provide optimal solutions to problems that involve ethical questions, are complex and long-term in nature, and extend beyond the electoral cycle. Recognising the potential of citizen participation, the Brussel-Capital Region realised it needed to move beyond ad-hoc, one-off participation projects that take place close, but not inside, Parliament, with which it already had experience.

An innovative solution

At the start of the 2019-2024 legislature, the Brussels Parliament decided to open its doors to all inhabitants of the Brussels-Capital Region by establishing the Deliberative Committees. Several experts in citizen participation assisted in defining the details of this new process, and the first Committee was formed in April 2021 and now forms part of the assembly's regular and permanent operation. The Committees, which consist of 45 residents chosen by lottery and 15 regional parliamentarians, have created a new space for

dialogue aimed at elaborating, together and on an equal footing, recommendations on a particular theme. The topic addressed by each deliberative committee is either proposed by a citizen via democratie.brussels and supported by a minimum of 1 000 Brussels residents over the age of 16, or put forward by one or more political groups. Figure 4.5 shows see the entire process from proposal of a recommendation through to acceptance by Parliament.

Figure 4.5. The process of Deliberative Committees



Source: https://democratie.brussels/pages/cd_schema.

To set up a deliberative committee, an initial random draw is made of 10 000 people over 16 years of age residing in the Region. A letter is then sent inviting them to register by completing a form in which they are asked to specify their gender, age, place of residence, language and level of education. Based on these answers, a second draw is made to obtain a sample of 45 people representative of the diversity of the Brussels population. In addition, 15 parliamentarians are invited to participate in the work of the committee on level footing with the residents. These are members of the existing parliamentary committee working on the topic of the deliberative committee in question. The deliberative committees are also supervised by a support committee (comprising experts in citizen participation and specialists in the topic under discussion) and are facilitated by an external operator selected mostly on the basis of their ability to manage mixed assemblies. The operation of a deliberative committee can be divided into four successive phases:

- The **information phase** aims at informing the participants about both the deliberative process and the topic under discussion. In this phase, participants receive information on the topic from experts that can be academics, members of the public administration or parties involved in the issue. Inclusivity and plurality inform the selection of experts.
- The **deliberation phase** aims at generating proposals for recommendations. During this phase, alternating discussions in plenary and small groups and the work of the facilitator ensure the active participation of all members of the committee.
- The **recommendation phase** aims at improving these proposals and generating recommendations by all participants.
- The **presentation phase** is the phase where the committee discusses and debates whether to approve the report on its work containing the recommendations. If approved, the report is presented in the relative parliamentary committee where the recommendations are discussed. If the recommendations fall under the competencies of another committee, they are sent there for discussion.

In total, each deliberative committee meets around five times, often for a whole day, over a period of approximately two months. The presence of the 15 parliamentarians helps to secure parliamentary buy-in and ensures that the recommendations adopted are followed up in Parliament, where discussions are recorded and available on YouTube. After six to nine months, the parliamentarians members of the committee present and discuss a report with all participants in the deliberative committee, which is then published online under open access. This transparency strengthens public support for the process and also ensures that the recommendations are useful.

The good functioning of the Deliberative Committees is the result of co-operation between many actors outside Parliament's regular services:

- The **support committee** that is made up of experts in citizen participation and the topic in question, and ensures that the various phases of the process run smoothly.
- A **facilitator** is a professional procured to work with the Committee, who leads the debates and ensures inclusion of all participants in the deliberative committees.
- The **governance committee** is composed of representatives of the support committee, the facilitator and two citizens, and is responsible for evaluating each session.

Inclusion is the guiding principle of the process – from the drawing of lots to the follow-up discussion. Efforts to ensure inclusion include a telephone assistance service, the presence of a person dedicated to the wellbeing of each person, the availability of childcare facilities, the setting up of a buddy system, simultaneous translation in the two official languages (French and Dutch) and translation of the main documents into the five other most widely spoken languages (Arabic, English, German, Italian and Spanish).

Novelty

Considered by the press and experts to be a world first, the process is innovative in that it establishes a structural mechanism of participatory democracy that directly involves parliamentarians and citizens selected by lottery. It is formally embedded in the Parliament's rules of procedure and is effectively part of the functioning of the Parliament. Citizens are chosen by lot and parliamentarians are now regularly brought together to debate with them on an equal footing.

