Embracing Innovation in Government

GLOBAL TRENDS 2020

OECD
BETTER POLICIES FOR BETTER LIVES

OPSI Observatory of Public Sector Innovation

مركز محمد بن راشد للابتكار الحكومي
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WORLD GOVERNMENT SUMMIT

Seamless Government

SEPTEMBER 2020

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OPSI Observatory of **Public Sector Innovation**

OPSI serves as a global forum for public sector innovation, helping governments to understand, test and embed new ways of doing things through the application of fresh insights, knowledge, tools and connections.

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MBRCGI works to stimulate and enrich the culture of innovation within government through the development of an integrated innovation framework. The goal is for innovation to become one of the key pillars of the UAE government with the aim of developing government operations and enhancing competitiveness to make the UAE one of the most innovative governments around the world.

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Introduction

The ongoing COVID-19 pandemic is an era-defining crisis that continues to unfold, capturing the attention of governments worldwide, who must grapple with its consequences for society, the economy and the future. In July, the OECD Observatory of Public Sector Innovation (OPSI) and the United Arab Emirates (UAE) Mohammed Bin Rashid Centre for Government Innovation (MBRCGI) issued a report detailing key themes and emerging practices for innovative responses to the crisis.[1] We will continue to monitor and analyse responses as the situation evolves, including through OPSI's COVID-19 Innovative Response Tracker.[2] While these efforts remain a key focus for governments, it is important to recognise the many other innovative actions that they are taking to better achieve their missions and build strong foundations for addressing present and future challenges.

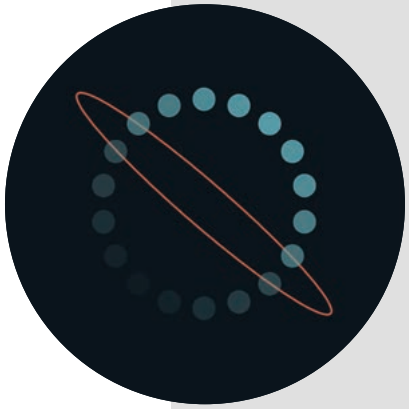
As if coping with the COVID-19 crisis was not enough, governments must also deal with accelerating technological shifts that are fundamentally changing the ways in which people live and interact with government. This ever-growing and interconnected ecosystem of citizens and other stakeholders is demanding more of government and expecting better performance, resulting in increasingly complex and unpredictable challenges and future scenarios. In the face of such challenges, governments need to understand, test and embed new ways of doing things. As part of the MENA-OECD Governance Programme,[3] OPSI and the MBRCGI have spent much of the last year working to understand how governments are confronting this challenge. We have conducted extensive research, held a global Call for Innovations crowdsourcing exercise,[4] and met with innovative teams from around the world to surface key trends, examples and stories (Figure 1).

Figure 1: Surfacing and publishing trends and cases

Through this work, OPSI and the MBRCGI have found that governments are testing and implementing exciting and innovative new approaches, transforming the ways in which they operate and serve their people. We have identified several global innovations that add to those covered in July's report, and build upon and demonstrate the evolution of some remarkable efforts detailed in our previous Global Trends series of reports.[5] We are publishing reports on this series of 2020 trends, culminating in the launch of the final report at a two-day OPSI virtual event Government After Shock: An Unconventional Event for Unconventional Times on 17-18 November 2020.[6] All innovators are invited to participate.

1. All 2020 Global Trends reports and an accompanying digital story can be found at https://trends.oecd-opsi.org.
2. https://oe.cd/covidtracker.
3. https://oe.cd/mena-gov.
4. https://oe.cd/innovation2020.
5. The reports for 2017-19 are available at https://oe.cd/innovationtrends.
6. https://oe.cd/gov-after-shock.

The second trend in this series is **seamless government**. Research and analysis undertaken by OPSI and the MBRCGI reveal that the most innovative countries and cities are taking action to eliminate points of friction between governments and those that they serve. This approach enables them to re-imagine the ways in which governments can collaborate and consider future scenarios. Three key themes are driving efforts in this area:

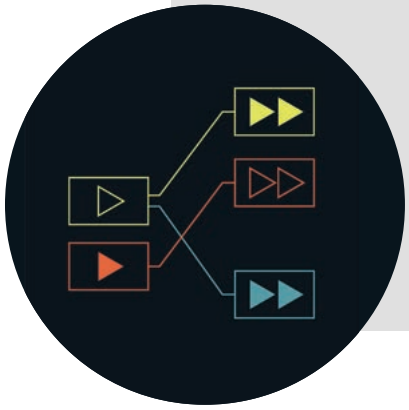


01 : Invisible government

Shifting from making government an ever-present factor in people's lives to building proactive and automated services.

02 : Matrixed government

Making bureaucratic and sectoral boundaries permeable and bringing together different pieces of society in order to work together to achieve goals.



03 : Anticipatory government

Exploring scenarios and taking action today to actively shape tomorrow.

These themes and real-world examples and case studies are discussed in this report. Many of the examples are also available on OPSI's Case Study Platform.[7]

Ministry of Possibilities

UAE

A virtual ministry that seeks to incubate and solve the "systemic impossibilities" of government by bringing together individuals from across government to form experimental "time-bound departments", to develop transformative solutions that fully replace existing practices and make government more seamless and proactive.

Intellectual Property Global Artificial Intelligence Network

AUSTRALIA

A fledgling international marketplace for global access to AI tools for the niche but critical IP community. It seeks to build a collaborative ecosystem that will help government stay informed on the latest technical possibilities to leverage shared technology to achieve common goals.

Scenario Exploration System

EUROPEAN COMMISSION

A future simulation game to facilitate the application of anticipatory and futures thinking to policy making where participants explore long-term objectives against scenarios and consider the needs of various stakeholders in order to create a realistic journey towards the future.

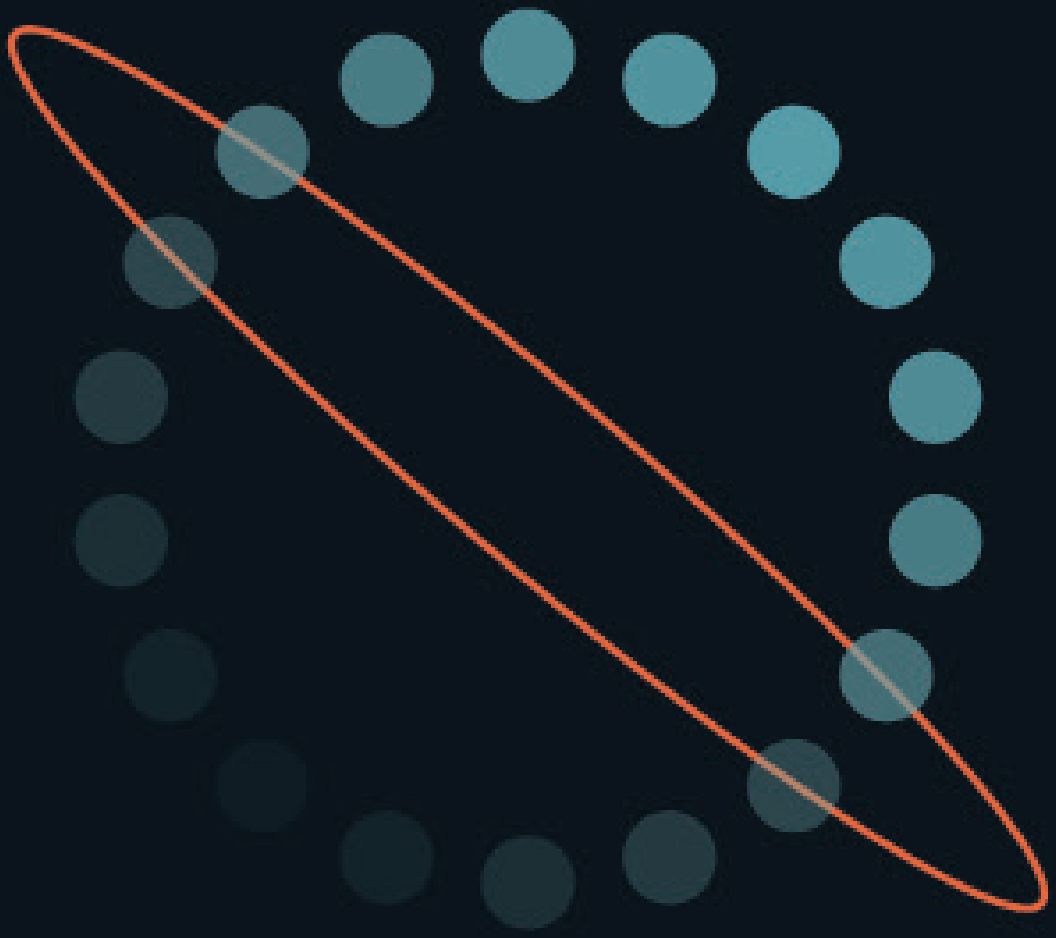
OPSI and the MBRCGI celebrate these efforts and hope they can inspire others to take action and replicate their success. Achieving seamless government is also critical in moving towards recovery from the COVID-19 pandemic and building resilient and prepared communities. OPSI and the MBRCGI have three key recommendations to help governments achieve this goal, as detailed in the rest of this report:

1. Understand the needs of individuals and businesses, and re-orient services to match.
2. Consider all relevant ecosystem actors and build conduits for communication and collaboration.
3. Build up capacities for anticipatory innovation to more actively shape future options.

7. https://oecd-opsi.org/innovations.

KEY THEME 01

Invisible government



"The best service is something that you didn't even notice you got."

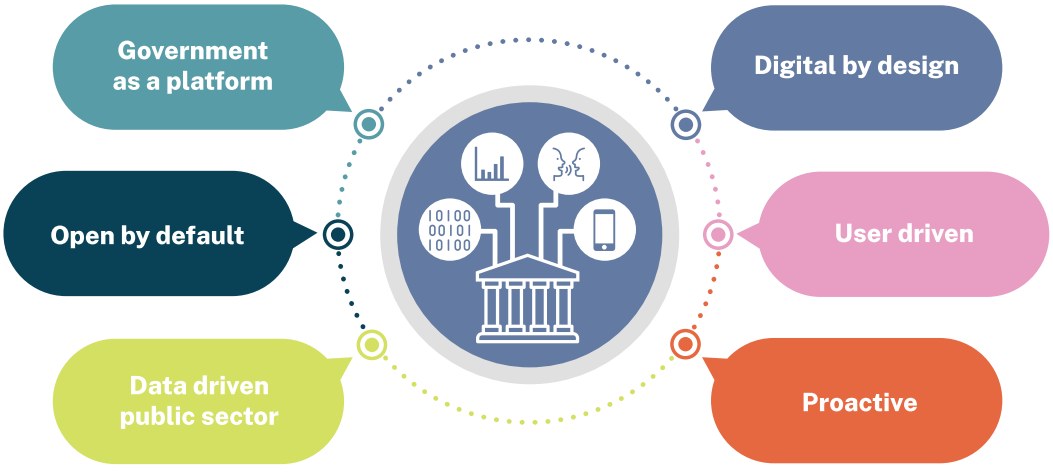
– Marten Kaevats, National Digital Advisor, Government of Estonia (Rohaidi, 2019a)

For years, governments have focused on making government more transparent to the public in order to foster trust and fuel innovation. However, last year's Global Trends report[8] identified a new trend, "Invisible to Visible", referring to governments taking action to render the perspectives and insights of their people more visible. Such actions better equip policy makers to make decisions that affect their citizens.

Recent years have also seen an increasing shift towards "invisible government".[9] Governments have long structured their services in ways that place much of the burden on citizens and businesses, however innovative governments are now re-orienting holistic services around users. The use of proactive and often automated services is creating an environment where people do not need to take action at all. There are many potential advantages to such an approach, but also some drawbacks to consider.

While not all innovation is digital, many of the sub-themes in this area are enabled by technology and underpinned by mature digital government strategies and initiatives. The OECD's forthcoming Digital Government Policy Framework (DGPF) provides six key dimensions that characterise a fully digital government (Figure 2).

Figure 2: The OECD Digital Government Policy Framework



Source: Based on OECD (2014), Recommendation of the Council on Digital Government Strategies; OECD (forthcoming) Digital Government Policy Framework.

8 https://trends2019.oecd-opsi.org.

9 Not to be confused with the conspiracy theory of the same name: https://en.wikipedia.org/wiki/Shadow_government_(conspiracy).

Proactive services triggered by life events

The evolution of invisible government is based on the development of proactive public services that require little to no action by the user. Such services eliminate burden and confusion for citizens and businesses, who can now obtain services without dealing with bureaucracy, as well as for governments, who can shift from processing applications and handling customer service inquiries to higher-value work. An early iteration of this approach is the pre-completed tax declarations offered by countries such as Germany[10] and Portugal.[11] Data from multiple sources are aggregated to provide citizens with automatically completed tax returns, eliminating one of the most infamously burdensome processes in government.

The latest evolution of proactive services is built around life events. The Government of Estonia has pioneered advances in this area, launching an action plan for proactive life event services which argues that traditional services are often fragmented, duplicative and inconsistent across government. Estonia has set a target to implement seven life event services by the end of 2020,[12] which will be automatically and proactively offered to citizens. The government is mapping each "AS-IS" service and process, and developing "TO-BE" roadmaps for their operation. An "event service" compiles several services related to the same event into a single experience for the user. The first, related to having a child, was implemented in October 2019 (see Box 1).[13] Proactive services for the death of a relative, getting married, retirement and entering military service are next in line, with more planned for the future.

Box 1: "Having a child" life event services in Estonia

There are 12 public services related to having a child, ranging from the registration of the pregnancy to family benefits provided by 7 different public sector organisations. Application for most of these services is traditionally done only after birth, when parents need to devote most time to their new-born child.

Estonia is bringing together all involved authorities to provide a more integrated and automated solution. Once the birth is registered, the system automatically checks other information systems (e.g. income and employment situation) to calculate available benefits, and then emails the parents to congratulate them and provide the information. The parents can accept or reject the benefits offered through a self-service portal.

Source: https://oecd-opsi.org/innovations/child-life-event/.

Singapore is also proactively redesigning its services around life events (Ho, 2020). The Moments of Life app[14] provides a suite of life event services created by integrating and bundling services across government agencies (see Figure 3). In April 2020, a special COVID-19 Curated Guide was launched to provide tailored information and resources. In New Zealand, the SmartStart[15] and End of Life[16] service applications inform people about available services. Portugal has taken its first steps with the creation of the Death and Bereavement Service, which consolidates several services taking away some of the burden at a difficult time (European Commission, 2019a).[17] The United Kingdom is shifting from a reactive model to one that is more "proactive, low-friction, channel-agnostic and more rapidly iterating" as part of "the next big phase of GOV.UK" (Allum, 2019).

10 https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/2019/07/31/German+pre-filled+tax+return.

11 www.portaldasfinancas.gov.pt/pt/home.action.

12 https://oecd-opsi.org/innovations/proactive-family-benefits/.

13 https://oecd-opsi.org/innovations/child-life-event/.

14 https://www.life.gov.sg/.

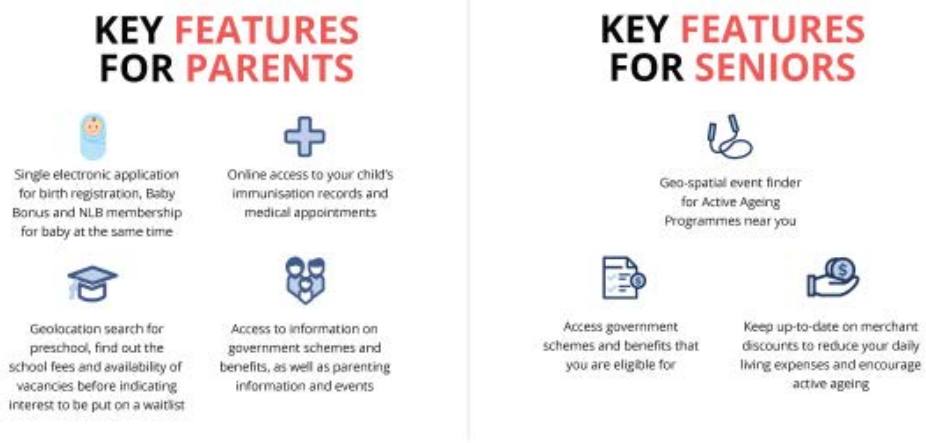
15 https://smartstart.services.govt.nz.

16 https://endoflife.services.govt.nz.

17 See https://youtu.be/1bZDrPriK6c for a video discussing the service, as well as the research, design and prototyping undertaken by Portugal for its development.

Such services can even prompt life events. For instance, the Government of Korea has developed "The Work", a service that automatically compares job seeker profiles with the national jobs platform and proactively prompts users to apply for solid matches.[18]

Figure 3: Key features for Moments of Life



Source: https://www.life.gov.sg/.

