

# G20 SURVEY ON AGILE APPROACHES TO THE REGULATORY GOVERNANCE OF INNOVATION

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Report for the G20 Digital  
Economy Task Force

Trieste, Italy, August 2021



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# Foreword

The digital transformation of our economies has accelerated significantly during the COVID-19 pandemic. Use of digital services has rapidly expanded and governments have needed to ramp up the digitalisation of existing public services as well as introduce and provide many new digital services to fight the pandemic responding to the evolving needs of households and business, and to get the recovery underway.

This unprecedented level of innovation in the public sector is very encouraging. Optimising the use of digital technologies and data will not only increase the efficiency of the public sector, it will also transform the way governments design and deliver services, in a more user friendly way, tailored to the evolving needs of our communities. People expect digitally-mature governments to seize these opportunities and shape the digital transformation to ensure everyone has the opportunity to participate and benefit, while also appropriately managing the risks associated with digitalisation.

Under its 2021 G20 Presidency, Italy made digital governance one of its priorities to build on the momentum from the pandemic and engage resolute action for sustainable, comprehensive and coherent transformation of government in the digital age. With the support of the OECD, the G20 Digital Economy Task Force (DETF) advanced the global debate on how to address the digital transformation of our governments from three crucial perspectives: digital tools for public services and their continuity, digital identity and agile regulatory governance to harness innovation.

Furthering the work undertaken by the previous Presidencies of Argentina and Japan, with the G20 Digital Government Principles, and the G20 AI Principles, this renewed momentum around digital government in the G20 will pave the way for ambitious collective action and build on the key messages emerging from the evidence and analysis in these three reports:

- 1) The “**G20 Compendium on the use of digital tools for public service continuity**”, with 120 practices collected across G20 members, indicates how governments can significantly transform themselves and make the best use of digital technologies, such as AI, and data to better serve societies and economies, learn from each other and accelerate the development of most successful use cases. Focusing on the quality, sustainability and trustworthiness of digital government services would be a natural way forward for the G20.
- 2) The “**G20 Collection of Digital Identity Practices**” highlights how digital identity is a core 21st century service for mature digital government and developing trusted citizen-to-Government relationships as it can grant people access the services they need, wherever and whenever they need them without any friction or impediment. Much remains to be done for portable digital identity solutions that can be trusted by all. This foundational stock-taking exercise, initiated by Italy is conceived as an initial stepping stone to improve access to all, with the long term objective of cross-county interoperability.
- 3) The “**G20 Survey on Agile Approaches to the Regulatory Governance of Innovation**” showcases ongoing efforts of G20 governments to revisit how they regulate in this fast-paced global innovation landscape. It also leveraged the OECD Recommendation on Agile Regulatory Governance to Harness Innovation as a tool for governments to fully benefit from the power of innovation while better managing their potential unintended consequences, through transparency, experimentation and shorter regulatory cycles.

To optimise the strength and the quality of the COVID-19 recovery, we need to facilitate the digital transformation of the public sector with forward looking future oriented governance structures. This crisis has forced all governments to rethink how they operate, regulate and interact with their citizens, and to accelerate deployment of digital public services and applications at a speed and scale unimaginable before the pandemic. Governments should sustain these transformational efforts in the long run. It will make them more agile, responsive, inclusive, innovative, trustworthy and better equipped to respond to future global threats. The newly established G20 Digital Economy Working Group is well placed to further these initiatives by sharing impactful and exemplary deployments and approaches. The government of Italy and the OECD stand ready to build on these foundations with future G20 Presidencies.

Mathias Cormann,  
OECD Secretary-General

Handwritten signature of Mathias Cormann in blue ink, consisting of stylized initials 'MC'.

Vittorio Colao  
Italian Minister for Technological Innovation and  
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Handwritten signature of Vittorio Colao in blue ink, consisting of stylized initials 'VC'.

# Acknowledgements

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# Executive summary

Ensuring regulatory quality is essential to allow our societies to benefit from the digital transformation's potential to enhance prosperity, sustainability and well-being while mitigating associated risks and potential adverse effects.

In the current context of high uncertainty and rapid technological change, doing so requires a paradigm shift in regulatory policy and governance that enhances systemic resilience by enabling the development of agile, future-proof regulation. Therefore, the 2021 G20 Italian Presidency has entrusted the OECD with developing a survey on agile approaches to the regulatory governance of innovation. This survey complements existing initiatives aimed at fostering more holistic, adaptive and better-coordinated regulatory governance by improving our understanding of regulatory approaches to innovation and digital technologies, including their key underlying principles, processes and institutions.

Survey results show that G20 members are keenly aware of the far-reaching implications of innovation in terms of both challenges and opportunities for regulatory policy and governance, and are taking important steps in that context. A number of G20 members are adapting the guidance, requirements and methodology linked to the application of regulatory management tools in order to take better account of innovation and digitalisation. They recognise the need to ensure that regulatory action adapts to changes in technology and business models in an efficient and timely fashion. In addition, many members declared to involve domestic as well as foreign innovative stakeholders (e.g. start-ups and SMEs) in the development and review of regulations. Both proactive engagement with innovative stakeholders and consideration of international experience in rulemaking are often the result of adherence to non-binding guidance and willingness to pursue good practice rather than compliance with formal requirements.

While there are several valuable examples of coordination of regulatory systems within governments and across borders, there is scope for more extensive and systematic co-operation with sub-national levels of government as well as foreign jurisdictions in that respect. A number of governments are engaged in the development of international instruments, which are important to help align policy approaches on innovation.