Results and impact

Three Deliberative Committees have been set up in the Brussels Regional Parliament to date, and have given 135 citizens and residents of the Region, with a wide range of profiles, the opportunity to engage in direct participation. The three committees discussed and produced recommendations about 5G in Brussels, biodiversity in the city and homelessness. The recommendations adopted each time were followed up by the Parliament, and in 69% of cases, were accepted and became the subject of parliamentary discussion. Discussions in the parliamentary committees indicate that when the recommendations were not taken up, this was due to one of three reasons: 1) they did not fall under the powers of the Region, 2) similar policies already existed or were being discussed, or 3) different policies providing the same results already existed. In addition, the open mechanism by which parliamentarians report back to the committee allowed citizens to know why recommendations were not implemented and to discuss the matter.

Implementation of this innovation has given the citizens selected direct contact with parliamentarians. It has also enabled them to better understand decision-making mechanisms, take into account the interests involved and institutional realities, and grasp the distribution of competencies between levels of power, and more.

Challenges and lessons learned

Evaluation of the work of the deliberative committees is carried out by the governance committee, the support committee, and, through a survey, by all participants in the committee at the end of each meeting. Two major challenges emerged from these evaluations. First, the process or some of phases of the activity of deliberative committees were not always well understood by citizens. This issue was resolved quickly by giving more room for explanations during the committee meetings, organising preparatory sessions for citizens, favouring small group discussions rather than plenary sessions and including both kinds of discussion in the process. The second challenge concerned the role of the 15 parliamentarians, who joined the committee with experience in discussing political issues in assemblies. This presented a risk that their contributions would hinder or overtake the participation of citizen and residents. Although great efforts have been made to address this problem, such as holding preparatory meetings, paying attention to the equal involvement of participants, and ensuring a 3:1 ratio of residents, the issue still affects the project and, for this reason, is currently being analysed as part of an evaluation, due to be completed shortly.

Figure 4.6. Plenary session of a deliberative committee



Source: Deliberative Committees project team.

The ongoing experience of this innovation has provided some valuable lessons for the project team:

- Implementation of such a process cannot be improvised and requires time.
- Definition of the modalities of application requires numerous meetings with experts and consultation with the political groups and administrative services of the Parliament, which must all take ownership of the process.
- The smooth running of deliberative committees also requires the allocation of substantial resources, both financial – the total cost of one committee is around EUR 100 000 – and human – since conducting this project confronts the services with new tasks often performed at unusual times. For instance, meetings were held in the evening and on weekends to enable the greatest number of people to participate.
- Finally, as this is an unprecedented process, it is by its very nature perfectible and therefore requires a permanent evaluation in which all stakeholders must be involved.

Replicability

The problem of the growing gap between elected representatives and citizens is not unique to the Brussels Region, and the process is already inspiring other assemblies. The formal inclusion of citizen participation in the parliamentary process is now being discussed in another Belgian regional assembly, the Parliament of Wallonia, but has not yet been implemented. A proposal to introduce a similar mechanism in the Belgian federal parliament is currently under discussion in the House of Representatives. In order to ensure the success of these processes at different levels, the project team has emphasised the importance of establishing a network of all officials involved.

With respect to the replication of this innovation internationally, it is important to note that embedding the process within the legal framework for formal parliamentary decision making constitutes its greatest novelty and strength. However, this decision suggests that the project emerged from a context with strong high-level political agreement on the importance of engaging directly with citizens, which is not always the case of participatory initiatives.

Re-imagining communities, physically and virtually

In addition to implementing innovative and new ways to elicit perspectives from citizens and residents and connect them with their representatives, governments and their partners are devising novel approaches to engage the public in the tangible re-envisioning, and in some cases re-building, of physical and virtual spaces. In addition, innovative cross-cutting approaches are helping governments to engage with their people in these activities and to convert their ideas into realities.

Re-building and strengthening communities

Many of the efforts identified through this work involve rebuilding communities after shock. The impacts of the Russian Federation's full-scale invasion of Ukraine have reverberated across the globe, causing both economic and societal shocks. Of course, no one feels the consequences more acutely than the people of Ukraine. However, despite the challenging circumstances, innovative efforts are emerging to help the public sector rebuild its communities for the future (Box 4.3).