Some governments are developing special departments charged with catalysing this shift. The UAE has created an experimental Department of Proactive Services as part of its new Ministry of Possibilities to experiment with proactive, life-event-focused services that can be incubated and scaled across government (see the case study on the Ministry of Possibilities at the end of this section). Another example is found in Finland, where the AuroraAI National AI Programme represents part of the country's ambitious national AI strategy, which seeks to re-orient the provision of services around citizens and businesses by combining data from multiple domains and building a network of user-focused AI applications that provide proactive services around life and business event.[19]

Such proactive services rely on a number of factors for their success. For instance, governments cannot orient services around their citizens, residents and businesses unless they possess a strong understanding of their needs.[20] This matches the user-driven dimension of the Digital Government Policy Framework. A certain level of digital maturity and data governance capacity are also important to align with the digital by design and data-driven public sector dimensions. For instance, Estonian officials, in the case study submitted to OPSI, report that collating data from multiple sources to reorient approaches around individuals requires digital maturity across government, including a critical number of digitalised services. Different governments have reached varying levels of digital maturity. The OECD's Digital Government Index (see Figure 4) helps to quantify these levels by measuring country results for the dimensions of the OECD Digital Government Policy Framework.[21]

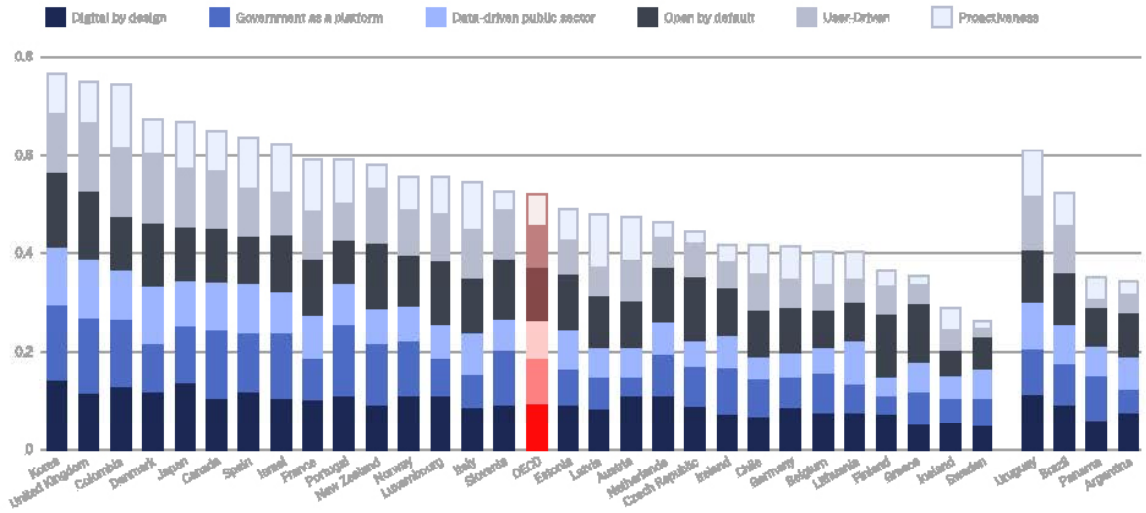
18 https://oe.cd/thework.

19 See full case study in OPSI's report *Hello, World: Artificial Intelligence and its Use in the Public Sector* (https://oe.cd/helloworld).

20 See https://oe.cd/svcdesign for service design toolkits and methods from OPSI's Toolkit Navigator.

21 The OECD Digital Government and Data Unit works with governments to explore how they can best use information and communications technologies (ICTs) to embrace good government principles and achieve policy goals. Their work is guided by the OECD Recommendation on Digital Government Strategies: https://oe.cd/diggovstrategies. The Digital Government Policy Framework (forthcoming), Digital Government Index (forthcoming), and other research and findings on how to support digital transformation efforts like these can be found at https://oe.cd/digitalgov.

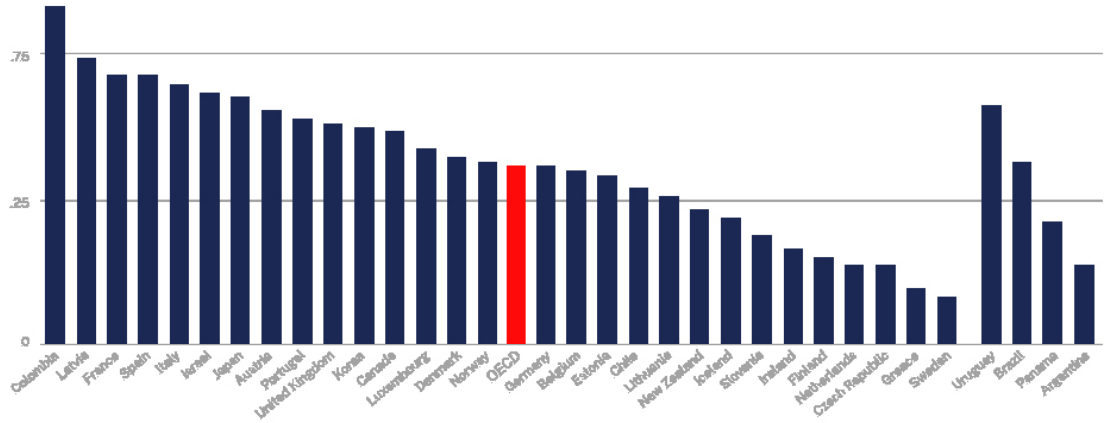
Figure 4: The OECD Digital Government Index composite results



Note: Data are not available for Australia, Hungary, Mexico, Poland, Slovakia, Switzerland, Turkey and the United States.
Source: OECD Survey on Digital Government 1.0; OECD Digital Government Index (forthcoming).

Interestingly, out of these six dimensions, "proactiveness" is among the lowest (see Figure 5 for proactiveness scores). The OECD (forthcoming) has found that two aspects which may contribute to this result are low levels of engagement among external experts at some stage of the policy cycle and low availability of training for public servants on the use of digital tools for public engagement. While proactive services are a clear innovation trend, these results indicate that further work is needed before they can become more mainstream.

Figure 5: Results in proactiveness dimension



Note: Data are not available for Australia, Hungary, Mexico, Poland, Slovakia, Switzerland, Turkey and the United States.
Source: OECD Survey on Digital Government 1.0; OECD Digital Government Index (forthcoming).

In addition to digital maturity and understanding user needs, success is dependent on political support and a legal framework that allows for this type of data exchange, as emphasised by Estonia.[22] The UK government is in accordance with the need for digital maturity and seamless data sharing, and has also underlined the importance of user awareness and consent (Allum, 2019). Data maturity and policies for data ethics are key in this regard, as some may view data-driven proactive approaches as indicative of a "surveillance state", even if well intentioned (OECD, 2019a). Through international collaboration, the OECD (2019a) has developed proposed ethical guidelines to encourage collaboration among public servants to ensure appropriate use of data and ethical practices, and to maintain consistency of conduct and trust.[23]

22 These factors are documented at https://oe.cd/child-event. Estonia's government data exchange network, X-Road, is well-documented and open source, and can be accessed at https://x-road.global.

23 These proposed data ethics guidelines were developed collaboratively by the OECD Working Party of Senior Digital Government Officials and its Thematic Group on the Data-Driven Public Sector.

Finally, many of these services then use these data to enable sophisticated data analytics and artificial intelligence (AI) algorithms. AI-enabled digital services represent an immense and rapidly expanding body of work that when used in a responsible manner, hold incredible promise to transform government for the better. However, they also present many considerations for government, including questions of sticky bias and ethics. Although a full analysis of these issues is beyond the scope of this report, the OPSI publication *Hello, World: Artificial Intelligence and its Use in the Public Sector*[24] has been published to help government officials understand AI and navigate considerations specific to the public sector. The OECD has also launched an AI Policy Observatory,[25] and its member states have agreed upon a number of principles[26] for trustworthy AI that governments can use to help inform their service design and development.

Automated assistants and services

Government have also developed other types of innovative services that require minimal or virtual interaction. User-centred research by the Government of New Zealand revealed that citizens wanted to be able to obtain help and conduct transactions through conversational services, regardless of whether this was with a human or a machine (Andrews, 2019). To this end, a number of governments have built chatbots to fill this need.[27] Innovative governments have also adopted conversational virtual assistants (e.g. Apple's Siri and Amazon's Alexa) to help provide people with relevant information and automated public services.[28] There is tremendous potential for such innovations, as half of all searches are expected to be made through voice-assisted technology by the end of 2020 (Department of Health and Social Care, 2019).

The services offered by automated assistants are often provided by third parties leveraging government information. This set-up is an essential component of "government as a platform", a goal pursued by governments over the last decade or so (O'Reilly, 2010), and now a key dimension of the Digital Government Policy Framework (OECD, forthcoming). This shift from governments providing services directly to subcontracting to third-party channels represents a different approach, and necessitates governments relinquishing some control. Being "channel agnostic" (Allum, 2019) in this sense may point the way towards the next generation of government services. In the words of Jen Allum, Head of GOV.UK, "teams in government … are producing services and information that are already being consumed predominantly on mobile – and may soon be consumed by channels we haven't even thought of yet." This requires governments to secure the access to and sharing of data in ways that allow them to be consumed, used and re-used by external platforms with which the public are already familiar, rather than forcing citizens to use government channels.[29] Fortunately, many governments have made great advancements in this area through open government data (OGD) policies and initiatives (see Figure 6), often including building real-time application programming interfaces (APIs), which are key enablers of these types of services (OECD, 2020a). These type of initiatives are also key aspects of the "open by default" and "data-driven public sector" dimensions of the Digital Government Policy Framework.

24 https://oe.cd/helloworld.

25 https://oecd.ai.

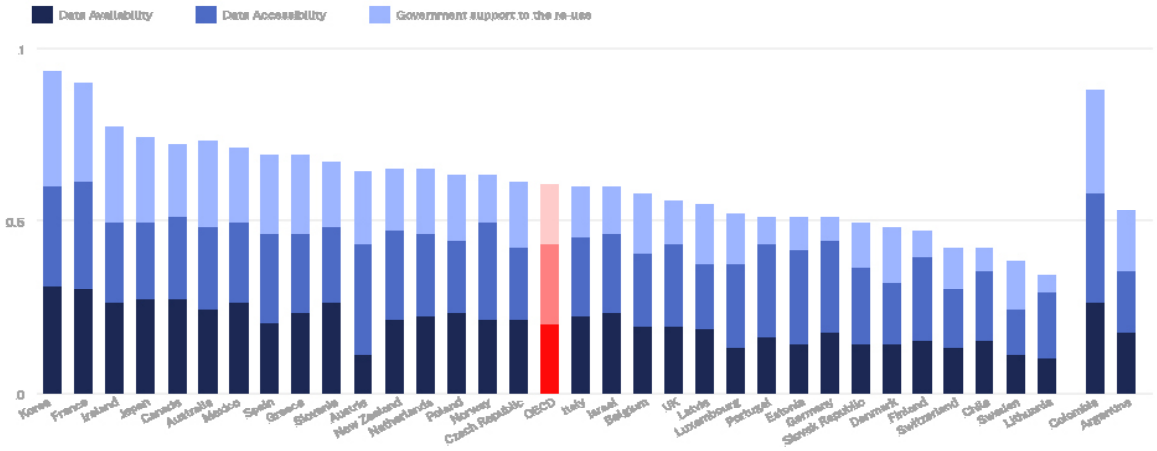
26 https://oecd.ai/ai-principles.

27 A number of these chatbots were discussed in OPSI's Global Trends report on Innovative Responses to the COVID-19 Crisis (https://trends.oecd-opsi.org).

28 The Centre for Data Ethics and Innovation (CDEI) paper *Smart Speakers and Voice Assistants* provides an overview of the technology and its potential uses and implications: https://bit.ly/3fboZLa.

29 The UK.GOV blog at https://gds.blog.gov.uk/2018/08/23/hey-gov-uk-what-are-you-doing-about-voice provides useful information on how automated assistants produce responses and how governments can optimise data to facilitate this process.

Figure 6: OECD open, useful and reusable data (OURdata) Index, 2019



Source: OECD Open Government Data survey 2018. Note: Data are not available for Hungary, Iceland, Turkey and the United States.

A number of these types of innovative services have been implemented. For instance, the United States has enabled Amazon Alexa to correct misinformation about the country's census (O'Sullivan, 2019). In another example, as part of its national AI strategy #KrattAI,[30] Estonia is creating a network of public sector bots that will enable virtual assistants to tap into existing digital services to provide information and guide users (Flinders, 2020; Sikkut, Velsberg and Vaher, 2020). The virtual assistant could, for example, proactively inform a citizen that their passport is about to expire and offer to help them apply for a new one. Subnational governments are early adopters of this technology. For example, the state of Utah in the United States has enabled virtual assistants to help residents learn about driver's license testing and to obtain other important state information.[31] At the city level, Las Vegas residents can request updates about the status of permit applications or election dates, among other things (Quaintance, 2017).

Some of the most pronounced examples of such invisible government services are found in the healthcare sector. The UK's National Healthcare Service (NHS) is experimenting with virtual assistants that can interact with citizens, make initial observations about their wellbeing, and provide them with advice on a number of matters, such as whether they should visit a physical clinic (Rohaidi, 2019b). In some other countries these clinics are being automated, as shown in the example in Box 2.

Box 2: Ping An Good Doctor (China)

China is facing a severe shortage of doctors. The private company Ping An Good Doctor is helping to address this shortage through a growing system of unstaffed clinics that use the AI system "One-minute Clinics". The small kiosk clinics are available 24/7 and can provide online consultations for over 2 000 common diseases, respond to thousands of medical enquiries, and dispense over 100 common drugs. During a consultation, a patient interacts with an AI Doctor, which collects symptoms and provides an initial diagnosis. The system then connects to a human doctor to quickly verify and approve a final course of treatment. Ping An Good Doctor partners with local governments, and plans to build hundreds of thousands of automated clinics across China over the next several years. In addition, the ongoing COVID-19 crisis has underlined the important contribution of such non-contact medical services.

Source: https://bit.ly/2XciGAU,
https://www.mobihealthnews.com/content/ping-good-doctor-showcases-ai-powered-unstaffed-clinics
http://www.pagd.net/newsPage/newDetail/2-8-7 *(image).*

30 https://interestingengineering.com/krattai-estonias-national-artificial-intelligence-strategy.

31 https://www.utah.gov/digital/assistants.html.

Such innovative automated services are being used increasingly by governments. One example from another sector is Dubai's "cop-less police station" in the UAE. Residents can use the system to register criminal reports, request certificates and permits, and so on. Dubai Police estimates that the service has the potential to reduce station visitors by 80%, allowing police to focus on the most serious issues (Khaleej Times, 2018).[32]

While these automated features may provide valuable information and services to the public, the involvement of government may in fact be invisible to users. For instance, a user asking "How do I treat a migraine?" may trigger an automated query to a government API to obtain an answer (Department of Health and Social Care, 2019). Such invisibility is indeed a trend, and may have some drawbacks, as discussed later in this section.

Clearing a path for easier procurement

Public procurement is not always seen as a compelling topic, but does often represent the main point of contact (and friction) between government and the private sector. Accounting for an average of 29% of public spending and 12% of GDP (OECD, 2019b), public procurement has the power to influence or even create markets and can be a key tool to leverage innovation (OECD, 2017a) and realise broader policy objectives (e.g. sustainability) (OECD, 2015). The critical nature of public procurement, coupled with the need to ensure integrity, often leads to significant tensions and challenges (OECD, 2020b). Civil servants trying to do their jobs and businesses trying to offer goods and services often complain that procurement systems are broken or wildly burdensome. Innovative governments are working to transform these processes to simplify procurement processes while also ensuring that government remains a reliable and trustworthy steward of taxpayer funds.[33]

32 On the subject of licenses and permits, GovInsider has developed a useful guide to digitising licensing, which can make interactions with citizens and businesses more seamless. See https://govinsider.asia/innovation/download-the-govinsider-guide-to-digital-licensing.

33 While not focused on innovating to make procurement more seamless, governments are developing data analytics processes to enhance the integrity of procurement. OPSI's colleagues in the Public Sector Integrity Division recently issued *Analytics for Integrity: Data-driven Approaches for Enhancing Corruption and Fraud Risk Assessments* (https://oe.cd/analytics-integrity), which explores this topic in depth. While not a core focus of the report, OPSI believes that such analytics can assist in making procurement processes more frictionless and efficient between government and the private sector by removing the burden from low-risk transactions.

Obstacles caused by procurement can often be attributed to risk aversion and fear of making mistakes. To help address issues related to ICT technologies, the OECD has developed an ICT Commissioning Playbook to help governments shift to agile procurement.[34] A number of the "plays"–especially Play 3: Be agile, iterative and overcoming risk aversion. In real-world practice, one of the main ways that governments are achieving this is by creating safe spaces for experimentation to help civil servants try new approaches without fear, and in many cases, with fewer burdensome rules. For example, the United States has created a Procurement Innovation lab to lower barriers to entry for businesses.