In addition, many G20 members are putting in place a range of measures to develop and implement innovative, agile and forward-looking approaches to rulemaking in areas pertaining to innovation. Various bodies tasked with strategic foresight have been set up, and many countries and jurisdictions are issuing guidance to reduce uncertainty for businesses. Performance-oriented approaches are starting to develop, and they benefit, in some cases, from a strong legal anchoring. Regulatory experiments, such as sandboxes, and exemptions are also being developed. Survey results suggest that these agile approaches are being applied in key sectors of the economy such as mobility and transport, communications, healthcare and pharma, and not limited to the financial services. Governments are also seeking more risk-based and responsive regulatory enforcement, as illustrated by the fact that most respondents declared having adopted data-driven approaches to identify, assess and manage risks.

Crucially, the survey sheds light on the wealth of measures undertaken by governments in order to accommodate innovation-driven disruption while upholding fundamental rights, democratic values and the rule of law and ensuring a sufficient level of protection for citizens and the environment. The present report therefore provides a large number of examples to facilitate mutual learning as well as the diffusion of good practices pertaining to agile regulatory governance. Quantitative survey results should however be interpreted with caution given the self-reported nature of the data as well as the limited number of questions. These findings should be considered an important first step that may be complemented through further data collection on aspects such as frequency, intensity and effectiveness of certain practices.

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# Introduction

## Background and rationale

The digital transformation enshrines great potential to enhance prosperity and well-being, but it also entails significant risks and potential adverse effects. Governments need to keep pace with this new reality and support growth and innovation while protecting their citizens. The mismatch between the transboundary effects of digitalisation and the fragmentation of regulatory frameworks across jurisdictions can also undermine the effectiveness of government action and may impede the diffusion of beneficial digital innovations. Ensuring regulatory quality is therefore a priority if key principles underpinning our way of life such as inclusiveness, resilience and sustainability are to be upheld in a context of high uncertainty and rapid change. Doing so requires a paradigm shift in regulatory policy and governance, from the traditional “regulate and forget” to “adapt and learn”, which involves more holistic, open, inclusive, adaptive and better-coordinated governance models that enhance systemic resilience by enabling the development of agile and future-proof regulation.

Important steps have been taken to address the regulatory and governance challenges associated with digital transformation and innovation more broadly (see Box 1 for more details). The G20 Ministerial Meeting on Trade and Digital Economy of June 2019 stated that members would “strive for innovation-friendly policies to capitalize on the potential of digital technologies and look to remove barriers to innovation accordingly”. The OECD, in turn, explored in its Going Digital horizontal project how policies could ensure a digital transformation that benefits all by increasing innovation and growth and improving well-being. In 2020, the OECD hosted the first Global Conference on Governance Innovation: Towards Agile Regulatory Frameworks in the Fourth Industrial Revolution.<sup>1</sup> It is now developing a Recommendation on Agile Regulatory Governance to Harness Innovation, to help governments realise the benefits of innovation while upholding protection to citizens and the environment. In the same vein, the World Economic Forum has developed a toolkit for “Agile Regulation for the Fourth Industrial Revolution”<sup>2</sup> to provide governments with a range of techniques for expanding their regulatory toolbox and responding in a more agile way to innovation. Agile approaches in response to the regulatory challenges raised by innovation are also emerging across countries, as illustrated by the recent creation of the ‘Agile Nations’ in December 2020. This intergovernmental alliance encompasses seven countries (Canada, Denmark, Italy, Japan, Singapore, the United Arab Emirates and the United Kingdom) and aims at fostering cooperation across borders towards more agile, flexible and resilient governance and regulatory practices to unlock the potential of innovation.<sup>3</sup>

### Box 1. Regulatory challenges raised by innovation

#### The “pacing problem”

Regulatory frameworks are often not agile enough to accommodate the fast pace of technological development and, as a consequence, existing rules have become outdated and no longer relevant in many cases. This regulatory lag notably owes to the technical complexity associated with a number of innovations. Governments may indeed lack knowledge of how innovations will affect markets and societies more broadly. It is therefore challenging for governments across the world to keep pace with the realities of this new ecosystem in a way that avoids reducing the potential benefits of innovation, including economic growth, while also protecting the legitimate private interests of stakeholders such as individuals (including from vulnerable groups and private sector organisations). As a result,



fundamental issues stemming from the widespread adoption of innovations in key areas of social and economic life have so far been left unaddressed. This situation can severely undermine public trust in governments and institutions.

### **Designing “fit-for-purpose” regulatory frameworks**

Traditional regulation is often designed on an issue-by-issue, sector-by-sector or technology-by-technology basis and it may not be a good fit for the challenges brought by innovation. In many areas, innovations are indeed eroding, straddling or blurring the usual delineation of sectors, and the increasing convergence of technologies is exacerbating this issue. Digitalisation has, for example, led to growing convergence in telecommunications, media markets and online platforms, in which many components of their digital ecosystem are closely interrelated. Innovations may also blur the traditional distinction between consumers and producers, as is the case with the rise of individual “prosumers” in the electricity market that both consume and supply energy to the network. These changes make it difficult to clearly identify relevant markets and question the scope and mandate of ministries and agencies. The economic properties of digital businesses also challenge the standard cost-based regulatory models as price formation in the digital economy obeys different rules. New forms of regulatory intervention may also be needed to address potential market failures in some digital markets.