Box 4.3. ReStart Ukraine

ReStart Ukraine is an open collective aimed at exploring the best ways to restore afflicted urban and rural areas in a post-war scenario. The project intends to provide a practical base for regions and municipalities to better plan for recovery according to available research, data and expertise. The initiative's approach involves data collection and analysis, the mapping of risks and uncertainties, consideration of three scales of recovery (state, region and city), and combining local and global expertise to reimagine the future. To date, ReStart Ukraine has worked with more than 300 volunteers from civil society, institutional partners and representatives of the public sector (mostly at the local level).

ReStart Ukraine aims to provide a co-created toolbox to empower municipalities across the country to reconcile the urgency of reconstructing with an understanding of what has changed, and to conduct recovery from a more inclusive perspective. The first pilot was tested in the Municipality of Chernihiv, where ReStart Ukraine tailored its framework and gathered quantitative evidence to create the basis for discussions on reconstruction. The experience highlighted the potential of participatory, co-created and future-oriented mechanisms that enable dialogue between a wide range of stakeholders to assess the crisis and imagine the recovery.

Source: https://restartukraine.io, OPSI interview with founder Alexander Shevchenko, 23 November 2022.

Update Germany (*Update Deutschland*) is another example of ground-up efforts to engage with the public in order to collectively re-envision and re-build communities – this time recovering from the COVID-19 pandemic. The initiative perhaps represents the most mature and integrated evolution of COVID-19 response hackathons, which became a global sensation in 2020, as discussed in the OPSI-MBRCGI report on *Innovative COVID-19 Responses*. In building upon the German hackathon #WirVsVirus and shifting from response to recovery, Update Germany is creating a nationwide laboratory for revisioning the future with citizens and partners from all federal levels. Hundreds of solutions are being tested in parallel and implemented with the help of collaboratives. Current community issues being addressed include

loneliness, lack of digitalisation and social inequality. The initiative aims to gather a plethora of diverse participants to identify issues and then find new solutions or further develop existing approaches.

With origins not tied to crises, the city of Bogotá, which has made commendable efforts to become citizen and resident-centred, has also put in place processes for mutual co-design of public neighbourhoods and physical spaces. In Montreal, Canada, CityStudio Montreal connects city staff expertise with student creativity to tackle complex urban issues by prototyping and co-creating innovative solutions (OECD, 2021[4]). In Bologna, Italy, the Civic Imagination Office, developed within Fondazione Innovazione Urbana – the organisation that led the project Ethical Deliveries discussed in Trend 3 – oversees six District Labs where city officials and residents collaborate on projects to tackle challenges facing the city (OECD, 2021[4]).

Many relevant participatory efforts fall under the umbrella of Citizen Science, where the public participates voluntarily in the scientific process to address real-world problems. The term and related efforts have been around for some time, but recent projects have reached new levels of institutionalisation, scale and potential for impact, Examples include the creation of the EU Citizens Science Platform and work by the World Bank on using citizen science to "help unlock the full value of data for development" (Fu, Hammer and Anderson, 2022[9]). A number of specific projects under this umbrella include the following:

1. The EC-funded Distributed Network for Odour Sensing Empowerment and Sustainability (D-Noses) enables citizens to share any information related to odour pollution, a cause of physical ailments, anxiety, stress and respiratory problems. D-Noses enables the mapping of affected communities and the development of regulations on odour pollution.
2. The City of Helsinki invited residents to collect data while bicycling to help the local government identify roads that need maintenance. The initiative earned participating riders an average of EUR 2 per kilometre.

Interestingly, as part of this broader umbrella related to citizen science, the strongest and most granular focus is **trees**. Especially at the local level, governments are collaborating with citizens and residents to enhance tree canopies to address issues ranging from urban heat to combating climate change. These initiatives include:

- **#FreetownTheTreeTown**, an initiative in Sierra Leone covered in a case study later in this trend.
- **Trees as Infrastructure (TreesAI)**, a cloud-based platform, built to address declining tree stocks and support the expansion of urban forests, built by London nonprofit Dark Matter Labs. One of their first pilots with the City of Glasgow involves building a portfolio of "urban Nature-based Solutions (uNbS)". In addition, as part of a comprehensive operations model, TreesAI leverages "citizen sensing", enabling citizens to participate in forest maintenance practices (TreesAI, 2021).
- **NYC Street Trees**, a project bringing bring together thousands of citizen volunteers for "TreesCount!", the largest participatory urban forestry project in the United States. TreesCount! conducts a Tree Census of the nearly 700 000 trees which populate the NYC Street Tree Map, the world's most accurate and detailed map of a city's street trees. The initiative allows residents to explore the city's urban forest, learn about the species, and conduct and record their own tree care activity and stewardship actions.
- **Giessdenkiez** ("Giess" meaning "to water" and Kiez being a district in Berlin), an open source application by CityLab Berlin for fighting urban heat island effects. Giessdenkiez maps 750 000 trees and their care requirements, allowing residents to adopt and care for individual stands. The platform has over 2 000 users.
- The **Smart Forests Atlas**, funded by the European Research Council (ERC) is a living archive and virtual field site exploring how digital technologies are transforming forests. It draws on and extends practices of "digital gardening" by serving as a space for cultivating ideas publicly and sharing multimedia content.