Box 3: Procurement Innovation Lab (PIL) – United States

The Procurement Innovation Lab (PIL) experiments with innovative acquisition techniques across the entire Department of Homeland Security (DHS). The Lab provides a safe space to test new ideas, share lessons learned and promote best practices. It fosters cultural changes that promote innovation and managed risk-taking through a continuous feedback cycle. One of its key objectives is to lower barriers to entry for small, innovative, non-traditional contractors seeking to compete for business opportunities. To ensure a systems-wide perspective, the PIL includes an innovation advocate from each division of the DHS. The Lab also maintains a website with case studies to help spread innovation, as well as a dashboard on active projects.

Source: www.dhs.gov/pil

Some of the most recent and innovative actions to reduce procurement burden through safe spaces involve the creation of "sandboxes". This report covers the concept of sandboxes and the building of collaborative infrastructure (see Matrixed government), with one aim being to make government less of an ever-present aspect of doing business.

Through its Ministry of Possibilities, the UAE has created the experimental Department of Government Procurement, which works to develop solutions to replace traditional procurement processes in order to eliminate burden and make government procurement faster and more accessible, especially for SMEs (see case study at the end of this section).

Limitations and pitfalls to consider

"Invisible government" is a growing trend. However, while reduced burden and increased proactivity are admirable goals, there may be unintended consequences. In fact, some argue that invisibility in government services can be a "curse", and that once government is no longer associated with good public services, "we are at risk of forgetting what government is for–at all levels" and that the "consequences of this collective forgetfulness could be cataclysmic."[35] There is some evidence to back up these concerns. An Accenture survey of several advanced economies[36] found that one-third of citizens reported being unaware of any government digital services (Accenture, 2019), although it is likely that some of these individuals do in fact use these services but perhaps are unaware of government involvement. However, only the government is equipped and oriented to provide some services and address certain challenges. Furthermore, the COVID-19 crisis has underscored the critical role of the state–and the same will be true of future shocks.[37] It is important therefore that the public have an understanding of what government does and how it provides its services.

34 See https://playbook-ict-procurement.herokuapp.com.

35 www.wired.com/story/the-danger-of-invisible-government-deeds.

36 Australia, Germany, Singapore, the United Kingdom and the United States.

37 See https://oe.cd/covid-catalyst.

Better communications could help in this area. Without effective external communications and storytelling, people will not comprehend the importance of government work, or understand how it impacts lives. This dynamic is known to affect the level of trust citizens have in government (OECD, 2017b). Indeed, 56% of respondents to the Accenture survey stated that their trust in government would increase if the government better communicated how digital innovations can improve lives (Accenture, 2019). As public services become more invisible, communication will play an increasingly important role in helping people realise that the benefits and services they receive are connected to the government. This is not just a matter of conveying positive stories, however. Citizens and residents deserve transparent and timely communication and information because, in most cases, they have paid for the services with their taxes. It is therefore important that they know what they are receiving in return and are able to determine whether the services offered are fair. Otherwise, invisible services can create the impression that citizens are not receiving adequate attention from the state because they remove government action from their radar. Governments should also provide clear information on how they use these funds. One of OPSI's National Contact Points,[38] for example, suggests showing the actual costs of public healthcare procedures on bills (e.g. the cost of child birth or heart surgery). The same principle could apply for other services, proactive or otherwise.

In addition, automated services and assistants, while often more efficient and available, also remove the human element. Responses on the importance of this element are mixed, perhaps because such services are still new. For instance, New Zealand's user research found that people did not care significantly whether they were interacting with a human or a machine, while different studies have found that a human touch is important. This issue also exists in the private sector, where an estimated 59% of people "believe that companies have lost touch with the human element by focusing too much on technology" (Rutter, Yates and Ballantyne, 2019). This challenge is not yet fully understood, but as with many digital innovations, a critical factor is a solid understanding of people's needs. Without this, governments will not be able to determine what problems exist and how they can be addressed. The OECD Digital Government Policy Framework provides guidance in this area, while OPSI's Toolkit Navigator includes resources that can assist in this regard.[39] Other potential solutions involve ensuring that humans are available as needed through a "hybrid mix" of human-digital services, and enhancing communications efforts (as discussed above) (Rutter, Yates and Ballantyne, 2019).

Finally, as with the proactive services discussed earlier, many of these services rely on AI algorithms, and thus require careful attention to ensure they are designed and developed in an ethical and trustworthy way, as discussed above.

38 https://oe.cd/ncps.

39 https://oecd-opsi.org/toolkit-navigator/.

Ministry of Possibilities

United Arab Emirates (UAE)

KEY THEME 01: Case Study

“ The future brings challenges that require constant government restructuring. The word impossible does not exist in our dictionary. It is not part of our vision and will never be part of our future.”

– Sheikh Mohammed bin Rashid Al Maktoum, UAE Vice President and Prime Minister (UAE Cabinet, 2019)

To move the needle on its ambitious goals for 2021 and 2071[40] and make breakthroughs on persistent and wicked challenges, the UAE has launched the world’s first Ministry of Possibilities.[41] This “virtual” ministry, which has no minister of its own and is instead guided by the Cabinet of Ministers, brings together individuals from across government and from other sectors to design and develop transformative solutions. Each department gets up to one year to try completely new approaches, which have the potential to be scaled across government. All efforts are rooted in user-centred principles, with departments such as the Departments of Proactive and Government Procurement seeking to make government operations more seamless and practical.

40 See www.vision2021.ae and https://area2071.ae.

41 See https://mop.gov.ae.

Figure 7: HH Sheikh Mohamed adding the Ministry plaque on announcement day

Source: Ministry of Possibilities.

The problem

The UAE has established ambitious national goals for 2021 and 2071, the latter commemorating its 100-year anniversary as a country. On paper, the UAE is making great progress towards achieving these goals with steady improvement in its standing in international innovation metrics, such as the Global Innovation Index.[42] However, despite this progress, a number of persistent challenges affecting the country and its society remain. Some of the most difficult are those which government is in the unique position to address (e.g. public procurement, pension systems, public welfare, etc.). However, these critical challenges have yet to be addressed head-on, and some in government seem resigned to the fact that they may be impossible to fix completely.

A small team in the UAE government sought to determine why this "impossible" sentiment prevailed, and why more efforts were not being made to address these challenges directly. After engaging with teams and holding interviews across government, the team found that the most deep-rooted issues did not fall under a specific mandate. The issues were not the responsibility of a specific department; therefore, no one was accountable for their resolution. Individual ministries had their own mandates, and by extension, key measures of success. Civil servants and even government leaders felt they lacked the agency and the space to focus on bigger issues beyond their area of government.

42 https://www.globalinnovationindex.org.

An innovative solution

In order to move beyond this siloed thinking and aversion to things deemed impossible, and based on the team's findings, H.H. Sheikh Mohammed Bin Rashid Al Maktoum, UAE Vice President and Prime Minister, determined that a neutral space was needed – a space close enough to the core of government where it was not detached from the overall missions, but far enough from the centre to be removed from the politics, mandates, measures and traditional bureaucracies that limited bold and broad thinking. This thinking is well-aligned with OPSI's research on the primary facets of innovation,[43] which shows that when innovations have the potential to subvert existing paradigms, they do not cohabit well with existing reporting structures, processes and workflows, and therefore may need to be sheltered from core business and have their own autonomy and flexibility; otherwise, the pressures of tangible existing priorities are likely to cannibalise necessary resources.

In April 2019, the Government of the UAE created the Ministry of Possibilities as a "virtual ministry" (Box 4 for key terms) with a mission to incubate and solve the "systemic impossibilities of government". The Ministry brings together individuals from across government to form temporary, "time-bound departments" that seek to answer impossible questions with transformative solutions that have not yet been explored. The Ministry's work is centred around four mission pillars:

1. to **identify** impossibilities
2. to **incubate** virtual, time-bound departments/teams to solve and explore the impossibility
3. to **educate** and train individuals on the mindset of design and experimentation in government
4. to **inspire** other governments with the UAE's methodology of possibilities.

Box 4: Key characteristics of the Ministry

Virtual ministry

The Ministry has no minister of its own and is instead administered by the UAE's Cabinet of Ministers, with each different topic area led by the relevant cabinet minister. The Ministry is not established as a distinct entity alongside other ministries; rather, is exists as a decentralised body connected to all other relevant ministries, which allows it to leverage the different strengths and capabilities of talented individuals from different government offices and the private sector. To provide authority and accountability, the Ministry of Possibilities reports functionally to the Cabinet.

Time-bound departments

Time-bound departments are topic-oriented, newly formed government departments that can exist for a maximum of one year before their findings and lessons learned are either scaled up or terminated. Each time-bound department is led and championed by an existing minister in the cabinet, who selects a director for each department, as well as a decision-making leadership team consisting of key stakeholders who can come from within and across government, as well as from other sectors. Each department is appointed a "Possibility Advisor" from the central Ministry of Possibilities who serves as a coach (e.g. on topics such as user-centred design and capturing feedback) and helps to ensure that departmental actions are aligned with ministry pillars and values. The department also benefits from a fully fledged training programme on human-centred design throughout the incubation period.

Source: https://issuu.com/dccepublications/docs/ger2020_digital

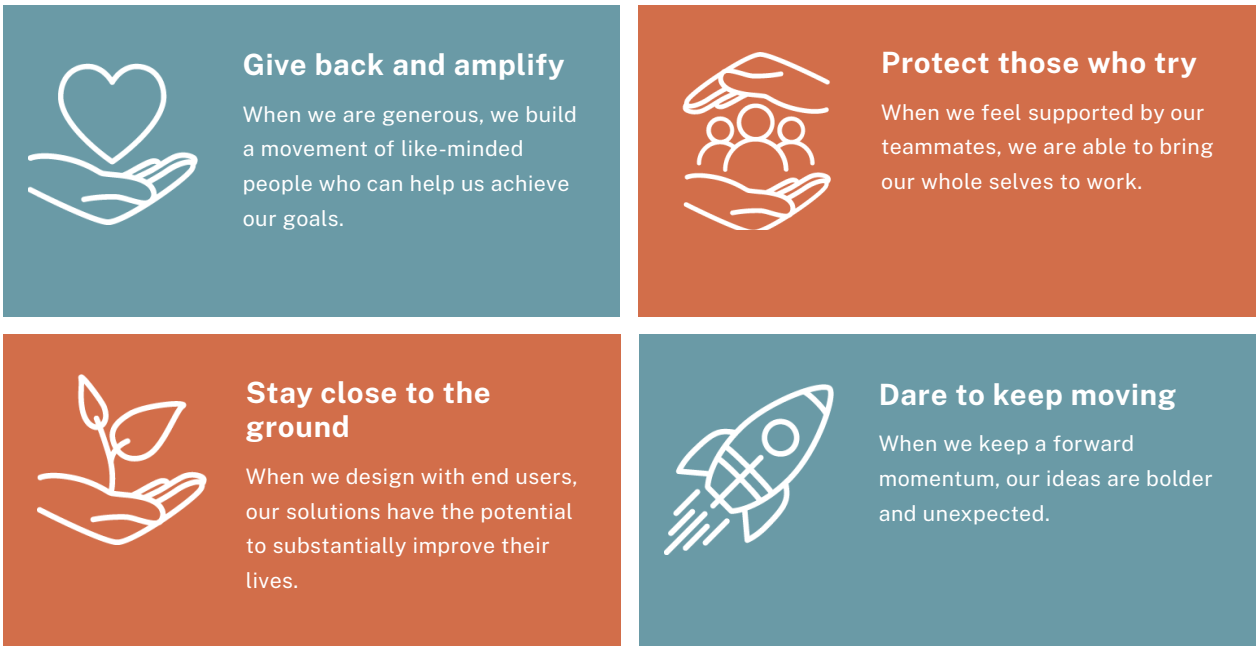
The underlying premise of these mission pillars is the ability to generate a new culture in government in which deeply entrenched challenges can be tackled effectively, resulting in the replacement of current existing systems with solutions explored, co-designed, prototyped and piloted with end users. The Ministry's roles include applying design and experimentation approaches to the development of proactive and disruptive solutions that tackle critical governmental issues, and bringing together officials from national and local governments on a seconded full-time or part-time basis.

43 https://oe.cd/innovationfacets.

To guide the Ministry, the Cabinet of Ministers[44] has developed a set of guiding values (see Figure 8) and created key criteria for the selection of projects (also called "impossibles") to become time-bound departments. Selected projects must:

- tangibly improve lives and have a direct impact on an end users
- relate to government
- disrupt an existing system
- be globally relevant.

Figure 8: Key values to protect teams and encourage sharing



Source: https://mop.gov.ae

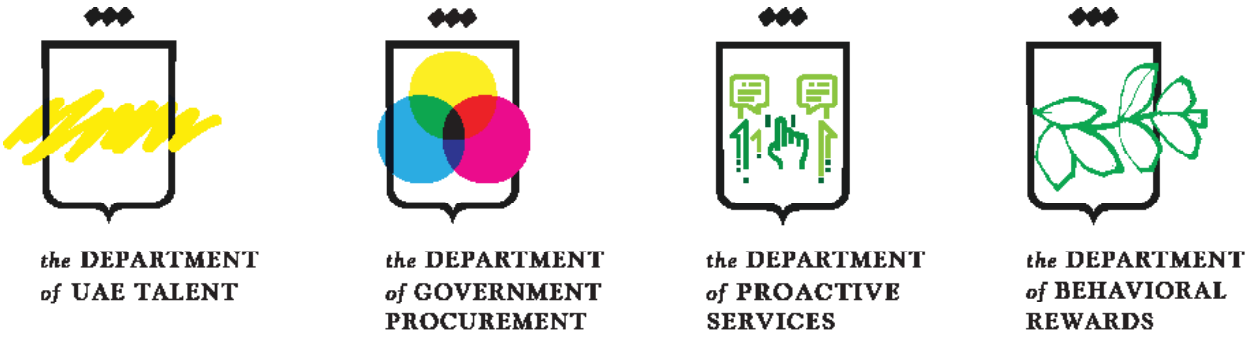
The Ministry of Possibilities sees focusing on time-bound departments as a way to experiment with a completely different model of governance. The departments provide a safe, permissible space to explore ways to tackle wicked problems in government. For its initial phase, the Ministry was launched with four initial time-bound departments:

- The **Department of Proactive Services** aims to redefine customers' experiences of public services by anticipating needs and initiating service offerings before they are demanded. The team is evaluating various types of customers and their service needs through every phase of life and working with them to redesign holistic experiences. This department is perhaps the most connected to the theme of Invisible Government, and has focused on several key life events, including getting married, having a child and starting a business.
- The **Department of Behavioural Rewards** aims to shift away from punitive rules towards an approach that incentivises positive behaviour. This could take the form of a point-based rewards system that can be used to pay for government services. The team is exploring several areas to test their ideas, guided by the themes of individual empowerment, family support, community interaction, economic growth and patriotism.
- The **Department of Government Procurement** aims to improve the government procurement experience for both product and service providers, as well as government entities. The department is focused on developing a user-friendly, digitally advanced procurement platform, which will increase the ease of transacting and the engagement of SMEs, thereby heightening competitiveness and maximising cost efficiencies.

44 https://uaecabinet.ae/en.

» The **Department of UAE Talent** aims to empower all citizens to be part of the country's development and future design. The team is focused on creating mechanisms to identify, nurture and appropriately channel every individuals' talents to ensure all citizens can determine their purpose and make a positive contribution. This includes working to instil new skills and capabilities among the country's youth and creating a sustainable pipeline of leaders.

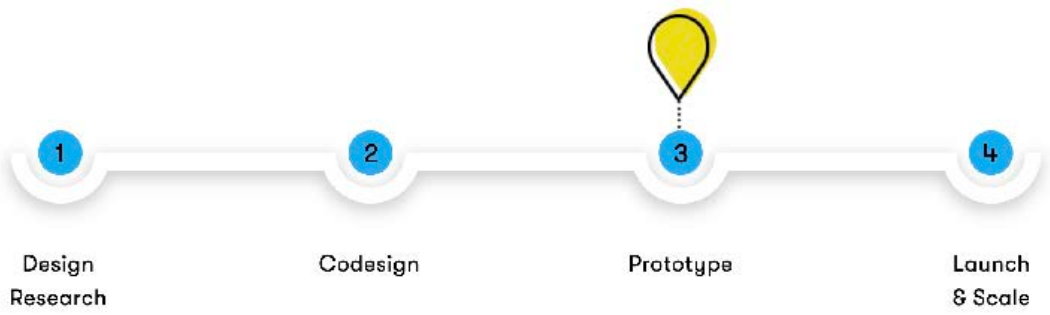
Figure 9: Departmental emblems



Source: https://mop.gov.ae

While the max length of time that a department can operate within the Ministry of Possibilities is one year, each department has the flexibility to work on its own timeline during that period and, to some extent, to determine their own optimal set of methodologies and approaches, as guided by the respective leadership team. However, they all progress through the same four phases (Figure 10). Each of these phases is designed with agile principles in mind, with user-centred approaches and continuous feedback cycles integrated throughout key activities. To help ensure progress is being made in all departments, a member of the central Ministry management team attends key departmental meetings.