### **Regulatory enforcement challenges**

Innovations challenge regulatory enforcement in several ways. One of the issues has to do with the fact that traditional notions of liability may no longer be fit for purpose due to difficulties in apportioning and attributing responsibility for damages caused – for instance, in accidents involving AI-embedded machines or devices. New neurosciences and neurotechnologies such as brain-computer interface systems also entail potential enforcement difficulties regarding privacy, responsibility, dual use and safety among others (OECD, 2020<sup>[1]</sup>). Similarly, 3D-printing technology raises legal and ethical concerns regarding intellectual property law (e.g. copyright, patents, designs, three-dimensional trademarks and even geographical indications) as well as liability and security concerns. Since damages resulting from the use of innovations can occur across jurisdictions, coordination on enforcement among governments or agencies can be particularly challenging - either due to diverging regulatory approaches or to difficulties in apportioning liabilities among jurisdictions. More generally, innovations challenge regulatory enforcement because categories, which underpinned regulations, and specific rules, which are supposed to be verified and enforced, are often not strictly applicable to new situations, products, and services. Depending on legal frameworks and enforcement approaches, governments can end up either cracking down indiscriminately on innovations that do not fit previously existing categories, or powerless to respond to emerging risks – or both at the same time. In markets in which online platforms have a prominent role, regulatory enforcement is challenged by the shift in liability from those platforms to individual market participants and, more generally, by the shift from traditional regulation (e.g. labour law) towards contractual relations and private governance arrangements. These shifts restrain the ability for government authorities to oversee, regulate and enforce obligations in this space. As an example, data-driven business models have given rise to a fundamentally new way of distributing content that makes intellectual property rights difficult to enforce.

### **Institutional and transboundary challenges**

The traditional institutional framework underpinning regulations – around sector or activity-focused ministries and agencies – is also showing its limits when dealing with the transversal challenges raised by innovations, whose effects can span multiple regulatory regimes and potentially create risks and uncertainty. Digitalisation, for example, pays little regard to national or jurisdictional boundaries and drastically increases the intensity of cross-border flows and transactions. It gives businesses global reach while being able to locate various stages of their production processes or service centres across different countries. This feature enables companies to “forum shop” or to avoid compliance when it

comes to their physical presence or strategies regarding taxation, data protection or other regulated areas. The mismatch between the transboundary nature of transformative innovations such as digitalisation on the one hand, and the fragmentation of regulatory frameworks across jurisdictions on the other hand, may undermine the effectiveness of action and therefore people's trust in government. It may also generate barriers to the spread of beneficial innovations.

Source: (OECD, 2019<sup>[21]</sup>).

Building on the above-mentioned initiatives, gaining a deeper understanding of the state of play in terms of regulatory approaches to innovation and digital technologies, including the key underlying principles, processes and institutions is a pre-requisite to bring about the necessary changes in regulatory governance. It is equally important to identify the key obstacles faced by governments in this context. The 2021 G20 Italian Presidency has declared implementing this agenda as a priority, and, as such has entrusted the OECD with developing a survey on agile approaches to the regulatory governance of innovation – conceived to provide a more accurate description of existing practices and identify key barriers to developing and implementing agile regulatory governance. One key area of focus is the role of regulatory experimentation and exemptions (e.g. regulatory sandboxes and testbeds) in supporting innovation and fostering policy learning and adaptation. This report presents the survey's main findings and conclusions.

## Methodological remarks and report structure

The findings presented in this report are based on the responses submitted by eighteen G20 member countries and jurisdictions (Argentina, Brazil, Canada, People's Republic of China, European Commission, France, Germany, Indonesia, Italy, Japan, Korea, Mexico, Russian Federation, Saudi Arabia, South Africa, Singapore, Turkey and UK) in addition to UNIDO, on a self-reporting basis, to the survey on agile approaches to the regulatory governance of innovation between March 18 and July 14, 2021. Unless otherwise stated, data are expressed as the number of responses and refer to the previous five-year period.

The survey, which sought to minimise response burdens, consisted of 34 questions including close-ended, multiple-choice and open questions. Survey findings are thus to be understood as relatively high-level. They could be complemented through more extensive data gathering in future for a more granular analysis.

This synthesis report is structured around the four main areas covered by the survey (see below). It also incorporates a forward-looking "conclusions" section.

1. Adaptability of regulatory management tools (regulatory impact assessment, ex post evaluation, stakeholder engagement, etc.);
2. Coordination of regulatory systems within governments (including at the sub-national level) and across borders;
3. Ability of governance and institutional set-ups to enable the development of agile and future-proof regulation;
4. Data-driven and responsive regulatory enforcement.

## 10 | Notes

<sup>1</sup> <https://www.oecd.org/gov/regulatory-policy/oecd-global-conference-on-governance-innovation.htm>.

<sup>2</sup> [http://www3.weforum.org/docs/WEF\\_Agile\\_Regulation\\_for\\_the\\_Fourth\\_Industrial\\_Revolution\\_2020.pdf](http://www3.weforum.org/docs/WEF_Agile_Regulation_for_the_Fourth_Industrial_Revolution_2020.pdf).

<sup>3</sup> <https://www.gov.uk/government/publications/agile-nations-charter>.

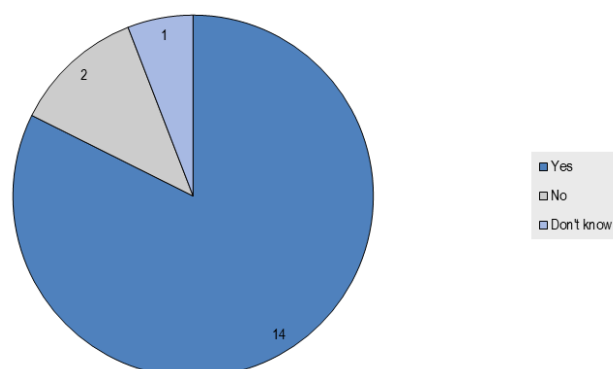
# 1 Adaptability of regulatory management tools

Addressing the above-mentioned “pacing problem” requires, in particular, using regulatory management tools to develop more adaptive, iterative and flexible assessment. Stakeholder engagement, regulatory impact assessment (RIA), and ex post evaluation should thus be conceived as mutually complementary tools embedded in the policy cycle to enable continuous learning and adaptation. Based on this premise, this section discusses the extent to which G20 members have adapted regulatory management tools to address innovation-related changes; e.g. high uncertainty, need for greater agility and flexibility, etc. It also seeks to identify relevant patterns across countries, notably with regard to the nature of implemented changes as well as their underlying rationale. It pays special attention to highlighting relevant examples of measures adopted by countries with regard to the following objectives: a) implement data-driven approaches to monitoring the effects of regulation; b) involve start-ups and innovative SMEs systematically in stakeholder engagement processes pertaining to the development and/or review of laws and regulations (their active involvement being critical for governments to fully understand the implications of technological developments); c) consider international knowledge and experience when developing innovation-related policies (including laws and regulations).