Participatory efforts for communities and physical spaces need to be nurtured, with guidance and repeatable mechanisms put in place. As is common with early public sector innovation efforts, many of the examples discussed in this section represent ad-hoc projects or efforts that have not yet demonstrated their staying power. In some countries, governments are putting in place measures to help ensure continuity and sustainability of engagement over time. A good example of a topic-tailored approach here is the United Kingdom's PropTech Engagement Fund (Box 4.4).

Box 4.4. PropTech Engagement Fund (United Kingdom)

Historically, many local authorities report that less than 1% of their population engage with local planning. The PropTech (Property Technology) Engagement Fund was launched in 2021 to work with local authorities on accelerating the adoption of digital citizen engagement tools and transforming community involvement in placemaking. The Fund is the largest UK Government programme in the field of PropTech, and is a leader on working with industry, tech startups and local governments to increase the diversity and positivity of placemaking conversations and to fast-track new digital policy and local housing delivery.

To date, 41 projects have transformed the landscape of citizen engagement by empowering local planning authorities to use digital tools to radically increase the quantity and quality of engagement within and beyond planning. Two funding rounds, informed by user research, were launched in year one with a focus on estate regeneration, sustainability and acceleration of housing delivery.

Following funding from the PropTech Engagement Fund, the Cotswolds region reported that 6 532 people visited their project's consultation platform, equivalent to approximately 7% of their population. Leicester City Council likewise saw an "unbelievable response", with over 1 200 visitors despite digital poverty in the area. Epsom and Ewell Borough Council received nearly 2 000 individual respondents with 10% identifying as having accessibility needs. Many of the Round 2 projects are still ongoing with only interim results available, but the testimonials are positive.

Source: https://oecd-opsi.org/innovations/proptech-engagement-fund.

Taking a broader approach, the Government of Lithuania's Create Lithuania Programme has developed a 2022 Guide to Civic Participation in Public Space Projects to help guide engagement efforts for the co-imagining of physical spaces (Figure 4.7). This step-by-step resource for municipalities offers guidance in conducting these processes from start to finish. The guide has brought together international best practices and the views of 27 multi-disciplinary representatives (e.g. architects, urbanists, park experts, municipality representatives, active citizens, community leaders and lawyers). It is now being implemented in a number of municipalities around the country, with hundreds of public servants trained. Among other things, the guide helps public servants structure thinking and engagement around uncovering three levels:

1. **What do we have?** (objective data, analysis, historical urban and natural context)
2. **What does society want?** (societal problems, needs, habits, goals and experiences)
3. **What do we offer?** "Vision = what we have + what we want, in a way that benefits people, nature and the economy."

Figure 4.7. Applying the Guide in Lithuania



Source: https://oecd-opsi.org/innovations/public-space-dialogue.

In an effort to bridge the physical and the virtual, the residents of Tallinn are using an augmented reality (AR) mobile application (Avalinn AR) to contribute to urban development, and co-creating urban solutions for the Pollinator Highway (Putukaväil) – a species-rich linear park and movement corridor. As stated on Tallinn's municipal website, "in the future, the Pollinator Highway will become a vibrant city-wide linear park, a public space offering new green mobility connections and various opportunities for activities". The app includes information and allows users to visualise and interact with different possible solutions for the corridor. Users can like, dislike and comment on different proposals, as well as add their own contributions (see here) (Figure 4.8). The city is now considering the use of similar approaches for other projects (User Centric Cities, 2022). Nearby, efforts in Helsinki, Finland are using participatory planning to co-design the summer use of streets using AI.

Figure 4.8. The Pollinator Highway in AR



Source: https://bgreen-handbook.eu/case-study/digital-participation-in-tallinn-avalinn.