Figure 10: Department phases



Source: https://mop.gov.ae.

At the end of the process, during the Launch & Scale phase, the department's leadership team presents the findings, solutions and impacts of their project to the Cabinet. They also make recommendations about what should be done. Potential outcomes can include tweaking operations and replacing solutions at one or more existing ministries, or potentially scaling up the time-bound department into a more fully formed office or ministry which could potentially exist as a new body or even fully replace an existing function or ministry. Any final actions taken based on the findings and recommendations are undertaken in agreement with Ministry department leadership and the Cabinet.

Figure 11: First meeting of the Ministry of Possibilities

Source: UAE Ministry of Culture and Knowledge Development.

Much of the day-to-day work is led by public servants that are seconded to the Ministry either on a full-time or part-time basis, which gives them the opportunity to make use of their knowledge, skills and networks in new ways. In addition, it introduces them to a new environment, methodology and way of working that they can carry back to their home department to help bring about culture change. The Ministry is not limited to public servants in government, however. Departments may also include private sector and civil society experts as integrated members of the team, either for the full term of the project or for particularly relevant stages of development. In some cases, this includes bringing on external consultants, especially to help kick-start projects in the early phases.

The design and implementation of the Ministry of Possibilities stressed inclusivity both within and outside government from its initial origins through to the design and execution of projects. Other parts of government, citizens, civil society organisations and businesses were involved during the initial research phase, through workshops, focus groups and interviews, to help co-design the piloting and scaling of the Ministry. For example, the Department of UAE Talent organised sessions with children, parents, teachers and experts to obtain valuable insights to guide programme decisions. In another example, the Department of Behavioural Rewards partnered with Fazaa, a social initiative/company which aims to develop promote solidarity within the UAE community, to sponsor and adopt solutions developed by the Ministry.

The initial cohort of four departments is nearing completion. Decisions will soon be made on the extent to which their findings and lessons learned are integrated into government operations, policies and services. The Ministry of Possibilities will then evaluate its initial year of operation and may iterate and innovate upon its own structures and practices. The Ministry seeks to continuously reinvent itself, and it is looking to address impossible issues within shorter time frames. It views its operational model as open and fluid, while remaining aligned with its core values.

The COVID-19 crisis has added an additional set of considerations that the Ministry must evaluate while determining how best to move forward. A key factor is exploring how to succeed in a fully virtual environment. In general, Ministry leaders believe that the values, mindsets and methods of the Ministry of Possibilities can help government to become more resilient and adaptive as the UAE works through the COVID-19 crisis and future challenges.

Novelty

The Ministry of Possibilities is the first ministry with a mission focused entirely on incubating and developing radical solutions for the government's most critical challenges. In the UAE, it represents the next generation of government operations overseeing key functions that require quick, bold and effective decisions.

The structure and "virtual" nature of the ministry is also innovative. By creating a new typology and government structure, UAE officials believe that the Ministry in itself embodies the type of agile action it seeks to promote. It is an experiment developed to determine whether this type of approach has the ability to solve the tangled wicked systemic issues facing the country and society.

Results and impact

In its first year, the Ministry has trained over 60 public sector employees in human-centred design methodology and engaged with more than 500 end users in addition to meeting most of the national public sector organisations. Each of the initial department cohorts has progressed individually in terms of offering new products and services, with decisions on their scaling expected shortly.

Challenges and lessons learned

A little over a full year of implementation has passed since the Ministry was launched, and officials have noted several challenges along the way. The most challenging issue overall has been initiating a project with an unknown solution or envisioned end state. Government employees generally operate in an environment of certainty and work towards clear goals. The Ministry of Possibilities methods run contrary to this mode, instead starting with a good question, without hinting at a solution. This initially undefined and uncertain end state has proven difficult for those used to a higher degree of certainty. Ministry officials have sought to address this challenge by designing a well-structured design methodology and timeline, which helps provide the process with a degree of certainty, even though the end goals may be undefined.

Another key challenge is that it can be difficult for team members to adapt to the agile working methods of the Ministry, which focus on continuously iterating based on user feedback. Challenging one's own perspective and accepting and incorporating end-user feedback has been a new experience for some team members. The more cycle-based, phased model can also be uncomfortable and may result in revisiting and re-working phases after new lessons or insights, which can be tiring or frustrating to those unfamiliar with these working methods. Over time, the process of "learning by doing" combined with through training and adherence to the Ministry's values, has enabled team members to acquire new skills and become better equipped to adopt these new ways of working.

Ministry officials also provided a number of success factors, notably leadership buy-in and high-level support. The Ministry of Possibilities has benefited from both, which has facilitated conversations and opportunities with other stakeholders. This was apparent from the very beginning, as the UAE's Vice President and Prime Minister H.H. Sheikh Mohammed Bin Rashid Al Maktoum served as the driving force behind the Ministry and backed it from inception through to implementation. This support is also built into the foundation of the Ministry, which was launched by a Cabinet Decree at the highest level of leadership.

Another success factor is identifying potential team members who have an open mind-set. Team members who are not open to new possibilities and are very attached to their previous areas of expertise and knowledge can hinder team progress. Conversely, open-minded, creative and highly empathetic team members who come from different backgrounds and possess different experiences add significant value to the process. Identifying individuals with existing skills is of lesser importance, as these can be learned during the process. In some cases, team members decided that the new approaches were not for them and left to pursue other projects. Ministry leaders have learned to accept this and realise that the recruitment and training of talented, open-minded staff is an ongoing process.

Ministry leaders shared several additional lessons that they learned on their journey. In particular, it is important to:

- Have a common understanding and agreed definition of the question to be addressed (the "impossible") in order to make collective progress.
- Leverage and manage communications with the public and media at key moments of the journey.
- Protect and motivate teams, and provide training and coaching to help them learn new working approaches and methods.
- Have a dedicated team with specific competencies who are not involved in other tasks. This type of work cannot be undertaken as a side project.
- Be patient and careful when overcoming resistance to change. There will always be resistance to new approaches when challenging existing beliefs and norms.
- Have a new physical space and change one's environment. This can lead to new reactions and experiences.

Replicability

Replicability of projects and initiatives has been one of the goals of the Ministry of Possibilities since its inception, as evidenced by one of its guiding values: "be globally relevant". The Ministry plans to share its findings and lessons to help others learn from them and adapt identified solutions.

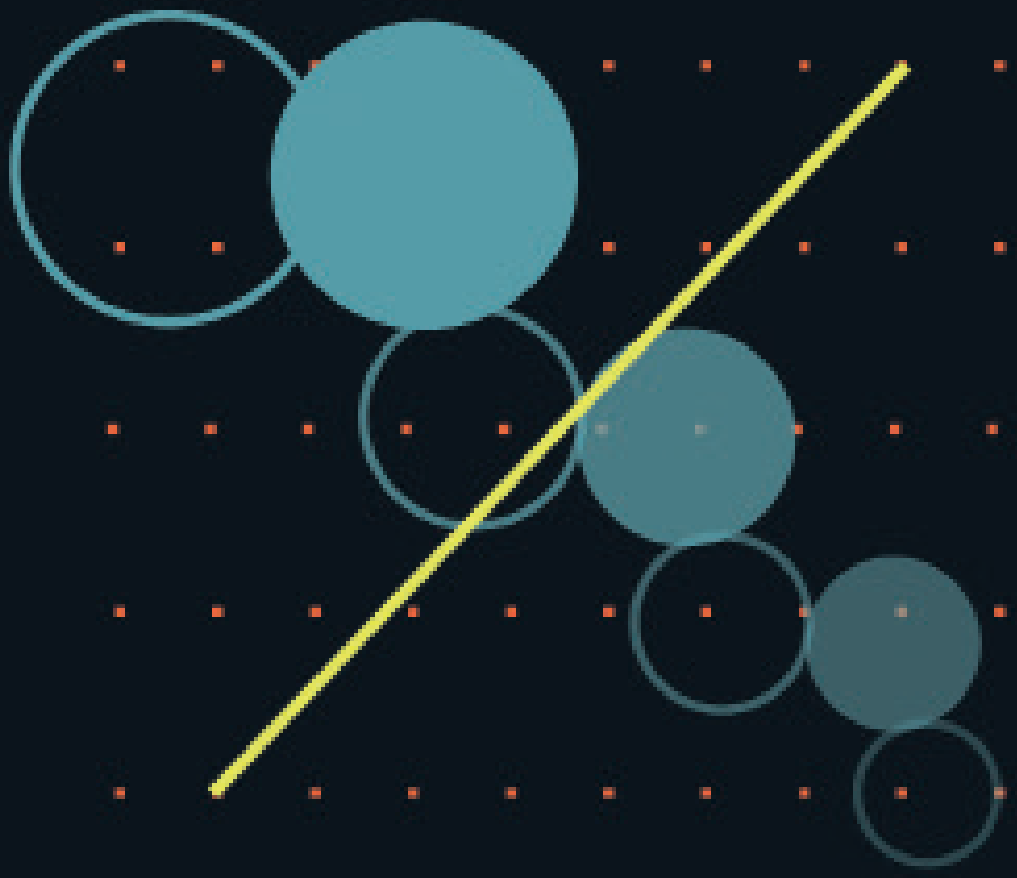
Ministry of Possibilities leaders also want the Ministry itself to be a replicable model, as many governments are facing the same challenges (e.g. effective services, procurement, talent, etc.). There is some evidence that other countries are already seeking to replicate or emulate some aspects of the Ministry. The clearest example of this is in Wales, where the government has proposed the creation of their own Ministry of Possibilities.[45] To assist other governments in the future, the UAE has documented its design decisions and approaches since it was first envisioned, and its leaders plan to develop a draft set of methods and approaches that could help guide other governments once the Ministry's efforts have been refined, tested, learned from and iterated.

45 https://futuregenerations.wales/news/statement-on-the-future-generations-report-2020.


كلمة مستحيل
ليست في قاموسنا
في دولة الإمارات
محمد بن راشد آل مكتوم

KEY THEME 02

Matrixed government



A classic criticism of the public sector and a key obstacle to innovation is the siloed approach to government, which also extends across sectors and into the public domain. Governments are addressing this problem by building innovative and systemic conduits and collaborative infrastructure, which will allow the creation of matrices where individuals and teams with different functions and experiences can come together to solve collective challenges. The most innovative governments are able to respect the roles of various actors while also making the walls between them permeable and adaptable. Innovative efforts in this area involve bringing together different government offices and levels and other sectors, as well as involving citizens and residents as key contributors, to achieve public and societal objectives.

Building out collaborative infrastructure

Individual government offices cannot create public value in isolation. Better outcomes need to be developed collaboratively. Strategic partnerships across government and with businesses and civil society organisations are essential to achieve a common direction, tap into new abilities and expertise in leading-edge practices, and provide common value. Different areas and levels of government, sectors and parts of society each have unique strengths, competencies and insights. The most impactful innovation successes occur when they come together.

Accordingly, governments are laying down new foundations for collaboration and innovation. This involves developing collaboration conduits across the public sectors and building cross-sector ecosystems. In doing so, governments are reimagining their role as a convener of innovators and collaborators to solve problems. This is not only about making innovation more impactful; it is about directing the best traits, core competencies and strategic advantages of all stakeholders towards realising change.

Many of these innovations rely on critical enabling factors. Notable among these are ensuring strong data governance across government, seeing data as a means to increase public value and considering the role of data in building public trust – all of which help governments become more data-driven. The OECD (2019a) report *The Path to Becoming a DataDriven Public Sector* provides an in-depth discussion of these factors and related examples.[46]

Cross-government collaborative infrastructure

A compelling example of such collaborative infrastructure is IP Australia's fledgling Intellectual Property Global Artificial Intelligence Network (IP GAIN), which was initiated at the national government level but aims to foster international collaboration.[47] As discussed in the case study at the end of this section, IP GAIN aims to function as an app store and as an international marketplace for global access to AI tools for the niche but critical IP community. It seeks to build a collaborative ecosystem to help government stay informed about the latest technical possibilities and considerations in the field, and to leverage shared technology to achieve common goals. Finland's Work 2.0 Lab also serves as a national government example (Box 5 and image below).

46 www.oecd-ilibrary.org/governance/the-path-to-becoming-a-data-driven-public-sector_059814a7-en.

47 See https://uat.ipgain.ipaustralia.gov.au and https://oecd-opsi.org/innovations/ipgain/.

Box 5: Work 2.0 Lab (Finland) as seen in image on previous page

In Finland, there is a growing movement committed to the use of agile and cross-functional networks open to all public servants. To foster this trend, the government has created Work 2.0 Lab, a unique, collaborative working and learning environment. Work 2.0 Lab provides the necessary structures and platforms (environments, spaces, networks, methods) for collaborative learning. Collaboration between existing cross-government networks often involves self-directed teams of experts from different ministries and with various backgrounds and expertise.

Work 2.0 Lab has been designed and organised by a group of public sector organisations and represents a concrete step towards promoting systems innovation across the public sector as a whole. It builds bridges between silos and offers a platform for solving wicked problems together. It is also used increasingly to bring in relevant external ecosystem actors (e.g. municipalities, companies, associations).

Source: https://oe.cd/work20lab ; https://tyo-2-0-lab.fi

Such infrastructure-building innovations are also taking place at the local level. A key example is the London Office of Technology and Innovation (LOTI,)[48] which has been created to build collaborative infrastructure for co-ordinated innovation across local government. London has 32 borough councils that generally provide day-to-day services for residents (London Councils, n.d.). However, the councils are often siloed and face a "digital collaboration deficit" (LOTI, 2018). LOTI serves as a collaborative vehicle to strengthen the ability of the 15 core boroughs to build common capabilities and to scale up seamless digital service innovations across the city. Its projects include:

- **Digital apprenticeships** – developing digital skills and ensuring that all Londoners can benefit from the growth in tech employment.
- **Pipeline adoption** – speeding up opportunities for collaboration and providing a single platform for all council projects.
- **Information sharing framework** – allowing the innovative use of data to tackle service challenges by developing a framework for safe, ethical and secure data sharing between boroughs.

Different levels of government can also serve as siloes. To promote collaboration between these levels, some innovations seek to be to transversal in character. For example, the creation of LOTI was an effort to fulfil London's pledge to meet the innovative Local Digital Declaration.[49] Launched by the national government, the Declaration is a call to arms for national and subnational government and industry suppliers to join together in "building the digital foundations for the next generation of local public services." Over 150 UK local authorities have signed the Declaration, and their efforts have spawned the Local Digital C-19 Challenge, a GBP 800 million fund for local COVID-19 response projects that benefit multiple councils.[50] LOTI is also assisting with COVID-19 response, including by helping to scale up successful initiatives (Copeland, 2020) and facilitate efforts between national and local government (Onyekwelu, 2020).

48 See http://loti.london, https://medium.com/loti, and the introductory slide deck at https://bit.ly/3drZd4y.

49 See www.localdigital.gov.uk/ and https://oe.cd/uk-dig-declaration.

50 https://localdigital.gov.uk/c19-challenge. Selected projects are to be announced in early August.

Cross-sector collaborative infrastructure

Current and future complex challenges require the combined power of multiple sectors to open doors to innovation. Accordingly, governments are also building conduits with other sectors, such as private sector businesses and civil society organisations (CSOs). At the international level, the OECD has consistently engaged with the private sector through its Business at OECD (BIAC) programme,[51] and has recently enhanced its civil society focus with the launch in late 2019 of the Observatory of Civic Space (Box 6).

Box 6: OECD Observatory of Civic Space (OCS)

Civic space comprises the set of legal, policy, institutional and practical conditions necessary for non-governmental actors to access information, speak, associate, organise and participate in public life. The Observatory of Civic Space (OCS) has three key aims to support this space:

- Monitor the legal, institutional and policy framework in which civil society organisations operate in OECD member and partner countries.
- Promote and protect civic space and citizen engagement and support countries in this endeavour.
- Act as a platform for dialogue between the OECD's work on open government and key civil society actors and networks.

Source: https://www.oecd.org/gov/civicspace.htm.

At the national government level, albeit with an international scope, the UK has developed a Global Digital Marketplace as a way to make cross-sector and international collaboration and procurement more seamless (Box 7).