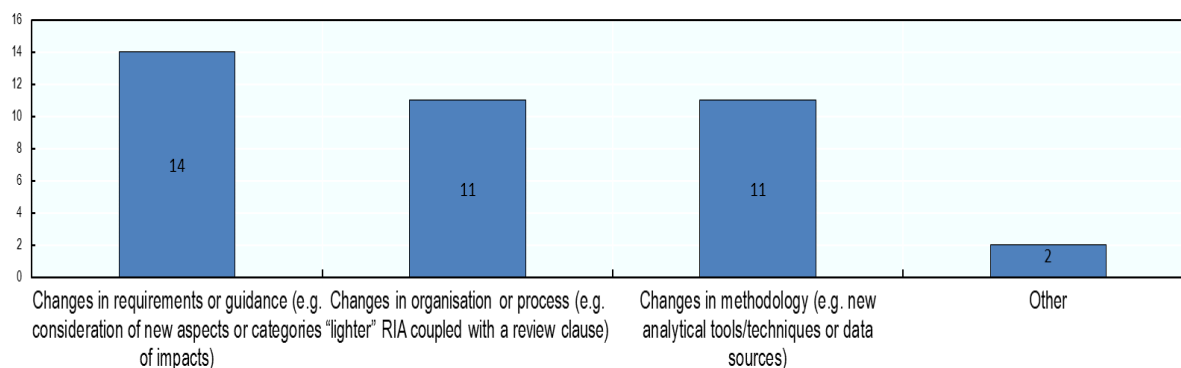
## Regulatory impact assessment (RIA)

The vast majority of respondents declared to have adapted regulatory impact assessment (RIA) in order to address innovation-related changes (Figure 1.1). As shown in Figure 1.2, changes concerning requirements or guidance (e.g. consideration of new aspects or categories of impacts) were the most frequently reported category, although many of the countries having undertaken changes in this area also reported modifications concerning organisation or process and/or methodology, such as the introduction of new analytical tools/techniques or data sources.

**Figure 1.1. Countries and jurisdictions having made innovation-oriented changes to RIA**



Source: G20 survey on agile approaches to the regulatory governance of innovation.

**Figure 1.2. Main innovation-related changes to RIA, by type**

Source: G20 survey on agile approaches to the regulatory governance of innovation.

The above-mentioned results can be interpreted as signalling awareness of the need for a holistic approach in the adaptation of regulatory management tools, encompassing both institutional and operational aspects. Box 1.1 outlines some of the most relevant examples provided on the topic as part of the survey.

### Box 1.1. Innovation-oriented changes to RIA: selected examples

The **European Commission** reported having revised its guidance on RIA-related innovation and digital aspects with a view to making regulatory responses more adaptable in view of technology progress and new business models. It also indicated to have strengthened the focus on the implementation of the Innovation Principle (a tool aimed at "ensuring that legislation is designed in a way that creates the best possible conditions for innovation to flourish"<sup>1</sup>) as well as on future-proofing and experimentation, such as regulatory sandboxes (see section 3 for further details).

The **UK government**, in turn, reported a series of changes aimed at encouraging policy officials to consider regulations' impact on innovation (and vice versa) throughout the policy cycle. These changes are expected to facilitate more innovation-friendly regulation, as well as the systematic consideration of alternatives to regulation. As an example of changes in requirements or guidance, the UK has trialled an innovation test pilot to foster the systematic consideration of innovation-related aspects throughout the policy development cycle, including in RIAs. The test provides guidance to determine the relationship between the policy and innovation, as well as key questions at each stage of the policy development cycle to help shape the assessment of innovation. It also seeks to encourage policy officials to consider new analytical tools and techniques to assess innovation in the policy development cycle.

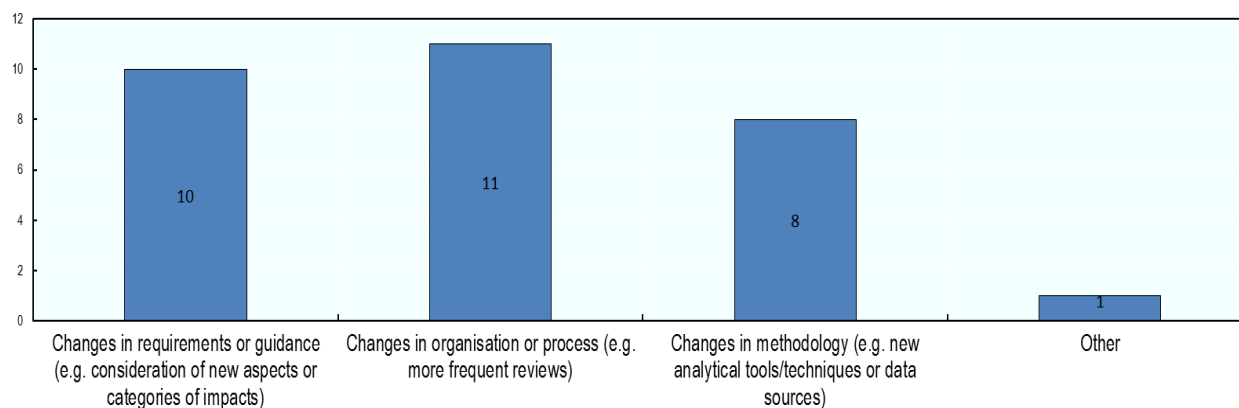
**Brazil** has undertaken a series of steps that could lead to more agile regulatory governance as part of broader regulatory reform efforts. In particular, Decree n. 10.411/2021<sup>2</sup>, which rendered RIA mandatory for proposals stemming from the executive federal branch of government, provides for a flexible approach to RIA and mandates ex-post evaluation in case of exemptions. It also introduces sunset clause obligations and flexibility in terms of the impact assessment methodology.