Another initiative using an immersive approach, but drawing on lessons from the private sector of potential value for governments, is Minecraft's 2022 AI Settlement Generation Challenge. This predictive virtual tool shows how technology may influence governments in the design of physical spaces in the future. The 2019 OPSI-MBRCGI Global Trends report first covered how Minecraft can be used for community-driven planning of public spaces with the Block by Block initiative. In leveraging increasingly powerful and accessible generative AI – where Machine Learning models create something entirely new, as with DALL-E – the competition "asks participants to build an AI that can generate realistic towns or villages in previously unseen locations". The resulting techniques may then be used by real-world city planners (Heaven, 2020[10]). The goal is to create techniques that can generate settlements that are adaptive, functional, aesthetically pleasing and narratively interesting.

Re-envisioning digital to align with collective values

Trend 1 discussed the importance of algorithmic accountability in the public sector as a means to ensure that AI systems increasingly playing a role in government decision making are transparent and fair. However, what if in addition the public could play a role in elaborating the policies that apply these algorithms in their community? The WeBuildAI participatory framework helps to show governments how such an approach could take shape (Box 4.5).

Box 4.5. WeBuildAI

WeBuildAI is a collaborative participative framework that allows individuals to create algorithmic policy for their communities. The framework's central premise is to allow stakeholders to build a computational model that reflects their perspectives and have those models act on their account to generate algorithmic policy.

In order to evaluate fairness and efficiency trade-offs, the WeBuildAI framework was applied to a matching algorithm that runs an on-demand food donation transportation service. Through a series of studies in which their views were explored, the service's stakeholders – donors, volunteers, beneficiary organisations and nonprofit employees – successfully used the framework to build the algorithm.

The framework enabled participants to create models that they believed to accurately represent their beliefs. Participatory algorithm design also enhanced procedural fairness and algorithmic distributive results, increased algorithmic awareness among participants and assisted in identifying discrepancies in human decision-making in the governing organisation. As such, WeBuildAI highlighted the viability, promises and challenges of including the community in algorithm creation.

Source: https://dl.acm.org/doi/abs/10.1145/3359283.

Efforts like WeBuildAI are part of a growing trend of more participatory approaches around data and AI, which have often lacked community engagement. To remedy this problem, researchers at Monash University in Australia have developed and tested "a participatory methodology to identify approaches to empowering community engagement in data governance" (Sharp et al., 2022[11]), with a view to empowering citizens and residents to engage in complex issues.

Also operating in this field, but with a scope extending beyond algorithms, the virtual Service Canada Labs invites the public to explore digital services in progress and to test experimental ideas with public servants in order to create inclusive services that meet the needs of all Canadians. Uniquely, it presents early work and encourages people of diverse backgrounds to participate in user research by trying new technologies and providing anonymous feedback, allowing for the building of open dialogue. Projects include services around having a child, and a virtual assistant designed to help users apply for benefits.

By zooming in from national AI strategies, these approaches help to strengthen participatory aspects of AI Localism, "the actions taken by local decision-makers to address the use of AI within a city or community", often emerging "because of gaps left by incomplete state, national or global governance frameworks" (Verhulst and Sloane, 2020[12]). Bringing these concepts together helps to align the tangible implementation of algorithms and AI systems with the values of the community and its people. NYU's GovLab maintains a repository of projects applying AI Localism principles, including many focused on participation and engagement. In addition, a number of principles can help local governments take a systems approach to AI localism and build an associated framework. These include: "principles provide a North Star for governance", "public engagement provides a social license", "innovate in how transparency is provided" and "use procurement to shape responsible AI markets", among others (Verhulst, 2022[13]). The support of the London Office of Technology Innovation (LOTI) for the co-creation of a Data Charter with residents of Camden represents a good example of this approach.

A number of grassroots efforts have also taken shape yielding valuable insights for governments. One interesting example identified by OPSI and the MBRCGI is the non-profit Promising Trouble, "an experiment in redistributing power: sharing knowledge, capabilities, and connectivity to build community-driven alternatives to Big Tech and platform power". As stated on the Promising Trouble website, "rather than relying on innovation to trickle down from governments or big business, we believe it's possible for

communities to shape and change technology so it works better for everyone." Core activities include the creation of a Community Tech Fellowship for building "community intelligence" using digital means to tackle complex "wicked problems", and the development of a Digital Policy Lab for UK charities that work with refugees.

Efforts are just starting to emerge in this space and will continue to strengthen in the near-term, giving the public a voice in shaping digital approaches and virtual spaces.