Box 7: Global Digital Marketplace (United Kingdom)

The UK's Government Digital Service (GDS) has launched the Global Digital Marketplace as a way to transform procurement and build collaborative ecosystems at the international level. The Marketplace helps international governments make their procurement more transparent and boost digital, data and technology sectors. Among other things, the Marketplace streamlines the ability of national and local governments around the world to connect in seamless ways. It also promotes the building of new capacities in the Civil Service and the private sector through targeted learning and development, and training modules delivered through an academy model focused on integrity, procurement reform, digital service delivery and government transformation.

Source: https://oe.cd/global-dig-mkt.

Innovative governments are also finding new ways to collaborate with academia, notably around new topic areas and technologies that require multi-disciplinary and collaborative teams to achieve the most impact. Australia's Data61, which was built by the national government, embodies this type of collaborative infrastructure (Box 8).

51 http://biac.org.

Box 8: Data61 (Australia)

Data61 is a "data innovation network" with "porous boundaries" designed to allow multi-disciplinary members of the network from various backgrounds to lend their expertise to different projects, including those concerning AI. In an interview with The Mandarin, Data61 CEO Adrian Turner stated that the model enabled the organisation "to tackle larger-scale, multidisciplinary work in a way that we couldn't if it was just us and our employees".

Through collaboration agreements, Data61 has grown to become a combined network of 1 100 individuals, including experts from 32 universities as well as civil servants. Turner emphasises that "raw technical capabilities must be combined with domain expertise in whatever sector they are applied, such as government, health or agriculture".

Source: https://bit.ly/30WdlyN (The Mandarin).

A rapidly growing innovation area for cross-sector collaboration appears to be sandboxes and testbeds for innovation. While a fundamental role of government is to establish rules, this function is often criticised for impeding innovation and collaboration. Sandboxes and testbeds can help government move beyond such criticism. Regulatory sandboxes, for example, aim to facilitate business innovation by testing products and services in a live environment, sometimes with relaxed rules.[52] For example, the Bank of Lithuania's LBChain is a blockchain-based sandbox that combines regulatory and technological infrastructure and allows start-ups to test their solutions in a controlled environment.[53] Although these mechanisms have been discussed for several years, governments are just starting to explore their use with a focus on collaboration to catalyse public sector innovation.

The Government of Estonia, for example, has developed a new form of sandbox framework to facilitate collaboration between government and tech companies without the complex web of procurement rules.[54] Estonia believes that the "sandbox co-operation model…will provide new opportunities for the private sector to develop and launch innovative digital solutions with the state…and introduce their accomplishments everywhere in the world." Currently, the government is focusing on seven tech components – initially in the field of AI. Another example of such innovation comes from a non-digital environment. In the region of Västra Götaland in Sweden, the health centre Närhälsan Färgelanda (NF) has established a testbed based on the needs of primary care. NF offers an arena where healthcare professionals, patients and industry partners can collaborate around designing future welfare services based on service design.[55]

Some national innovative efforts in this area have been driven by the ongoing COVID-19 crisis.[56] For instance the Government of Portugal has created a "Collaborative Work Plan"[57] that sets forth guidelines for public services in the context of the present state of emergency. It includes 22 projects driven by multi-disciplinary, transversal teams comprised of members from government, civil society and industry and on issues such as promoting innovation, disseminating information and developing remote trainings.

52 The OECD Regulatory Policy Division, which forms part of the Public Governance Directorate (GOV), works with member and non-member countries to support the implementation of good regulatory practices. See www.oecd.org/gov/regulatory-policy for additional work and research in this area.

53 See https://oecd-opsi.org/innovations/lbchain-blockchain-sandbox/.

54 See https://oe.cd/est-sandbox.

55 https://oe.cd/se-testbed.

56 See OPSI's first 2020 Global Trends report on Innovative Responses to the COVID-19 Crisis at https://trends.oecd-opsi.org.

57 See https://oe.cd/pt-workplan and www.ina.pt/index.php/agenda/2273-programa-de-trabalho-colaborativo.

Subnational governments are also building new collaborative conduits across sectoral boundaries, some of which can scale transversally to other levels of government. Denmark's Roskilde Municipality, for example, has created Co-Lab Roskilde (CORO),[58] a local innovation platform focused specifically on projects that require input from more than one sector. It builds on existing local resources by bringing together public organisations, academia, civil society and businesses to develop new sustainable, scalable solutions by focusing on challenges. CORO uses the entire area of Roskilde as a unique real-life test platform with demonstration facilities, tapping into local housing co-operatives, the town hall, schools and festivals, among others. While the work involved starts at the local level, the lab seeks to scale up solutions to both the national and global level.

Catching a new wave of civic participation

The first Global Trends report in 2017 included a focus on "Citizens as Experts", which discussed how governments engage with citizens in novel ways to learn new insights and activate them as change agents. Such efforts have since evolved, with governments leveraging a variety of sophisticated techniques to engage and collaborate with their citizens, residents and businesses.

OPSI's colleagues in the OECD Open and Innovative Government division (OIG) recently published the report Innovative Citizen Participation and *New Democratic Institutions: Catching the Deliberative Wave* (OECD, 2020c).[59] Based on the analysis of about 300 deliberative practices, the report explores trends, identifies different models and analyses the trade-offs among different approaches. It also uncovered 11 key principles (Box 9).[60]

Box 9: Good Practice Principles for Deliberative Processes for Public Decision-Making

- **Purpose.** The objective should be outlined as a clear task and linked to a defined public problem.
- **Accountability.** There should be influence on public decisions, and commitments by the public to respond or act on participants' recommendations.
- **Transparency.** The process should be announced before it begins, and its design, materials, methodologies and funding sources, should be publicly available.
- **Inclusiveness.** Under-represented groups should be involved, and participation should be encouraged and facilitated.
- **Representativeness.** Participants should be a microcosm of the general public.
- **Information.** Participants should have access to a wide range of accurate and relevant evidence and expertise.
- **Group deliberation.** Participants should be able to find common ground for their collective recommendations.
- **Time.** Adequate time is needed for participants to learn, weigh evidence and develop informed recommendations.
- **Integrity.** The process should be run by an arm's length team different from the commissioning authority.
- **Privacy.** There should be respect for participants' privacy to protect them from undesired media attention and harassment, and to preserve their independence. All data collection should comply with the European Union's General Data Protection Regulation (GDPR).
- **Evaluation.** There should be an anonymous evaluation by the participants to assess the process, accompanied by an internal evaluation by the co-ordination team conducted against good practice principles.

Source: https://oe.cd/delib-wave-hl (as adapted by OPSI).

58 See https://corolab.dk/wp/en/about-coro and https://oe.cd/coro.

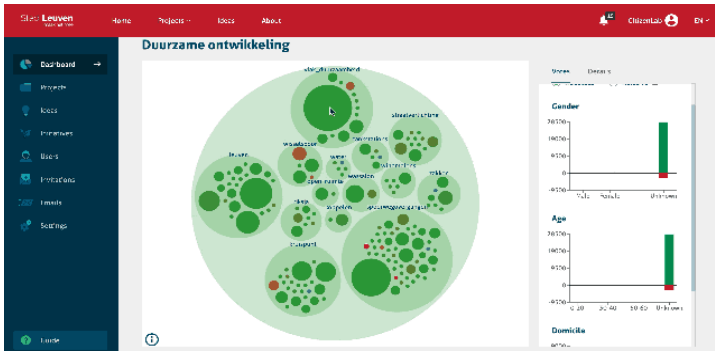
59 See https://oe.cd/innovative-citizen-participation and https://medium.com/participo.

60 The Australian Government has also developed a useful Open Dialogue Roadmap to show how deliberation can transform how government works. See www.industry.gov.au/data-and-publications/open-dialogue-roadmap and https://oe.cd/dialogue-roadmap.

While OPSI and the MBRCGI do not seek to duplicate these efforts, this theme is also apparent in our research and Call for Innovations. Innovative and interesting examples of enabling civic collaboration uncovered include:

- **Learning Together for Better Public Engagement** (Learn4PE) (Canada).[61] This pilot project aims to build public engagement capacity across the Government of Canada. In its first iteration, participants spent five weeks learning together with experts on a variety of topics, including designing public engagement processes, engagement with Indigenous peoples and relationship-building.
- **Our Tomorrows – A Community Sensemaking Approach** (United States).[62] This novel framework in the state of Kansas captures experiences to ensure that policies and practices meet the needs of families. To date, over 2 500 stories have been collected from every part of Kansas. Sensemaking workshops were held where participants reviewed stories and identified emerging patterns describing the conditions under which families thrive. Our Tomorrows then launched Community Action Labs to support local portfolios of "Actionables" that were quick, local and inexpensive.
- **Seattle Democracy Voucher Program** (United States).[63] This innovative approach encourages Seattle residents to participate in local government by supporting campaigns or running for office themselves, by providing registered voters with vouchers they can use to donate. Funded by a slight increase in taxes, the voucher system involves more people in the electoral process, helps grassroots candidates compete and encourages candidates to interact with regular voters rather than wealthy donors.
- **Converlens AI-enabled community engagement** (Australia). This web-based platform is used by governments during public consultations. The platform makes use of AI to analyse qualitative data (e.g. citizen feedback and social media posts) to derive insights for government that allow them to better engage with stakeholders in order to obtain feedback which can then be used to shape service design and delivery.
- **Using AI to crowdsource public decision-making** (Belgium). Belgian civic tech company CitizenLab has developed a public participation platform that uses machine-learning algorithms to help civil servants easily process citizen contributions and use these insights in decision-making. A dashboard automatically classifies ideas, highlights emerging topics, summarises trends and clusters similar contributions by theme, demographic trait or location (Figure 12).[64]

Figure 12: CitizenLab dashboard



Source: www.citizenlab.co/blog/civic-engagement-nl/civic-tech-en-de-toekomst-van-verkiezingen.

Through these types of innovative efforts, governments at all levels are recognising the significant transformative potential of building matrixed governments that respect, recognise and enable different ecosystems to collaborate in order to make key contributions to society.

61 See https://oe.cd/learn4pe.

62 See http://ourtomorrows.kucppr.org and https://oe.cd/our-tomorrows.

63 See www.seattle.gov/democracyvoucher and https://oe.cd/dem-vouchers.

64 See full case study in OPSI's report *Hello, World: Artificial Intelligence and its Use in the Public Sector* (https://oe.cd/helloworld).

KEY THEME 01: Case Study

Intellectual Property Global Artificial Intelligence Network

(IP GAIN) (Australia)

Intangible assets such as intellectual property (IP) are of growing importance to the global economy, and often require complex technical solutions to fully unlock their potential as capital for innovation. In response to this trend, IP Australia, the Australian Government agency that administers IP rights, is working to build structures for international collaboration that enable different IP offices around the world to share solutions, with a view to fostering a better resourced and more efficient global IP ecosystem. The Intellectual Property Global Artificial Intelligence Network (IP GAIN), created by IP Australia, is the first marketplace to provide global access to pioneering AI and machine learning (ML) tools that allow IP offices to assess different types of applications for particular IPs. The ultimate ambition for IP GAIN is to serve as an app store, allowing different IP actors to access, share and even co-develop ground-breaking technology that solves challenges unique to, but potentially common across, the IP community worldwide. This initiative is driving collaboration and reducing duplication between national IP offices, with the aim of improving quality and consistency across the global IP community.

The problem

Intangible assets such as IP are the new fuel of the global economy, becoming an increasingly important driver of productivity growth and innovation in OECD countries and around the world (Demmou, Stefanescu and Arquié, 2019). Intangible assets now comprise 87% of the value of companies (Stathis, 2015). As the value of intangible assets continues to rise for companies and the broader economy, so does the importance of the government's role in supporting its businesses and innovators to maximise value through facilitating better management and use of these assets.

IP rights are governed through a complex international web of patents, trademarks and designs and plant-based rights (PBRs), used in myriad products around the world, requiring technical expertise to help IP offices navigate this terrain. The World Intellectual Property Organisation (WIPO), which has 193 members states (WIPO, 2020), is the primary international organisation that sets these rules and brings country IP offices together. Different countries ranging from the Australia and the United States to regions such as the EU manage their own records of IPs and IP usage, each in possession of vast sets of data. But while such actors previously operated independently, many if not all share common needs. Both public and private sector organisations have realised that technical solutions which leverage this data, such as AI and ML tools, have the potential to help actors within the global IP ecosystem fully understand the complexities of individual IPs.[65]

However, little has been done to systematically and collaboratively develop and share such solutions for public sector bodies. Indeed, many IP offices spend significant amounts of money developing very similar AI or ML solutions to the same problems. Additionally, many IP offices are unable to access the same resources available to a national agency of an advanced economy like Australia to support the development of AI/ML tools. Even within well-resourced IP offices, data scientists and experts on ML or AI tools are scarce in many cases, with no real platforms available to facilitate collaboration across jurisdictions. Innovation and development are therefore stifled due to a lack of resources and duplication of activities. For example, at least seven IP offices have been experimenting with delivering the same automated International Patent Classifications (IPCs) or Co-operative Patent Classifications (CPCs) – efforts which, if co-ordinated more efficiently, could lead to reduced workloads for each IP office and better outcomes. The international IP ecosystem is therefore faced with complex international co-ordination and resourcing challenges, coupled with a sense of urgency driven by the growing importance of IP.

An innovative solution

IP Australia recognised that the importance of this issue, coupled with the complex international nature of the problem,

65 As an example of such a tool, see the case study on IP Australia's AI-enabled Australian Trade Mark Search in OPSI's 2018 Global Trends report at https://oe.cd/innovation2018.

would require a particular type of collaborative and innovative solution, that they were well placed to deliver. IP Australia possesses a strong organisational capacity and culture for innovation, both in terms of management structure and staff (Burgess, 2018; IP Australia). Aware of their own relatively strong technical capacities, the organisation saw an opportunity to develop a platform that could enable international collaboration, sharing and co-development practices around cutting-edge technology across all IP offices – in developing nations to the most advanced countries.

Such a platform offered the possibility to fundamentally democratise digital innovation in IP administration. Better co-ordination and collaboration at an international scale can greatly improve how both IP Australia and IP offices around the world support their stakeholders. IP Australia hoped to design a platform that could help reduce duplications of efforts and promote better sharing of resources, the ultimate hope being that multiple teams from different countries would design and deliver better products for those who need them.

IP Australia: An innovative organisation

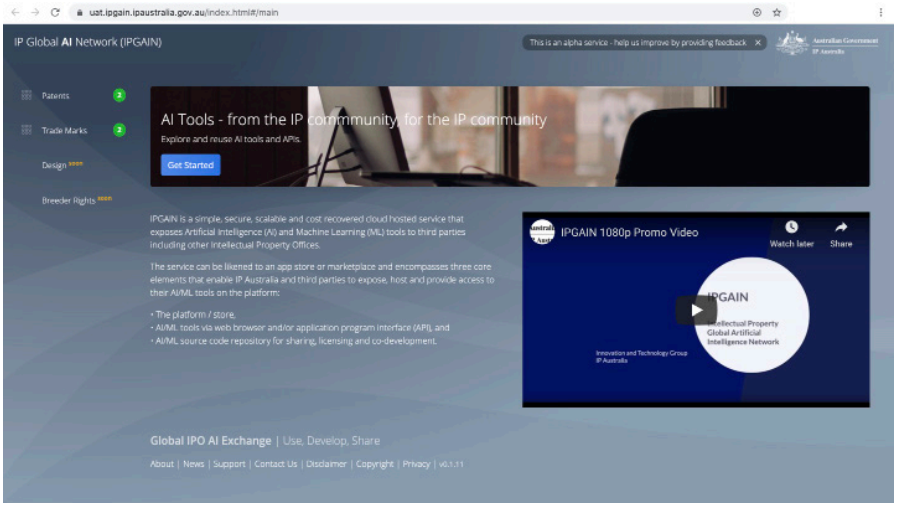
IP Australia is a portfolio agency of the Department of Industry, Science, Energy and Resources within the Australian Government, with around 1,100 staff. IP Australia has vastly improved its innovative capacities since a 2014 "capability review" that clarified areas for improvement, including greater clarity of purpose and values, better linkages with the Australian Public Service, more engaged leadership, and more robust and transparent systems and processes. In response, IP Australia developed innovation capacities that enabled them to take on innovative projects such as IP GAIN. Key initiatives have included:

- building up digital transformation capabilities, signified by a shift to 100% digital services, with the acquisition of cognitive computing capabilities and data capabilities as a foundation for future technologies
- developing robust research and development methodologies, including partnerships with stake-holders across government as well as external business partners and SMEs
- creating a working environment that fosters collaboration, for example by organising work spaces around projects rather than rigid public sector organigrams.

Source: https://oe.cd/ausdeepdive.

Accordingly, in September 2019, IP Australia launched a working prototype of IP GAIN, a platform and marketplace forglobal collaboration and global access to technology solutions for the IP ecosystem. IP GAIN is a simple and secure service that can be used to open and share AI and ML tools from IP Australia, as well as other national IP offices and third parties. It enables partners to co-design and contribute to the development of future AI and ML tools, and increased IP offices' capabilities in AI governance and ethics.