Source: G20 survey on agile approaches to the regulatory governance of innovation.

## Ex post evaluation

As for RIA, the majority of respondents indicated having adapted regulatory ex post evaluation to address innovation-related changes. In most cases, reported changes had to do with either organisation and process or requirements and guidance, although a number of countries also indicated changes in methodology. A breakdown is provided in Figure 1.3.

**Figure 1.3. Main innovation-related changes to ex post evaluation, by type**



Source: G20 survey on agile approaches to the regulatory governance of innovation.

G20 members offer various examples in this area. As part of the requirement for conducting reviews of the regulatory stock, which Canada adopted in 2018 under its Cabinet Directive on Regulation, regulators must examine regulations with a view to mitigating unintended impacts such as barriers to trade or innovation. In the same vein, the UK's Small Business, Enterprise and Employment Act 2015 includes a statutory duty for government departments to review secondary legislation (which incorporates the bulk of regulation), usually five years after a qualifying measure has been in force. This provision seeks to promote commitment by government departments to undertaking periodic reviews of their regulations to ensure that they are achieving their intended effects, identify any unintended effects, and gauge how well they are working and whether they are still necessary. Both these examples illustrate the importance of systematic and periodic evaluation in a context warranting adaptive approaches to regulation.

## Stakeholder engagement

Twelve respondents indicated that they involved domestic innovative stakeholders, including start-ups and SMEs, in development and review of regulations. The same number of respondents indicated that they do so with foreign innovative stakeholders. Some of them (e.g. the EU) pointed out, however, that such involvement only takes place when relevant in light of the subject matter. Fifteen members declared to use specific tools such as one-stop-shops and digital communications for this purpose. However, while stakeholder engagement procedures are often open to any stakeholders, whether domestic or foreign, few respondents reported specific efforts to reach out to foreign stakeholders. An example of such practice has been reported by Turkey, where meetings have been organised with relevant stakeholders, including from abroad, that may have been affected by a By-Law on the Establishment and Operation of the National Mobile Public Warning System. In the absence of such efforts, it may be difficult to ensure awareness and understanding of foreign stakeholders about regulations under development or review - particularly smaller players with less oversight of regulatory frameworks at the global level.

Several G20 members reported that both proactive engagement with innovative stakeholders and consideration of international experience (of which Box 1.2 presents selected examples) are often the result of adherence to non-binding guidance and willingness to pursue good practice rather than compliance with formal requirements.

### Box 1.2. Stakeholder engagement for innovation-friendly regulation: selected examples

**France's** response to the survey highlighted the co-construction approach developed by the country's electronic communications and postal regulator (ARCEP) for internet quality of service monitoring, which involves open public consultations on each regulatory decision, data sharing with start-ups, local authorities and other companies. More generally, France indicated that, although not a formal requirement, benchmarking of international practices usually takes place prior to the drafting of a new law or regulation related to innovation policies.

In **Indonesia**, consultations with foreign experts from various international organisations and companies are conducted to benchmark foreign laws and regulations, approaches and best practices in fields such as radio frequency spectrum, posts, digital broadcasting, data classification, personal data protection, cloud computing, broadband, etc. Again, this is not mandated by law but carried out "to understand current regulatory trends at international level".

**Turkey** conducts public consultations as part of the development and amendment of regulations to get feedback and suggestions from stakeholders, including foreign parties, start-ups and SMEs. Meetings with stakeholders are organised during the regulatory development and amendment processes; e.g. for the By-Law on the Establishment and Operation of the National Mobile Public Warning System. Feedback was received from several parties including foreign mobile device manufacturers as well as local and international electronic communications operators. Turkey's response to the survey also pointed out that international standards and practices are taken into due consideration in regulatory assessments, and technical regulations are developed considering relevant technical specifications and guidelines from international organisations.

**Argentina** reported that start-ups and innovative SMEs are systematically involved through public consultation. It also stated that, although the public consultations do not foresee the participation of foreign companies via their online system, they can participate through alternative channels. As part of broader regulatory reform measures relating to the ICT sector, the Argentinian government reported conducting consultations with the ICT industry to improve regulatory practices and adapt them to constant technological change. It also reported to hold workshops and meetings with all members of the industry, although it pointed out that "no method or manual to guide these meetings" exists.

**China** reported that innovators, start-ups, and innovative small and medium-sized enterprises, including foreign stakeholders, have access to the legislative information, and are able to participate in the stakeholder-consultation procedures in the development or review processes. For instance, in the amendment process of the Anti-Monopoly Law of the People's Republic of China and formulation of relevant regulations and 7 guidelines, responsible agencies released the draft to the public for review, and consulted with enterprises through various means.