Cross-cutting approaches and resources

Governments and their partners have developed a number of initiatives and frameworks to help leverage the ideas of citizens and residents in ways that can accelerate human-centred change in systemic and cross-cutting ways to transform both the physical and the virtual environment. An excellent example is the Framework for Open Civic Design produced by researchers in the United States, which seeks to move beyond one-size-fits-all models by recognising challenges faced by citizens in participation. The Framework aims to provide "accessible, flexible, and meaningful ways to engage" that bring together the fields of public participation, crowdsourcing and design thinking (Reynante, Dow and Mahyar, 2021[14]). Also in the United States, the government's Federal Crowdsourcing and Citizen Science Toolkit provides a five-step process for carrying out projects.

An example of a more applied initiative within a national government is France's Citizen Initiative Accelerator, which is helping to manifest citizen ideas as reality (Box 4.6).

Box 4.6. Citizen Initiative Accelerator (France)

Launched by President Emmanuel Macron at the Open Government Partnership (OGP) Summit in 2021, the Citizen Initiative Accelerator (AIC) supports citizen-led projects that serve the public good. After being screened by public administration representatives and a panel of citizens, the selected projects benefit from six-month, tailor-made support, co-ordinated by one referral person in the administration, to accelerate their development. This unique programme promotes new modes of co-operation between the state and civil society in order to achieve what has been called "augmented public service delivery".

The AIC is one of a cohort of selected initiatives entering the acceleration phase in April 2022, and is therefore experimental, both in terms of its objectives and its operation. Its success in regularly welcoming new project promotions and expanding the number of projects implies structuring and running the programme from start to finish. This requires planning and the provision of adequate resources. For this, the mobilisation of referral persons in the administrations is essential. Indeed, this process will only be sustainable if the project is recognised and valued.

In order to ensure that the winning projects continue to develop their activities beyond the six-month support period, feedback sessions with each project and the involved partners are being set up. Furthermore, a community will be created around the AIC to bring together winning projects, administrative referents and all actors in the ecosystem. Finally, a monitoring and evaluation system is being set up in partnership with social and political science researchers, and will be active in the first half of 2023. This will add a reflective and evaluative dimension to the system and ensure that project impacts are properly measured and recognised.

Source: https://oecd-opsi.org/innovations/citizen-initiative-accelerator.

Many additional relevant resources can be found on OPSI's Toolkit Navigator, which catalogues hundreds of toolkits and resources, including in relevant areas of open government.

Case Study: #FreetownTheTreeTown (Freetown, Sierra Leone)

In Freetown, heavy rains coupled with deforestation have resulted in devastating landslides, including a disastrous one in 2017 which claimed nearly 1 000 lives. In 2020, the Freetown City Council decided to address this risk by launching #FreetownTheTreeTown, an initiative that aims to increase the city's green space and vegetation cover. With the involvement of the local community, the city aimed at planting, growing and tracking 1 million trees and restoring 3 000 hectares of land, sequestering approximately 69 000 tonnes of CO_2. The initiative uses innovative, disruptive, low-cost digital technology for tree-tracking. It also creates new jobs for women and young people in green sectors as every tree has been assigned a unique identification code that can be transformed into "impact tokens" and sold as carbon offsets.

Problem

Each year, more than 100 000 people in search of employment move to Freetown, and the urban fringes continue to push deeper into the steep forest expanses outside the city. This trend worsens the alarming levels of deforestation in Sierra Leone, one of the countries most in danger from climate change. As a result of these phenomena, an equivalent of 12% of total canopy in the area has been lost per year between 2011 and 2018. Loss of tree canopy directly affects catchment areas for water reserves and, in combination with heavy rains, also exacerbates the risks of landslides, flooding and coastal erosion. Furthermore, loss of tree and vegetation cover also threatens biodiversity.

The challenges posed by current environmental challenges are exacerbated by people's reluctance to invest in public goods. Even at the community level, the costs of environmental problems are diffused across the whole community, and no one wants to invest the necessary time and resources to solve them. Unless citizens and residents develop ownership of these problems, deforestation and global warming will worsen and, areas such as Sierra Leone could become inhabitable.