Figure 13: IP Gain Alpha Platform



Source: https://uat.ipgain.ipaustralia.gov.au.

IP GAIN is being developed in two phases. In phase 1, IP Australia is working to build out the platform as an app store or marketplace for AI and ML tools, which can be accessed from around the world (see Figure 13). In the near future, IP offices worldwide will be able to share their own tools, as well as access those created by others. The present version is hosted by IP Australia to ensure proper quality control of how and which software is shared. It allows users to check patent offerings through an AI system that predicts which Cooperative Patent Classifications (CPC) a product may require.[66] The system can be run through a browser or a more robust API for multiple queries.[67]

In phase 2, IP Australia is exploring ways to maximise the potential of the IP GAIN initiative by adding other AI and ML tools and services, including Patents Preliminary Automated Search,[68] as well as on-boarding solutions from, and enhancing collaborations with, other countries and third parties. One example of such collaboration was a partnership established with the UK Intellectual Property Office (IPO) to enhance the user experience of IP GAIN. The product was thoroughly tested within IPO, with staff able to use it for a trial period with UK data, allowing them to offer design and technical enhancements for the final product. The success of this collaboration indicates the potential of IP GAIN to share resources in a more effective way that benefits the whole international IP ecosystem (see Box 10).

Box 10: How IP GAIN will improve the international IP ecosystem

1. An agile, scalable and cloud-hosted solution allows IP offices and third parties to present and collaborate on AI and ML tools and services that solve niche problems and significant challenges associated with the IP sector.
2. IP GAIN reduces duplication of effort where different countries are allocating significant financial and people resources to solve the same problems. AI/ML tools are shared to support and enhance the capability of smaller IP offices, particularly in less technologically advanced countries, in order to fast track capability.
3. IP GAIN increases the transparency of office progress and practices while using AI/ML tools to deliver co-developed solutions to commonly faced IP-centric business problems. The platform enables enhanced quality and consistency of business practice and approach.

66 IP Australia has built a tool that uses machine learning techniques to analyse new patent applications. Using predictive models trained on IP Australia's datasets, the tool determines the technology classifications for the patent application, allowing the application to be assigned to the most relevant examiner for consideration. For more information, see: www.wipo.int/about-ip/en/artificial_intelligence/search.jsp.

67 See https://youtu.be/aBVp35CoDX4.

68 See www.ipaustralia.gov.au/patents/understanding-patents/searching-patents/searching-australian-patents.

One end goal of this kind of collaboration is the co-development of shared tools between IP offices. Michael Burn of IP Australia describes two ways in which IP GAIN can support this endeavour. First, IP offices can pool their resources, for example by bringing together technical experts to help develop tools a single office may not have had the resources to develop alone. Second, there are plans to create a GitHub-like collaborative development lab where different participating IP offices could share problems and solutions. IP Australia has tried to leave future avenues for development open to allow different paths to develop naturally. Such options include establishing different levels of users on the platform with varying privileges. Alternatively, the platform could include a payment gateway to allow for cost recovery. Accordingly, IP Australia are designing the platform to allow it to evolve in accordance with partner and user needs.

Going forward, IP Australia are exploring how the initiative might be scaled up. Other IP offices have expressed interest in its potential at scale, but no firm commitments have been made as yet regarding options for scaling. The future of IP GAIN will also be determined by key issues such as data governance, notably the extent to which countries are comfortable exposing their data to such an international tool. The more governments that are willing to share their data, the greater the potential of the tool. Questions also surround the ownership of the tool. At the moment it is in IP Australia's hands, but it could also be de-centralised, or ownership transferred to the WIPO or similar equivalent international consortium for management, depending on the direction that proves most useful for stakeholders.

Novelty

IP GAIN is novel in that encourages and enables global collaboration for the sharing and creation of common IP solutions. By moving away from an approach where each country deals with its own challenges, IP GAIN has the potential to democratise international digital solutions and create public value for a niche but global community that often faces the same challenges.

IP GAIN also highlights the potential for broad and rapid systems innovation across the IP ecosystem, which is uncommon. Governments are shifting more towards systems approaches, but these approaches still tend to fall within their own borders. With the end vision of IP GAIN in place, stakeholders across the world can access and implement high-quality tools easily, and other ecosystem actors (from both the private sector and government) can make their tools and services available to the wide-reaching IP ecosystem – including to those who would otherwise not be able to benefit from AI or ML solutions. Different levels of technical ability are also considered: browser-based access allows less technically established groups to use cutting edge software, thus facilitating equal access across borders with international actors, while API-driven access allows for more sophisticated applications.

Results and impact

IP GAIN is still in its early stages with the implemented version still in alpha (pre-beta) mode. It is therefore too soon to present demonstrable results or impacts. However, the initiative has begun to demonstrate collaborative potential. IP Australia has collaborated formally with the UK IPO, as described above, and has run demos of IP GAIN with the European Commission and the United States. The platform has also been presented widely to nations at various WIPO committees, most recently to 26 countries in December 2019. All countries are supportive of the effort, and indeed the United Kingdom offered extremely positive feedback on the user experience and design of the platform. The long-term impact of IP GAIN will be determined by the extent to which collaboration can take place at a deeper co-design level, as well as the ability and willingness of countries to open up and share solutions among themselves. This brings its own difficulties given the heterogeneous standards and rules for security and data protection that exist on the global landscape.

Challenges and lessons learned

Three main lessons can be taken from IP GAIN so far:

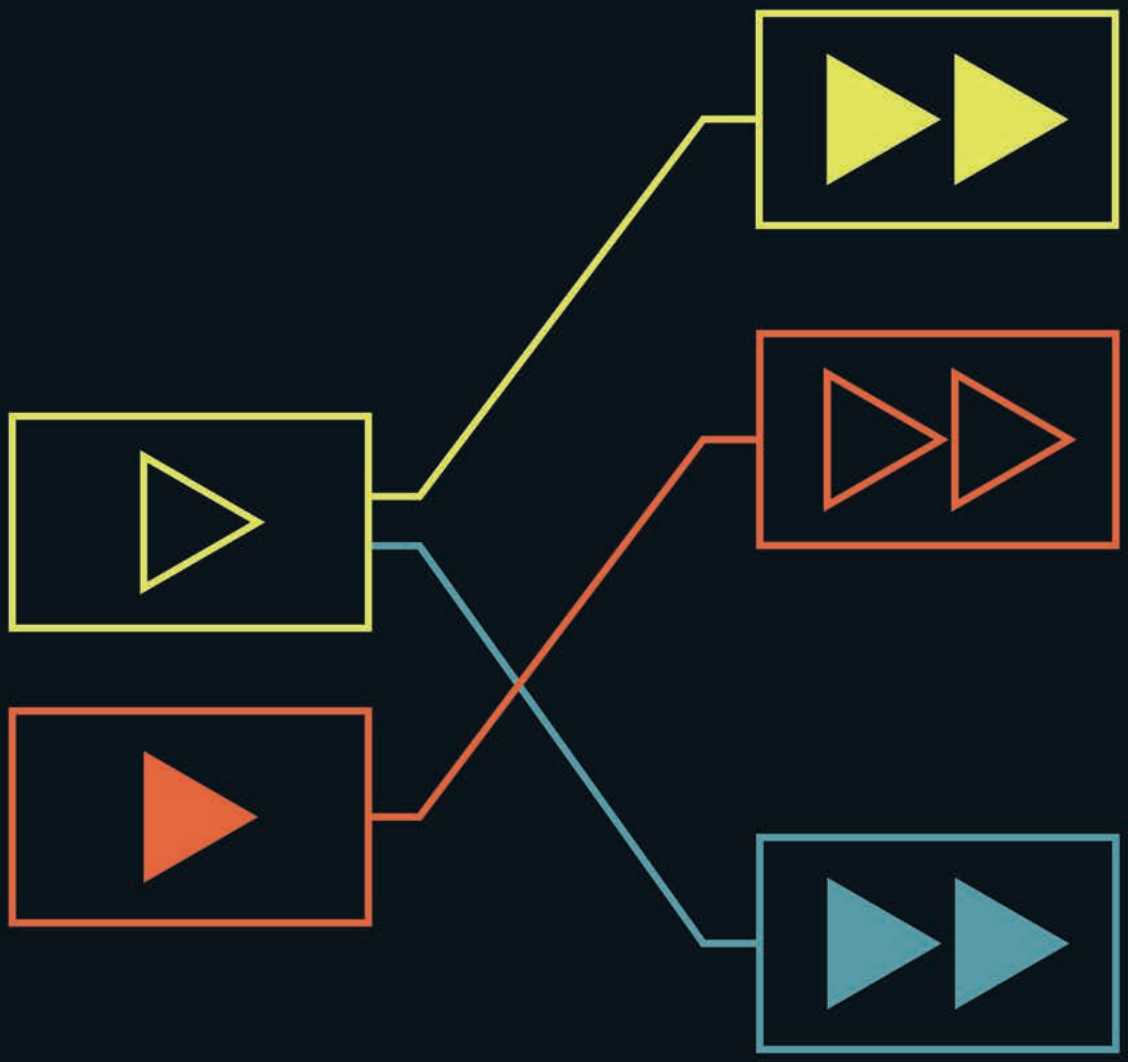
1. Leadership is essential. Collaborating to solve common technology problems has often been a challenge for national IP offices (including IP Australia), because the focus is typically on the macro-design elements of the IP system. To ensure a focus on innovation and collaboration within IP Australia, significant leadership effort was necessary to create the collaboration forums for the requisite technical expertise to achieve these new ambitions.
2. Collaboration with all stakeholders is key for the success of a project. While sharing resources between IP offices can distribute the burden of the problem, working with those offices early on in the process, such as through WIPO or bilaterally as with the United Kingdom, can help ensure that the best possible product is designed. Involving key stakeholders and customers in the process is vital to ensuring the sustained success of the product.
3. Digital innovation, such as through AI, is more than just technology. Technological collaboration has led to additional synergies in governance, ethics, human capabilities and culture. Success is the result of the combination of these skills, not just technology outcomes.

Replicability

IP GAIN is intended to be a platform for replicable solutions and has been created to foster collaboration around the world. The platform's great potential lies in the fact that it can operate as a single platform worldwide, thus obviating the need to replicate efforts. The platform also makes available resources to IP offices that would previously not have had access to them. Perhaps just as important for IP GAIN is scalability. With similar IP offices in 193 WIPO member states, the potential for IP GAIN to scale and grow as a home for replicable solutions is significant. Many countries from different parts of the world have already signalled strong interest in collaborating to further this work.

KEY THEME 03

Anticipatory government



"All kinds of significant organizations need to operate through a mindset of anticipation and prevention and of resilience. Efficiency isn't the only virtue...you also need resources devoted to anticipating and preventing crises."

– Professor Kathleen Sutcliffe, John Hopkins University, on the COVID-19 crisis (Ercolano, 2020)

Governments often wait until a potential crisis or problem emerges before imagining solutions. This approach has far less value than anticipating and developing a response to issues before they occur. The present is becoming increasingly complex and the future is full of endless unknowns. Waiting for these unknowns to reveal themselves is a luxury governments can no longer afford. In the absence of action, others will make decisions and forge the path ahead. Those who wait will have no involvement in shaping options and will thus be subject to these decisions. This can have significant costs and disadvantages. To bridge this gap and effectively address complexity and uncertainty, a new approach is needed that is both future-oriented and grounded in present day action. The most innovative governments are exploring beyond the horizon scanning activities and taking action today to actively shape tomorrow. In so doing, they are building seamless governments that blur the boundaries between present and future.[69]

Through its work with countries worldwide, OPSI has identified four primary facets to public sector innovation and has developed a model to help governments achieve a portfolio approach (Figure 14).[70] One of these four facets is Anticipatory Innovation. This term refers to detecting weak signals and engaging with them before a new course or paradigm is locked in. Anticipatory innovation is the most underdeveloped facet of innovation, and perhaps the most difficult. It is sometimes viewed as too forward thinking – either too disconnected from the apparent core business of an organisation or simply misunderstood. It can also challenge values by calling into question the current state of things, including peoples' beliefs and assumptions about how the world works.

69 OPSI's Toolkit Navigator includes a number of tools and resources that can help governments with their foresight and futures activities. See https://oe.cd/futures-tools.

70 See https://oe.cd/innovationfacets for additional details on these facets, and https://oe.cd/facetsworkshop for a free downloadable and customisable workshop to explore a portfolio approach to organisational innovation.

Figure 14: Facets of public sector innovation

Source: https://oe.cd/innovationfacets.

One of the most challenging aspects of anticipatory innovation is convincing government leaders and civil servants that it works and can be meaningful, even if the results may not be as immediate or clear as identifying cost savings (enhancement-oriented innovation) or achieving a major and ambitious goal (mission-oriented innovation). However, governments are increasingly recognising the importance of anticipatory thinking, especially in light of recent events such as the ongoing COVID-19 crisis. Many are seeking out weak signals, innovating to predict and explore potential futures, and some are converting predictions into action in order to more actively shape them. Through its observations, OPSI has also identified ways to make these efforts a more systemic core competency of government.

Picking up on weak signals through data

In order to design policy for the future it is necessary to imagine what that future might look like. This is not a new discipline: fields of academic research that examine future issues, including foresight, futures thinking or studies and scenario development, date back to the 1940s (Miller, 2017; van Notten, 2005). Since the 1990s, foresight has grown in popularity and has become embedded in policy making, due largely to the systemic and complex nature of the modern policy challenges facing governments. More recently, policy makers in institutions around the world have started to advance "futures thinking" as a discipline (Miller, 2017). This field develops the capacity to imagine plausible futures by interpreting signals and information available today.

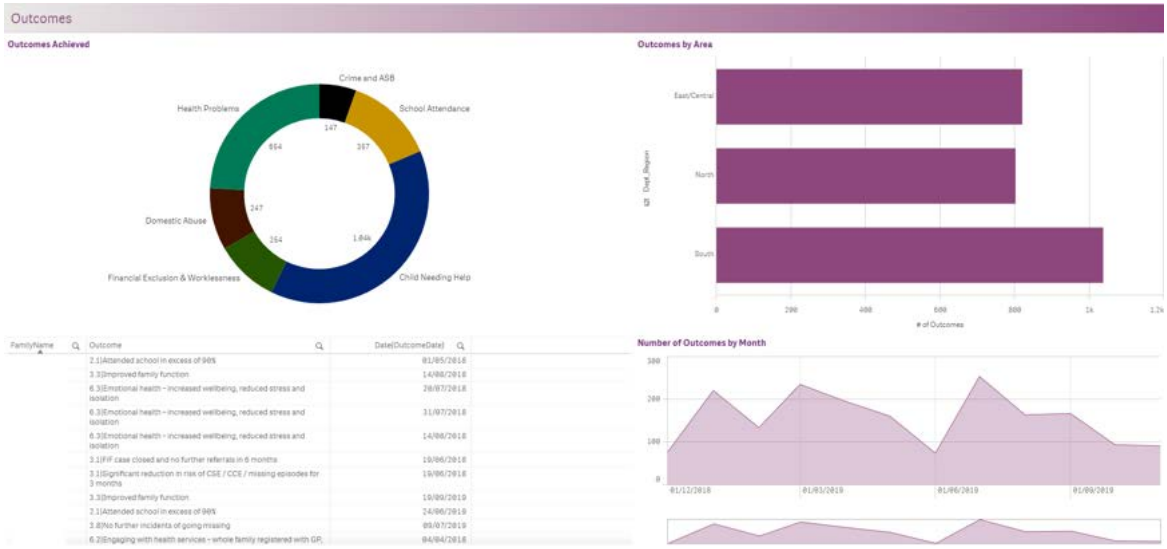
Analysing the weak signals of the present is the first step in this process. The emergence of new methodologies such as big data analytics has increased the feasibility of such ventures. The depth and breadth of the data available to governments is growing at an almost exponential rate, paralleled by the evolution of increasingly powerful tools able to make sense of this information. As the OECD report *The Path to Becoming a Data-Driven Public Sector* argues, good data coupled with ethical and smart applications of such data can help create more anticipatory public sectors, as governments are better able to forecast what lies beyond their horizons.[71]

71 Data applications in the public sector include forecasting and foresight. "Forecasting" refers to predicting future trends through analysing current data. "Foresight" maps plausible futures, using those insights to help governments become more alert to future developments. Good data are important to both, as they allow governments to capture early warning signals and make better-informed decisions. For a full discussion of data in anticipatory governance, see Chapter 3 "The application of data in the public sector to generate public value", in OECD (2019) *The Path to Becoming a Data-Driven Public Sector* https://doi.org/10.1787/24131962

Police departments have been early adopters of such analytical methods to spot crime patterns with the intention of preventing crimes from happening. Since February 2019, the New York Police Department (NYPD) has been using a collection of machine-learning models called "Patternizr", which draw on 10 years of historical data, in order to better understand how and where crimes may occur in the future (Wood, 2019). In the United Kingdom, police have created a "National Data Analytics Solution", which uses a combination of AI and statistics to assess the risk of someone committing or becoming a victim to gun or knife crime, or modern slavery (Baraniuk, 2018).