The **UK** Government's stakeholder engagement is conducted via online public consultation, which is open to all interested parties, including SMEs and start-ups and foreign stakeholders. For example, in 2020, the Intellectual Property Office published a consultation on 'Artificial Intelligence and intellectual property'. Additionally, the innovation test pilot encouraged policy officials to engage with a wider variety of stakeholders throughout the policy development cycle, including SMEs, start-ups, new market entrants and regulators. The pilot also encouraged policy officials to consider the international arena, and how their proposals interact with the international framework. Although there is no requirement for



ministers or regulators to consider foreign approaches when making regulations, they are encouraged to do so. The country is implementing an International Regulatory Cooperation Strategy (in light of the OECD's Report and Recommendations, the UK's IRC review published in 2020) that will strongly encourage awareness, consideration and consistency with international practice.

**South Africa's** regulatory and legislative development framework includes a public engagement process enabling stakeholder participation. For example, the Electronic Communications Act and Competition Act Amendment Bills' public engagement processes enabled foreign stakeholders, innovative SMEs and start-ups to participate. Regular consultative sessions are organised for the purposes of communicating new draft policies and programs and gathering feedback. These sessions can be government-driven (e.g. Intellectual Property and Commercialisation Colloquium) or privately organised (e.g. Innovation Summit, Innovate Durban). Challenges reported in this context include non-reach of the relevant audience, limited information at the planned session and poor mechanisms for collecting feedback.

Source: G20 survey on agile approaches to the regulatory governance of innovation.

## Building on international knowledge and expertise

Innovation *de facto* transcends borders. It pays little regard to jurisdictional, administrative or sectoral boundaries that characterise traditional rulemaking (OECD, 2019<sup>[2]</sup>). The policy challenges innovation raises therefore require a true paradigm shift in the way rules are developed. The political structures and attributions cannot – and should not – change overnight, and remain tied to the sovereignty of each nation. However, the building of evidence is no doubt a fundamental part of all regulatory processes, and an essential opportunity to consider international knowledge and expertise when developing innovation-related policies (including laws and regulations).

G20 responses suggest there is rarely a legal requirement to consider international knowledge and expertise to develop innovation-related policies. However, many respondents noted that they do customarily look into experience in other countries, and responses often point to interesting examples of sector-specific approaches. Argentina's ICT Undersecretariat permanently participates in international industry forums as well as smaller-scale, ad hoc meetings, and recently engaged with Brazilian regulator Anatel to learn about its new regulation on Wi-Fi 6. China's establishment of the Interim Measures on Supervision and Management of Financial Holding Companies in September 2020 built on studies of regulatory patterns and the experiences of major economies, including the European Union and the United States.

Typically, benchmarking against international regulatory approaches takes place via RIA processes. Introduced in June 2020, Brazil's Decree 10.411 establishes an international benchmarking requirement in RIA. Mexico applies a RIA filter which facilitates the identification of a 'high-impact' regulation and instructs regulators, in such cases, to describe how the area in question is addressed in other countries and to highlight relevant good international practices (OECD, 2018<sup>[3]</sup>). Korea has a requirement to include case studies of foreign countries to inform the analysis of alternatives during the enactment and amendment of regulation. The UK is envisaging to make this part of its upcoming Regulatory Co-operation Strategy, which arises from the 2020 OECD Review of International Regulatory Co-operation of the country (OECD, 2020<sup>[4]</sup>). Another avenue frequently reported by respondents to learn from foreign jurisdictions is considering international knowledge and expertise on technological trends through strategic foresight initiatives, typically horizon scanning (see Section 3).



## Notes

<sup>1</sup> [https://ec.europa.eu/info/news/innovation-principle-makes-eu-laws-smarter-and-future-oriented-experts-say-2019-nov-25\\_en](https://ec.europa.eu/info/news/innovation-principle-makes-eu-laws-smarter-and-future-oriented-experts-say-2019-nov-25_en).

<sup>2</sup> [http://www.planalto.gov.br/ccivil\\_03/\\_ato2019-2022/2020/decreto/d10411.htm](http://www.planalto.gov.br/ccivil_03/_ato2019-2022/2020/decreto/d10411.htm).

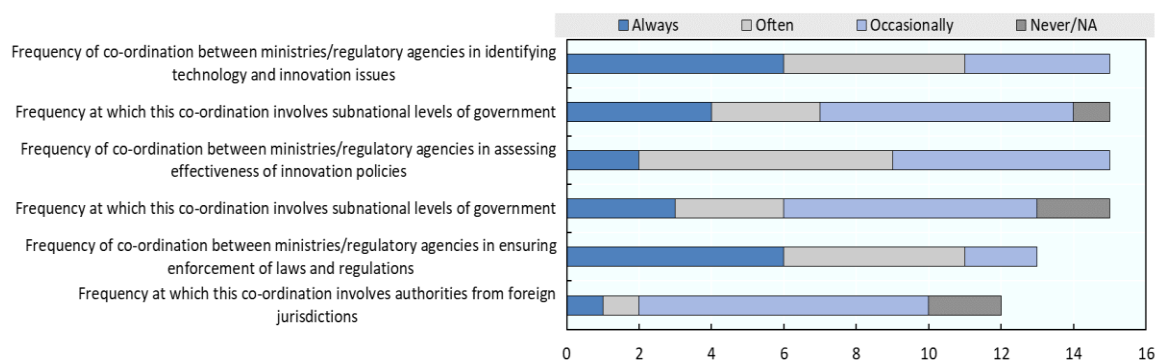
## **2** Co-ordination of regulatory systems within governments and across borders

Given the wide-ranging and cross-cutting implications of many innovations, governments need to avoid potential regulatory failures resulting from siloed approaches and lack of coherence across regulatory frameworks. To do so, appropriate institutional co-operation, both domestically and across jurisdictions, is essential. This section examines the measures undertaken by governments to ensure a whole-of-government approach to innovation-related rulemaking and regulatory delivery through effective co-ordination (formal as well as informal) across policy areas and between national and sub-national levels of government. The section also highlights relevant examples of shared innovation-related regulatory approaches across ministries and agencies, such as cross-sector regulatory sandboxes and common approaches to data-driven regulation.