An innovative solution

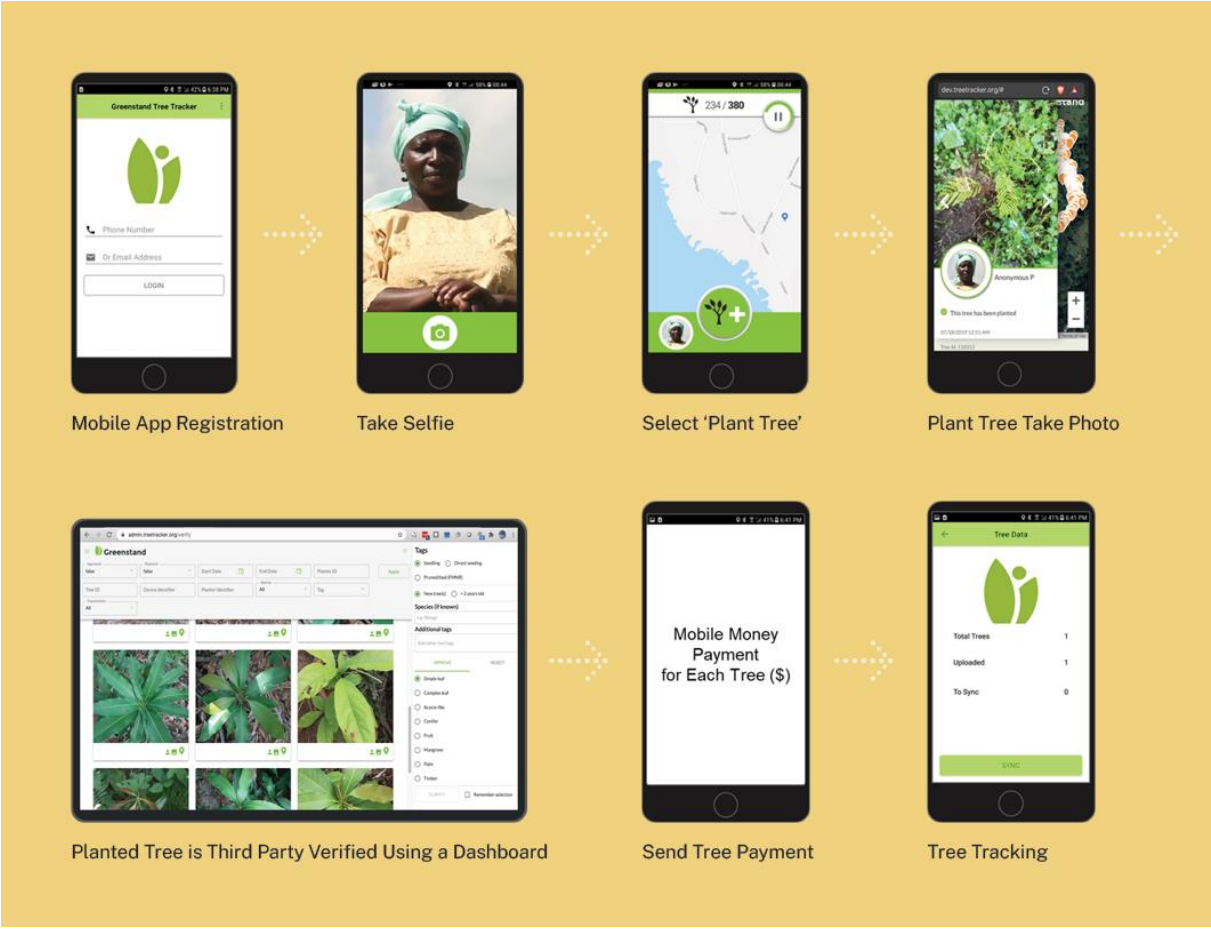
Against a backdrop of rapid urbanisation and alarming deforestation, the Freetown City Council evolved a plan to plant and grow 1 million trees by 2022 – an effort that would increase the city's vegetation cover by 50%. After over 400 meetings organised to engage citizens and encourage them to voice their needs, the City Council developed #FreetownTheTreeTown. Recognising that addressing deforestation was a priority and that developing ownership was essential to combat this threat, the innovative project harnesses digital and disruptive technology to create employment opportunities, providing eco-friendly alternatives to working in dangerous and environmentally damaging industries like mining. Furthermore, by incentivising people to plant trees, it also helps establish long-term climate resilience for the community. For instance, the campaign provides ecosystem benefits including reduced heat stress, improved air and water quality, and reduced flooding and landslide risks.