Bridging police departments with other services, Insight Bristol, an interagency analytics hub set up between Bristol City Council and Avon and Summerset Police in the United Kingdom, has created a "Think Family Database". This database combines 32 indicators with targeted risk modelling to allow local authorities to proactively consider interventions for potentially vulnerable families and young people.[72] Insight Bristol focuses in particular on youth violence, criminal exploitation and knife crime through social network mappings.

Figure 15: Bristol outcomes dashboard



Source: https://oe.cd/bristol-hub.

It is critical to point out, however, that these techniques are only as good as the algorithms and data that drive them. Data and algorithms can include biases, so governments must exercise constant vigilance regarding how their data sourced, maintained and applied. The OECD has also noted the specific "dangers of transferring biases from the analogue into the digital world, including those related to gender and race". [73] Indeed, the OECD recommends that the "applied use of data should recognise, and mitigate, any potential bias so that it never leads to discrimination, with people in similar cases always treated equally."[74] This is vital. In order to think successfully about future trends, governments must have robust and self-evaluative methodologies in place that interrogate our own biases and assumptions about the present. While efforts to identify and act upon weak signals in data are clearly innovative and have the potential to produce significant impacts (Bristol, for example, has received national accolades for its efforts), such approaches are also controversial for a number of reasons. The OPSI report *Hello, World: Artificial Intelligence and its Use in the Public Sector*[75] provides a fuller discussion of these risks and the action taken by some governments to mitigate them, and aims to help government officials understand and navigate considerations specific to the public sector.

72 See https://oe.cd/bristol-hub.

73 For a fuller discussion of how analogue biases can become built into AI, see: https://oe.cd/pub/ai-in-society.

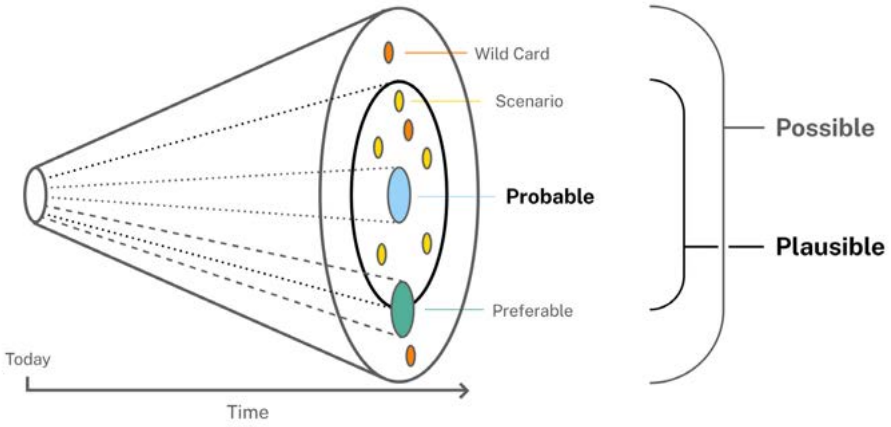
74 See Box 4.3, "Proposed ethical guidelines" in OECD (2019), *The Path to Becoming a Data-Driven Public Sector*, https://doi.org/10.1787/24131962.

75 https://oe.cd/helloworld.

Engaging with potential futures

As well as finding and analysing weak signals in the present that help provide early indicators of the future, governments also need to find new ways of imagining potential futures. There are many different paths, as illustrated by the classic Futures Cone (Figure 16), and all become more and more complicated the further ahead in time you look.

Figure 16: The Futures Cone



Source: https://thinkingfutures.net/foresight-primer (adapted by Joseph Voros from the work of Hancock, T. & C. Bezold (1994), Possible futures, preferable futures, Healthcare Forum Journal, Vol. 37/2, pp. 23-29.)

The importance of futures thinking is increasingly recognised, but the methodology itself is difficult to instil in policy makers. The Joint Research Centre (JRC) of the European Commission has created a Scenario Exploration System (SES) to help policy makers quickly assimilate the principles of foresight (see the case study at end of this section).

Foresight has long been used to support emerging technology based on its ability to engage with people around policy issues that may only become relevant in the future. For example, governments face a challenge in legislating for connected and automated vehicles (CAVs), when there is no consensus for such a technology. To address this issue, the UK government created a dialogue programme (Sciencewise, 2018), which allowed members of the public to experience CAVs first-hand, and then established a deliberative dialogue on their experiences to help them imagine plausible futures for the technology. This helped policy makers imagine how they might create suitable regulations fit for the technology and the societal context.

New technologies can also open our minds to possibilities. For example, Singapore's police department is using virtual reality (VR) technology to help simulate different terrorist attack scenarios (Koh, 2019). The "Home Team" simulates scenarios such as knife-wielding and trains commanders in "team-based decision-making". Trainers can also introduce new scenarios during the exercise to add a layer of unpredictability. This form of training illustrates a key principle of futures thinking: prepare a system that engages proactively with emergent possibilities rather than reactively to shocks.

Figure 17: The "Home Team" undertaking a VR-based exercise

Source: https://govinsider.asia/innovation/singapore-ng-yeow-boon-mha-virtual-reality-counterterrorism

Solutions for anticipatory governance often derive from unusual sources, due to the fact that futures thinking, by its very nature, necessitates questioning the status quo. It can lead to collaborations among different actors that generate interesting solutions. For instance, the Finnish innovation fund, SITRA, launched a contest for citizens, "Ratkaisu 100", to generate ideas for the future direction of policy around long-term issues such as education and work.[76] Different teams developed completely different ideas and solutions, which were then further developed within a built-in incubator. The contest gave residents the power to explore and shape the city's future, in the process encouraging creative solutions from new sources. Perhaps the most out-of-the-box thinking has come from governments exploring the realm of science fiction to devise novel approaches to future challenges (Box 11).

Box 11: Science fiction for futures exploration

The French army is creating a "Red Team" of science fiction writers to help military strategists anticipate future threats to national security. France's recently established Defence Innovation Agency states that visionaries are being hired to imagine "scenarios of disruption" that might not occur to military planners. The possible sequences of events that emerge will remain top secret as they could be crucial in the fight against "malicious elements".

In the United States, the Central Intelligence Agency (CIA) has commissioned Hollywood writers on an ad-hoc basis to brainstorm potential future scenarios. In addition, the US Army has created an "Army Futures Command", which works to anticipate the "concepts, capabilities and organizational structures" needed for the "future battlefield".

Source:
www.defense.gouv.fr/actualites/articles/document-d-orientation-de-l-innovation-de-defense-doid-2019-les-nouvelles-ambitions-du-ministere-en-matiere-d-innovation.
https://www.bbc.com/news/world-europe-49044.
www.army.mil/futures#org-about.
www.ausa.org/articles/team-ignite-fires-futures-command-initiative-unites-scientists-soldiers.

76 https://oe.cd/solution100.

Designing policies and services for the future

The real impact of anticipatory thinking occurs when governments actually design policy and services in ways that reflect the insights they have gained. Based on the innovations uncovered by OPSI and the MBRCGI, the optimal approach to creating these policies and services is to ensure the design process is both participatory and collaborative, in order to generate shared visions of the future. The Commissioner for Future Generations in Wales serves as an example (Box 12).

Box 12: Commissioner for Future Generations (Wales)

In 2015, the Welsh government passed the "Well-being of Future Generations (Wales) Act", which requires public bodies to think about the long-term impact of their decisions, to "work better with people, communities and each other, and to prevent persistent problems such as poverty, health inequalities and climate change". As part of the Act, the government created the position of the "Commissioner for Future Generations", which was filled in 2016 by Sophie Howe. The Commissioner's mandate includes :

- » providing advice to government bodies
- » carrying out reviews into how public bodies consider the long-term impact of their decisions
- » making recommendations following said reviews.

The Commissioner's office has launched a number of innovative initiatives, including the "Art of the Possible", which uses a partnership approach to shine a light on work being done in Wales, with a view to imagining potential changes based on government serving the future according to well-being goals. They also run "Big Ideas", a programme that enables Welsh people to submit ideas to help solve difficult challenges. The nature of these programmes demonstrates the importance of collaboration and participation for the Commissioner's mandate and the policy creation process.

Source: https://futuregenerations.wales.

The Social Foresight Lab in Germany[77] also uses an innovative participatory approach, this time towards rural development and technology transfer. The lab team developed three future visions of rural areas which framed three workshops in rural areas to help local people experiment with future solutions and articulate their needs to policy makers observing the process. The same collaborative design approach has been used in an urban context in the Swedish city of Helsingborg, where the "H-22 A Smarter City"[78] operates as a central platform for new initiatives and ideas for a more sustainable city. Through collaboration with local, national and international partners from civil society, academia or the private sector, Helsingborg is facilitating a human-driven process of re-imagining how a smarter city might look. The platform is subsidised through an SEK 250 million (approximately EUR 24 million) fund for projects that anticipate the future needs of the city.

77 https://oe.cd/social-foresight.

78 https://h22.se/en.

Bringing about new anticipatory innovation governance

While governments have made progress in detecting weak signals, exploring futures and even responding to these futures through policy change, they have not yet built the systemic foundations needed to achieve the full potential of anticipatory, future-informed innovation. OPSI has found that anticipatory innovation governance (AIG) can support this process. AIG is a meeting ground where knowledge about plausible futures becomes actionable through innovation.[79] It embodies a broad-based capacity to actively explore options as part of broader anticipatory activities, with the aim of spurring innovations connected to uncertain futures in the hope of shaping the former through innovative practice.

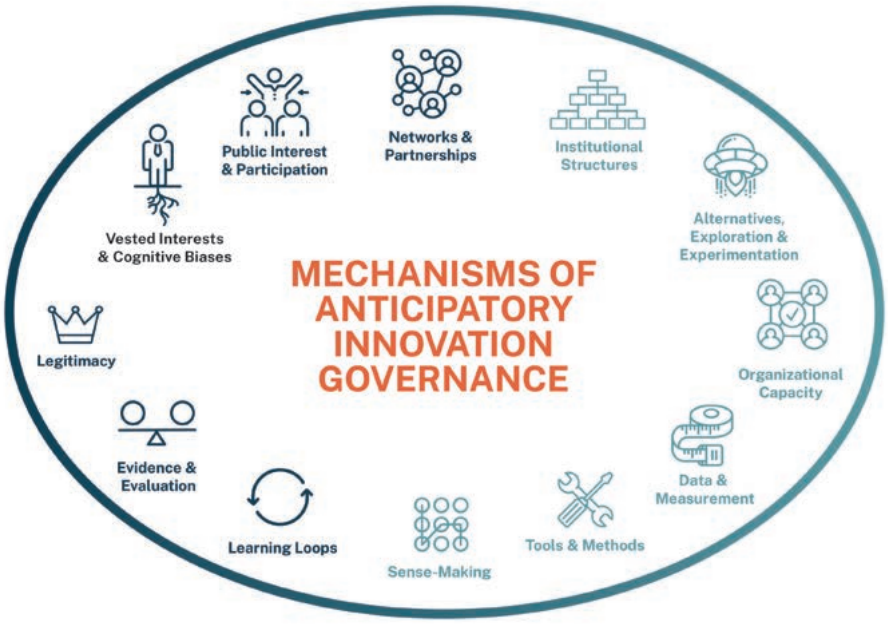
OPSI's work with governments has uncovered two key core components that underpin AIG efforts and can help make them a reality:

» Building on the **agency** of actors within the governance process. Agency involves the exploration of alternatives, tools and methods, institutional structures, organisational capabilities, and the availability of data and resources for innovation.

» Creating an **authorising environment** in which anticipatory processes can thrive. The authorising environment will involve issues such as legitimacy, vested interests, public interest and participation, networks and partnerships, evidence and evaluation, and learning loops.

As seen in Figure 18, each approach captures a variety of specific mechanisms of AIG. To the right of the figure are various approaches that focus on enhancing the *agency* of actors. For example, processes for exploring alternatives, such as scenario exploration, can help train policy makers to think better about plausible future scenarios and understand the complexities of the system in which they make decisions. This is the same method used in the European Commission's Scenario Exploration System case study. Another alternative approach is the use of big data analysis to enhance the ability of people to foresee different plausible futures, as demonstrated by various case studies in this section. Ultimately, AIG is about enhancing the ability of people to imagine different futures and ensuring they are equipped with the skills to engage with them.

Figure 18: Mechanisms of anticipatory innovation governance



Source: OPSI.

79 OPSI will soon publishing a report that provides and in-depth discussion of Anticipatory Innovation Guidance and its theory, components, and mechanisms for change. Details on the report will be found at https://oe.cd/anticipatory To be alerted when the report is published, sign up for OPSI's twice-monthly newsletter at https://oe.cd/opsinewsletter.

The left-hand side of the figure highlights mechanisms of governance that fall under the *authorising environment* component. Certain mechanisms, such as public participation and partnerships, are much easier for governments to undertake. Innovative projects in this report such as the Helsingborg H-22 Smart City initiative speak to its efficacy and possibility for governments. Other elements, such as establishing legitimacy or re-thinking vested interests and cognitive biases, are much more difficult in practice, and less common according to OPSI and MBRCGI observations.

What do these two components – and the emerging trends of anticipatory governance observed for this report – tell us about how governments might better govern in an anticipatory manner?

- Designing a public service equipped for AIG requires a change of mind-set within individuals and organisations, as well as a suite of skills focused on thinking about long-term priorities and complex systems.
- To reach this point, governments must consciously overcome institutional hurdles and vested interests that might view any non-traditional insight as radical, on the grounds that it delivers part of the policy-making process into the hands of people with ideas that diverge from the status quo. AIG must often resort to creative means to get key stakeholders on board, as was the case with the JRC, which had to run workshops for their Scenario Exploration System "by stealth" until they had generated sufficient positive feedback.
- Collaboration, partnerships and participatory design are particularly important in the initial stages. Bringing people together from different backgrounds, as seen in the Matrixed Government section of this report, fosters creativity and expands the range of plausible futures that people can imagine – a key step in anticipatory innovation. It can also help create social legitimacy for the process by fostering shared visions for the future and thus buy-in from stakeholders across and outside of government.

There is a growing need to develop and reinforce these new types of methods, structures and capacities to anticipate extreme events, influence socio-technical shifts and make visions of more desired futures actionable now. This necessitates a fundamentally rethinking of the ways in which governments create and implement public policy and deliver value. To help governments achieve this goal and take future-informed actions as early as possible, OPSI is developing and testing new AIG approaches, conducting action research and engaging in real-world experiments with governments and partners in this emerging area of innovation research and practice. We will continue to report out on our findings and updates.[80]

80 For more information, see https://oe.cd/anticipatory. Governments interested in working with OPSI to explore AIG are encouraged to reach out to opsi@oecd.org.

Scenario Exploration System

Joint Research Centre, European Commission

The Scenario Exploration System (SES) is a future simulation tool developed by the European Commission's Joint Research Centre (JRC), in collaboration with experts from the Hawaii Research Center for Future Studies. It was developed to facilitate the application of anticipatory and futures thinking to policy making, and takes the form of a multi-role board game that encourages participants to naturally grasp complex opportunities and constraints from a future-oriented perspective. SES helps to engage users in future-oriented systemic thinking by illuminating different considerations and scenarios that may not have previously been considered and by working through simulations for future dates (e.g. 2035 or 2050). Participants explore their long-term objectives against scenarios and take into consideration the views and needs of various stakeholders. In creating a realistic journey towards the future, the SES generates a safe space to uncover new perspectives and thinking, with a view to simulating possible responses linked to issues of interest to the participants. Originally geared at engaging EU policy makers with foresight scenarios, at least 15 versions have been developed with many different participants in mind.[81]

81 See https://oe.cd/ses for additional information and downloadable files for SES.

The problem

The need for policy makers to evaluate future scenarios was already a growing priority for governments even before the COVID-19 crisis. Policy makers were increasingly aware of the importance of designing suitable policies to address long-term issues such as climate change, resilience and sustainability. These types of problems are both future-oriented and complex – the uncertainties of the future being multiplied by the systemic nature of the challenges. The new European Commission President Ursula von Der Leyen has placed a higher priority on foresight for EU policy, a testimony to the growing awareness of this field's importance in the organisation.

However, while such perspectives in policy design are valuable, government institutions have traditionally lacked accessible methodological options to help engender these skills and mindsets in their workers and decision makers. Growing these skills was difficult – few EU civil servants master these methods in sufficient depth to genuinely change how they work. Foresight as a field and the use of foresight in policy making require sustained attention and training. A new delivery vehicle was therefore required to help government policy makers and public servants understand and apply anticipatory methods easily within a limited amount of time.