As shown in Figure 4, the vast majority of respondents reported some degree of co-ordination of their regulatory systems to identify, assess and enforce innovation-related issues and policies. Nearly all respondents declared that ministries and regulatory agencies in their country coordinate to identify cross-cutting regulatory issues related to technology and innovation and ensure regulatory coherence at least occasionally. Eleven of them indicated that this coordination takes place often or always. In most cases, co-ordination was reported to involve sub-national levels of government, although such involvement is seldom systematic.

A similar pattern emerges when considering the reported instances of institutional cooperation to assess the relevance and effectiveness of regulatory policies and frameworks regarding innovation. Strikingly, coordination on ensuring the appropriate enforcement of laws and regulations in innovation-dominated environments is comparatively less frequent with foreign jurisdictions. Among the respondents reporting to co-ordinate with foreign jurisdictions, only two indicated doing so always or often, and the majority do so only occasionally. This response is consistent with traditional regulatory and enforcement processes confined within jurisdictional boundaries, resulting in practical and legal challenges for international co-ordination. However, given the often transboundary effects of innovation, co-ordination with foreign jurisdictions can in some areas be just as important as with other authorities in the same government, particularly in order to prevent regulatory arbitrage and a “race to the bottom” among governments.

**Figure 2.1. Co-ordination of Regulatory Systems to Identify, Assess and Enforce Innovation-related Issues and Policies**



Source: G20 survey on agile approaches to the regulatory governance of innovation.

On a related note, ten respondents declared to have developed shared innovation-related regulatory approaches across ministries and agencies, such as cross-sector regulatory sandboxes and common approaches to data-driven regulation. This is an important finding given the potential of such initiatives to foster regulatory coherence and mutual learning. In its response to the survey, Italy highlighted *Sperimentazione Italia*, which is a general measure involving cross-sector regulatory sandboxes (see section on Agile and future-proof governance and regulatory approaches for more details).

There are several valuable examples of coordination regarding the above-mentioned areas. The European Commission noted that all of their new initiatives are coordinated across all departments by means of inter-service groups and inter-service consultations. In addition, ongoing coordination and dialogue takes place with the Committee of the Regions (representing the sub-national level); e.g. regarding territorial impact assessments and methodologies. Furthermore, in the Fit for Future stakeholder platform, regions and communes are represented to address enforcement and implementation issues. Moreover, in July 2019, eight French regulators (Competition Authority (ADLC), Financial Market Authority (AMF), Telecommunications Regulatory Body (ARCEP), Data Protection Authority (CNIL), Energy Regulatory Body (CRE), Broadcasting Authority (CSA), Gaming Authority (ARJEL) and Transport Regulatory Authority (ART) issued a dedicated memorandum which outlines existing practices and discusses some of the challenges raised by data-driven regulation (OECD, 2020<sup>[5]</sup>). This memorandum crystallises these regulators' common approach to data-driven regulation. South Africa, in turn, has created government clusters to facilitate dialogue and information sharing between relevant departments. In addition, it cooperates regionally through bodies such as the Communication Regulators Associated of Southern Africa (CRASA) and the Southern African Development Community (SADC) to develop common regulatory approaches and encourage structured growth and technological development without stifling innovation.

Furthermore, a number of promising government-wide initiatives relating to various aspects of the regulatory governance of innovation are underway in the UK (see Box 2.1).

### Box 2.1. Innovation-related regulatory cooperation in the UK

The UK's Plan For Growth (2021) signals a continuing commitment to the development of the UK's regulatory system in ways that support innovation, while ensuring public trust in predictable regulatory frameworks – maintaining the direction of travel set out in the white paper on Regulation for the 4th Industrial Revolution (2019). As referenced in the cross-Government National Data Strategy, the Better Regulation Executive is exploring across UK regulators the opportunities and challenges around

opening up data to facilitate innovation. This includes considerations around transparency, trust and confidence in regulatory regimes, and the role of regulators in helping drive data availability in the wider economy.<sup>1</sup> In its white paper, the UK government also committed to establishing a Regulatory Horizons Council (RHC) to identify the implications of technological innovation with high potential benefit for the UK economy and society, and advise the government on regulatory reform needed to support its rapid and safe introduction. It was established in 2020 and works across Ministries and regulators. The Better Regulation Executive also convenes regularly the Regulators' Innovation Network (RIN) as a group of national regulators that are at the cutting edge of new technologies and innovation. It provides a space to share best practice, learn from each other and generate ideas on how to respond to the emergence of new technologies and support the introduction of new products and services. The objective is to mainstream proven regulatory approaches and foster better collaboration between regulators. For example, the RIN considered a working paper with ideas on how regulators could measure support provided to innovators.

The UK Government is working with regulators on smart data by building on the success of Open Banking and putting consumers in control of their data and enabling innovation across, finance, digital communications and energy.<sup>1</sup> On digital and data regulation, regulators are working together on the complex interplays between competition, data, content, and consumer issues – via the Digital Regulation Cooperation Forum. The UK Government has also gathered evidence on regulators' use of emerging technologies to improve the efficiency or effectiveness of regulation in a transformational way.

In addition, regulators are responding to innovation-related developments that blur lines between sectors and organisational boundaries by creating Innovation Hubs, such as those hosted by the Innovation Office of the Medicines and Healthcare products Regulatory Agency. An advisory body to the Government, the Centre for Data Ethics and Innovation, is engaging with regulators across its remit for governance of data-driven technologies.