Freetown City Council has partnered with Environmental Foundation for Africa (EFA), the NGO responsible for implementing the tree planting. The Freetown City Council and EFA are working closely with neighbouring Western Area Rural District Council, and with Greenstand, a nonprofit that develops open-source technology to manage environmental goods and services. Thanks to this collaboration and funding from the World Bank, the TreeTracker app was developed. The app allows members of the community of Freetown to register as planters of trees. After planting a tree in a location decided collectively, members can create a unique geotagged record, or ID, for each new tree, which is verified with a photo. Growers

revisit each tree they "own" periodically, to water and maintain them, and document the plant's survival. In return for their efforts, they receive micropayments.

Thanks to this model (Figure 4.9), citizens and residents of Freetown have implemented community ownership across the entire tree-growing project chain. To secure the sustainability of the project, even in the absence of external funding, tree IDs can be turned into "impact tokens", making members of the community of Freetown the owners of specific trees. This allows participants to buy and sell trees to other participants as well as to external actors as carbon offsets. Doing so allows firms to compensate their own CO_2 emissions while financing tree planters who earn a living by participating in this project.

Figure 4.9. How #FreetownTheTreeTown works



Source: https://blogs.worldbank.org/sustainablecities/freetownthetreetown-campaign-using-digital-tools-encourage-tree-cultivation.

Novelty

The #FreetownTheTreeTown project is a unique tree-planting initiative that actively involves citizens and residents in mitigating deforestation. Communities are not only involved in planting but also in growing and maintaining the trees. The main innovation of this project is its business model which makes it possible to reward citizens for their investment of time and effort in planting tree, overcoming the free-riding problem that generally affects projects that tackle climate change, and making the initiative sustainable without public funding.

Results and impact

Since 2020, Freetown has planted more than 560 000 trees in climate-vulnerable areas, covering 578 hectares of urban land and benefiting 300+ communities. The initiative has created over 1 200 jobs especially for marginalised, vulnerable and underemployed women and young people, 80% of which went to young people, including 44% to women. The project has also sold more than 5 000 tree "impact tokens", and the revenue of these will provide financing to plant and grow an additional 5 000 trees during the next phase.

This innovation is effectively raising community awareness of the importance of reforestation for reducing climate-related disasters. The city recognises that 1 million trees will not meet the challenge of deforestation and climate breakdown in the city, and plans to plant an additional 4 million trees over the next ten years using the #FreetownTheTreeTown community-growing approach. These trees will be cultivated along major and secondary roads, around key water sources and other critical infrastructure, and within communities, neighbourhoods and public spaces. In particular, 50 000 mangrove trees will be planted to restore damaged coastal wetlands.

Challenges and lessons learned

The main challenges that affected the project have been acts of vandalism such as stealing and burning of trees, the illegal encroachment of land where tree were planted, and other natural conditions. Although the project is structured as a campaign, and great efforts have been made to communicate its importance and to support cultural change, these acts of violence still take place. To counter them, the project team identified one powerful solution: community engagement. Engaging with people, talking with them and investing time in the field has produced results. When acts of vandalism and burning take place in areas where people are highly involved in the project and are motivated, the damaged trees are rapidly restored. The project team acknowledges that such acts of violence are persistent, but explains that community engagement can help prevent them and decrease their impact. Furthermore, to protect trees from fires, the project team has developed fire breaks which are placed around trees after the area surrounding them has been cleared. This solution ensures that fires have a lower probability of damaging trees.

Replicability

This project is a particularly interesting innovation whose replication, in particular in the context of developing countries, would be highly beneficial. Although its success has been due in part to the financial investments of the Freetown City Council, the World Bank and the partnership with EFA, its business model has the potential to make the project financially sustainable and independent. Further evidence will be available in 2023, when funding from the World Bank ends.

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Global Trends in Government Innovation 2023

In the face of what has increasingly been referred to as an ongoing “permacrisis”, governments must cope with and respond to emerging threats while already grappling with longstanding issues such as climate change, digital disruption and low levels of trust. In this context, understanding new approaches and spreading successful ideas has never been more important. To promote this, the OECD Observatory of Public Sector Innovation (OPSI) has analysed 1 084 innovative initiatives from 94 countries to derive and understand novel government practices. The report discusses four key trends: 1) new forms of accountability for a new era of government, 2) new approaches to care, 3) new methods for preserving identities and strengthening equity and 4) new ways of engaging citizens and residents. Ten case studies and dozens of supporting examples illustrate these trends.

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