An innovative solution

JRC officials spent months leading the development of a foresight exercise focused on a specific issue (how to build a sustainable EU economy), and in doing so mobilised over 40 experts covering a wide field. The JRC team also held a series of workshops to engage with these experts in order to build future scenarios and discuss ways to use them to examine policies in packages and consider their systemic implications. Once the JRC realised how well this process worked and how much of what they learned could be generalised to other topics, they sought to find a way to share the insights and lessons more broadly. The typical route – slide decks and presentations – can prove interesting, but often fails to result in action or subsequent impact. The team elected to devise new ways for people to actively dig into future scenarios and develop rich, systemic reflections as to how they might play out in real life, as well as to consider how present day actions can affect the future.

This solution was the Scenario Exploration System (SES) ,a "serious game"[82] for future simulation. It involves participants exploring their long term objectives in contrasting scenario-related contexts while interacting with other stakeholders. The SES was originally aimed at engaging EU policy-makers easily with scenarios in a structured process. It was designed to help participants, in less than three hours, engage in systemic thinking with a long-term perspective and explore alternative futures on specific issues.

Figure 19: The SES Game in Action

Source: JRC.

82 A game-based environment where the primary intention is not the entertainment of the player, but rather the attainment of some other objective related to investigation or the players' progress towards an objective of real-world importance. See www.igi-global.com/dictionary/serious-games/26549.

Box 13: How to play the SES

The set-up

- The game is designed for a minimum of five players (although it can accommodate up to 15 players).
- Typically, four "scenario explorers" adopt colour-co-ordinated roles to explore a scenario, usually as policy makers, civil society organisations or businesses, for which details are specified at every session. Each scenario explorer receives different action cards to play depending on their role.
- A fifth participant takes the role of "public voice", representing one of the main opinion stream in society, and providing feedback to the scenario explorers.
- Each scenario allocates a certain level of resources (small colour-co-ordinated resource chips) to each explorer. For example, a business will have more resources in a market-oriented scenario.
- The players play on a Scenario Exploration board, which has three concentric circular lines radiating out from a central circle. These lines correspond to different rounds representing different time-spans. One side of the board corresponds to the exploration of a particular scenario while the other half relates to a contrasting scenario.
- he moderator has a set of scenario detail cards which are used to build the scenario narratives in stages.

The game

- The game covers three stages, representing three future time horizons (e.g. 10, 20 and 30 years).
- Trends and megatrends can create context for the scenario, while variable driver cards allow scenario explorers to introduce specific disruptive elements to feed play and discussion.
- At each stage, a scenario explorer takes action, placing an action card on the board and allocating a proportion of their resources.
- At the end of each stage, the public voice judges the actions.

Measuring scores

- Scores are recorded using three sheets:
- Scenario explorers write down the characteristics of their role and the actions they took (and why) on an explorer record sheet.
- The public voice record sheet fulfils the same function for society.

Considering and working through scenarios is considered by academics to be a leading methodology used during the foresight process, and is associated typically with the act of thinking about prospective futures ("prospection"). The SES is such a methodology and process backed by empirical thinking that allows the JRC and other users to engage with groups of people without resorting to time-consuming or overly technical scenario exercises. Because EU policy makers lack the time for long-term training or guidance that such efforts often entail, it was vital to "gamify" this process with short sessions focused on scenarios that matter to participants. Foresight has been a field ripe for the use of games, due to their ability to easily cast people in different roles to imagine different future scenarios (Dator, 2017).

While initial design of the game took around three months, the true value of the game is shown through its development over time. There are now over 15 editions of the SES exploring different topics. These include migration, the recycling of waste fishing gear in oceans and the use of nanotechnologies.[83] The original "Sustainable Transitions" version uses content developed during the JRC foresight study "2035: Paths towards a Sustainable EU Economy" (Bontoux and Bengtsson, 2015) as its framework for different scenarios. Another edition was developed for the European Commission's Directorate General for Health and Food Safety (DG SANTE) based on a foresight study produced for them (European Commission, 2019b). Following multiple diverse experiences, the JRC discovered that the SES has a broad range of applications, hence the development of multiple editions. It also led to the emergence of small communities of practice around the tool, and organisations or key personnel, such as Daniel Bengtsson at RISE in Sweden or Rosina Watson at the Cranfield University School of Management, who have taken the tool and adapted it for their own areas of research and teaching.[84] A prototype for a digital version of the game is also under development.

Novelty

The SES was the first methodology of its kind within the European Commission, and the only gamified system to enjoy widespread and continued success, leading to iterations and the development of a community of practice.

Results and impact

To date, 2 000 to 3 000 people worldwide have participated in a scenario exploration session on a wide range of topics and for different purposes (e.g. strategic reflection, citizen engagement, reflection on new applications of technologies, search for ideas, quick screening of solutions to concrete problems, etc.). Demand for the tool has continued to increase over time.

Beyond EU policy makers, the SES has been used with national policy makers, academics, students, people from business and industry, consultants, teachers, museum staff, children, and representatives from NGOs and associations of many sorts, as well as numerous members of the public, including high-level decision makers such as CEOs and Directors-General.

User perspective

According to user feedback, about 80% of participants say that the SES has allowed them to think strategically and to engage with the scenarios in an enjoyable way. The same proportion also stated that they had learned something new. In addition, anecdotal reports from users indicate that the approaches have been helpful in their later work. Some of the observations from policy makers underline the usefulness of the game in generating rich insights from scenario exploration. One participant described how the game "really draws you into the scenarios: you don't just end up w ith a lot of aspirations at the end, but you really got into the subject". Another noted that the SES demonstrated the complexity of policy dynamics when thinking in a future-oriented manner, stating that "you see the interrelationships between the different actors in a policy important issue, and what different policies might implicate".

Challenges and lessons learned

The Scenario Exploration System emerged, in part, from a desire to overcome barriers to the uptake of anticipatory and futures-oriented work, which is often criticised for being overly time-consuming and for delivering results that are too general to be applied. Initially, the potential of the SES was uncertain. People were sceptical about whether a "game" would complement their work. Another challenge was the consideration that the project was "complete" once the first iteration of the tool had been developed, in spite of the fact that much of its value would stem from its use and development over time. Persistence on the part of the JRC developers and a year of informal demonstration sessions were necessary to get people interested in the SES and to receive the first requests for "real life" applications in different policy areas. Thus, while there were no "hard" barriers, general scepticism and cultural barriers hindered quick uptake –

83 Editions of the SES are available at https://ec.europa.eu/knowledge4policy/foresight/tool/scenario-exploration-system-ses_en.

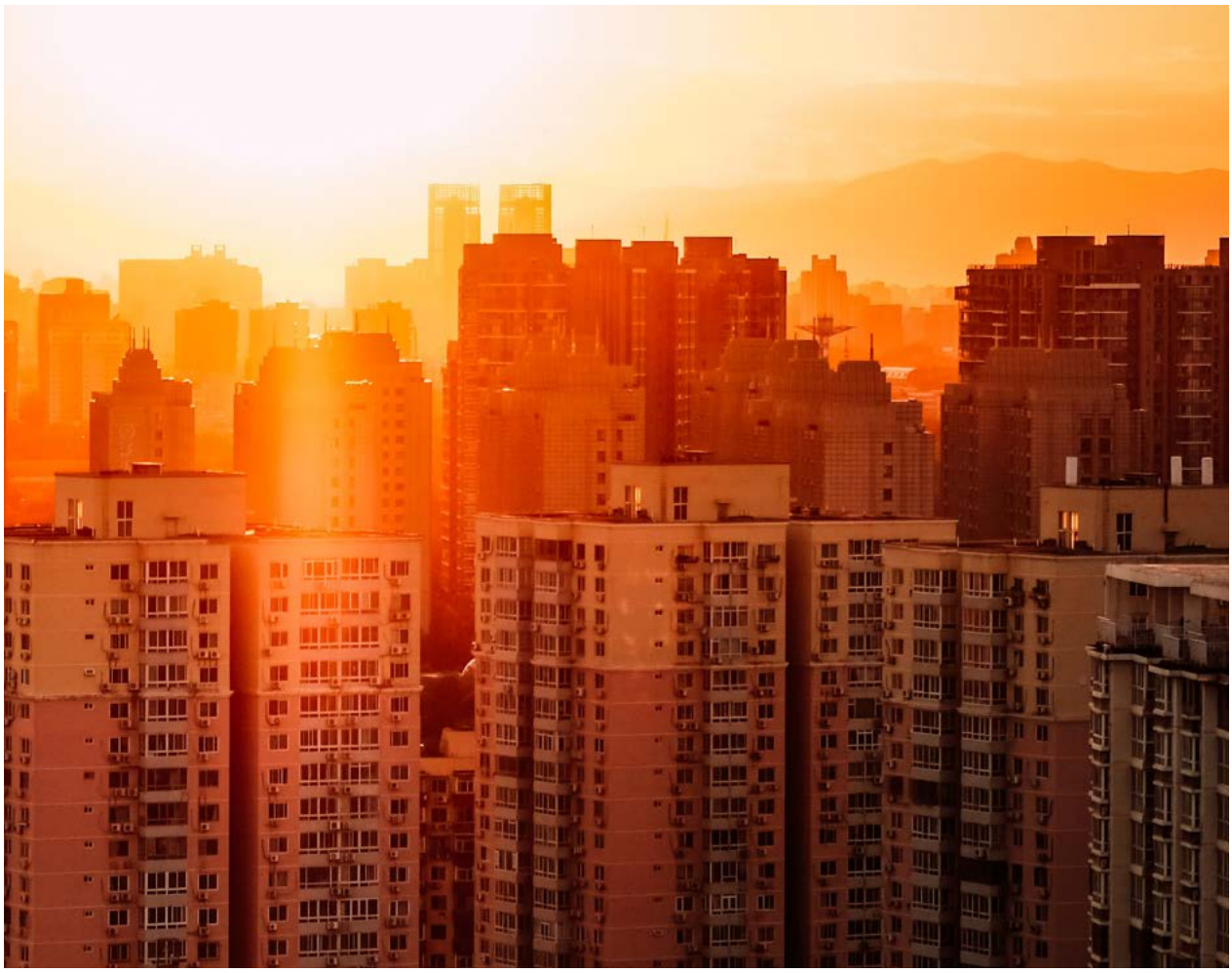
84 For a detailed explanation of the emerging communities of practice around the SES, see Bontoux et al. "A Game for all Seasons: Lessons and Learnings from the JRC's Scenario Exploration System" at www.futures.gr/wp-content/uploads/2019/10/SES-spin-offs-paper-WFR-rev2_Clean.pdf.

obstacles that were overcome through persistent exposure to the SES in the European Commission and beyond.

On a practical level, the game is enhanced by a good moderator, who can tell good stories, involve participants around the table and create a good atmosphere. Similarly, when the SES is used for bespoke projects with the participation of relevant actors, as was the case with DG MARE, the participants are more invested in the process and game quality improves. The process of playing can also unite stakeholders, fostering connections that might not have occurred otherwise. Broadly speaking, it is clear that serious games are most successful as a methodology in a policy context when they are designed with specific objectives and purposes in mind.

Replicability

The SES is a tool that can be used easily by policy makers (or anyone interested in exploring foresight scenarios). Instructions for use are available in 10 languages, with the tool having been used in different contexts and cultures around the world. The tool is available under a Creative Commons license, which allows anyone to freely use and modify the game, as long as they share the results of their adaptation under the same conditions (e.g. adaptations are not sold for commercial gain). Instructions for adaptation are available and the JRC provides practical support whenever possible, both to train users and trainers, and to support the creation of new versions of the tool. SES creators have noticed an acceleration in the tool's dissemination and replication. This is especially the case as users discover how easy the SES is to use in spite of the fact that it remains what professionals call a "high-level foresight tool". According to the creators of the tool, there are at least 15 different known iterations of the tool – with more other adaptations potentially in existence.[85] Anyone having created a new version can contact the Commission and have his/her version added to the Knowledge for Policy website for dissemination.



85 Many editions of the Scenario Exploration System are available for download at: https://ec.europa.eu/knowledge4policy/foresight/tool/scenario-exploration-system-ses_en. Developers are encouraged to share their version with the JRC so that it can be added to this page and shared widely.

Recommendations

Governments are have made significant progress over the last year in eliminating siloes and points of friction both within and across government, as well as with businesses, civil society organisations and their people. They have even identified innovative ways to better connect with future possibilities in order to actively shape them in the present. These approaches have tremendous potential and, in many cases, can be replicated by others, although there are questions as to how this may be achieved in an effective and appropriate way. To help governments understand and learn from these trends and examples, and consider how they may apply them in their own contexts, governments should:

1. Understand the needs of individuals and businesses, and re-orient services to match. Acquiring a better understanding of these needs and challenges places government in a stronger position to orient services around them. Such action is often discussed but not as often actively pursued, as it removes burden from the user but often places an increasing burden on government, at least in the near term while the underlying structures and processes are re-evaluated. Thus, governments may want to make this a key priority to ensure efforts are aligned towards this goal despite initial challenges. In doing so, they should consider digital enablers and related trade-offs, as such re-orientation of services is often enabled by technology, such as automated algorithms. OPSI's Toolkit Navigator[86] and *Hello, World: Artificial Intelligence and its Use in the Public Sector*[87] report can help, as can the OECD's *forthcoming* Digital Government Index and Policy Framework.[88]

86 https://oe.cd/toolkit.

87 https://oe.cd/helloworld.

88 https://oe.cd/diggov.

2. Consider all relevant ecosystem actors and build conduits for communication and collaboration. By leveraging systems approaches that seek to take a step back and examine the larger picture of how government activities and relevant individuals and organisations come together, governments can better understand all relevant voices in the ecosystem, including those that are unexpected, unusual and previously unconsidered. Once these have been identified, governments can identify ways to build communication and collaboration conduits among them. OPSI's work on systems approaches[89] can help governments achieve this.

3. Build up anticipatory innovation capacities to more actively shape future options. Governments have less time then they think to prepare for revolutionary and disruptive change. OPSI has spent the last several years working to understand current future-oriented approaches, and to devise ways to build response mechanisms that are more action-oriented. This can be done by enhancing the agency of actors in government and the broader ecosystem, as well as by building an authorising environment that makes future-informed action possible. OPSI's growing body of knowledge and forthcoming report on Anticipatory Innovation Governance can help here.[90]

89 https://oe.cd/opsi-sys-approaches.

90 https://oe.cd/anticipatory.

Conclusion

Governments have more potential – and more need – than ever before to provide incredible and innovative services for their people and businesses. By understanding what has been tried and learned already, and by following the recommendations in this report, governments can smooth out existing frictions in government processes and services, in internal and public-facing transactions, and in building resilient foundations for future challenges. In other words, achieving a seamless government. This is a difficult endeavour, and one that requires careful consideration to ensure it is done appropriately. However, OPSI and MBRCGI have shown in this report why seamless government is worth striving for: it creates better relationships between governments and those whom governments serve, resulting in better outcomes in many areas.

For governments to understand the types of innovations worth pursuing, they need to reach a better understanding of those affected by their work: citizens, residents and businesses. As seen in this report, the most successful examples of innovation have been designed with these individuals and organisations at the heart of the process – utilising user-centred design methods and collaboration to understand their needs. This ongoing drive towards a seamless and proactive government demands humility on the part of the public sector – to listen to their people and build on their insights. The governments discussed in this report have demonstrated that they can do just that to great effect.

As such, the structures that allow governments to actively listen and engage, and that facilitate connections and collaboration both inside and outside of government, are key. Large bureaucracies such as governments have a tendency over time to build organisational silos that stifle collaboration and sharing, ultimately inhibiting the flow of ideas and preventing collaborative efforts that can maximise the potential for innovation. Yet, innovative governments are pushing against these structures and the cultural inertia they have created by developing collaboration conduits and ecosystems that help empower individuals and unlock the potential of broader innovation systems. By building such collaborative infrastructure, governments can help unleash the power of united and informed efforts to achieve better outcomes.

It is not enough, however, to focus on reacting and adapting to the needs and challenges of today. Governments must also prepare themselves for the future, anticipating the demand for services that may be necessary but have not yet emerged – and in some cases, even shaping future possibilities to build a bright future for the generations that follow. The greater the efforts that governments expend in putting in place ways to imagine different plausible futures – and responding to them as they emerge, the less they will find themselves perpetually reacting to crises. This approach hinges on harnessing collective imaginations. Ideas must be able to permeate across organisations both inside and outside of government, and then be heard and acted upon, even when the return on investment may not be clear. The difficulty in getting this right is one reason why good anticipatory innovative governance is the exception and not the rule, though we see great potential in this field moving forward.

The urgency of bringing about seamless government has never been clearer. Our July report on innovative solutions to the COVID-19 crisis highlighted how seamless collaborations both within and across government, and externally with industry, civil society and the public, was vital to ensuring a quick and creative response to problems arising from the pandemic. The more seamless the relationship between government actors and the broader ecosystem, the better the outcomes that governments will be able to deliver.

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