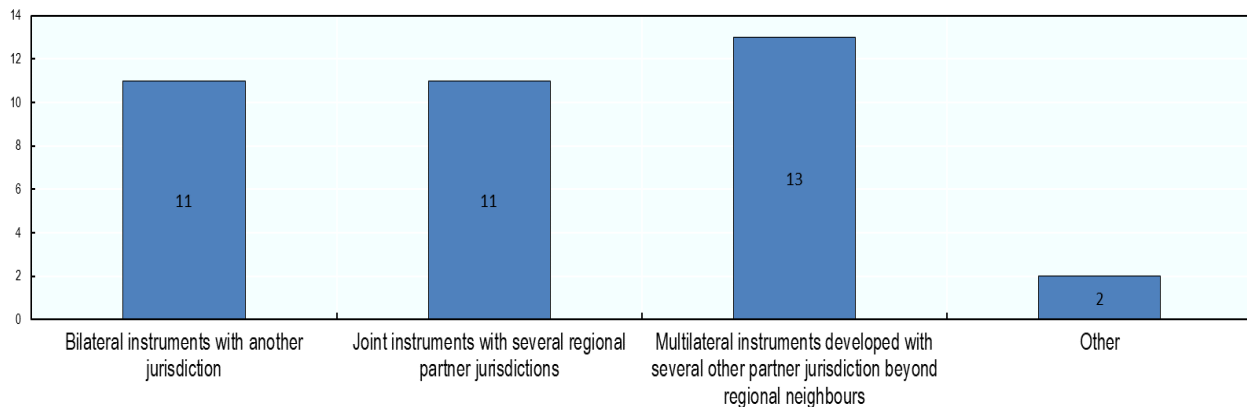
The Regulators' Pioneer Fund (RPF) was announced in 2017 and invested £10 million in 14 regulator-led projects during 2018-20. Through RPF-funding regulators have tested and piloted ambitious, experimental and collaborative regulatory approaches, improving their ability to support innovation and innovators in their sectors. The first round of funding has been independently evaluated.

As part of the wider efforts to unlock the value of voluntary standards to support innovation and enable its effective commercialisation, the government is establishing a standing coordination mechanism with the UK's National Standards Body (British Standards Institution) and other members of the UK's National Quality Infrastructure (National Physical Laboratory and UK Accreditation Service). By bringing together expertise from different organisations, this will enable the systematic identification of priorities for standardisation and help ensure that Government policy and standardisation work in a synergetic way to support innovation.

<sup>1</sup> <https://www.gov.uk/government/consultations/smart-data-putting-consumers-in-control-of-their-data-and-enabling-innovation>.

Source: G20 survey on agile approaches to the regulatory governance of innovation.

Beyond co-ordination, the development of joint instruments related to innovation is an important tool to help align policy approaches on innovation between like-minded countries. Survey responses confirm that a number of governments engage in the development of international instruments, combining bilateral, regional and multilateral approaches (Figure 2.2).

**Figure 2.2. International instruments for co-operation on innovation among like-minded countries**

Source: G20 survey on agile approaches to the regulatory governance of innovation.

One multilateral instrument given as an example of co-operation in an area related to innovation is the ongoing negotiation of a Joint Statement Initiative on E-Commerce, encompassing more than 80 members of the World Trade Organization. Reported examples of bilateral and regional co-operation show that important advances also take place among fewer governments. At a bilateral level, for example, Argentina and Chile recently agreed to eliminate international roaming charges between the two countries under a Bilateral Administrative Commission, formed through their free trade agreement. The UK reported engaging in negotiations on bilateral Free Trade Agreements that seek to align policy approaches on the regulation of innovation.

At European level, the Council of the European Union adopted in November 2020 a set of Conclusions on Regulatory Sandboxes and Experimentation Clauses. These Conclusions call for the identification of policy areas in which additional experimentation clauses can foster innovation, and an analysis of how national experiences with regulatory sandboxes can be elevated to the European level. The ASEAN Data Management Framework, in turn, is designed to support international data flows across the region. It is to do so by creating shared regulatory disciplines, establishing a common language and taxonomy to enhance data management, developing shared guidance on best practices from within and beyond the bloc, and enabling businesses to pursue cross-border opportunities by creating minimum standards for data protection through the 'Trusted Data Partners' initiative. In particular, ASEAN has developed Model Contractual Clauses for Cross Border Data Flows (MCCs), which are template contractual terms and conditions that may be included in the binding legal agreements between businesses transferring personal data to each other across borders. This helps to reduce the negotiation and compliance costs and time investments, especially for SMEs, while ensuring personal data protection when data is transferred across borders.<sup>2</sup>

International fora are also an important opportunity to co-operate, align approaches and exchange experiences, without necessarily resulting in joint international instruments (OECD, 2013<sup>[6]</sup>) (OECD, 2016<sup>[7]</sup>). Participation in these fora can help reinforce trust among country regulators on their respective institutions and regulation, and bridge the gap between the national scope of domestic rulemaking and the internationalised nature of the prevailing regulatory challenges faced by governments, including those related to technology and innovation. A prominent example in this direction is the Agile Nations, an inter-governmental network currently encompassing seven countries including several G20 members. This network aims at promoting good practice and fostering cooperation on rulemaking, with the objective to make it easier for businesses within their jurisdictions to introduce and scale innovations across their markets while upholding protections for citizens and the environment. In the same vein, Argentina's

Ministry of International Relations, International Trade and Cult was reported to organise "Digital Tables" with various countries for specific agendas.

## Notes

<sup>1</sup> <https://www.gov.uk/government/publications/uk-national-data-strategy/national-data-strategy>.

<sup>2</sup> <https://www.pdpc.gov.sg/help-and-resources/2021/01/asean-data-management-framework-and-model-contractual-clauses-on-cross-border-data-flows>.

# 3 Agile and future-proof governance and regulatory approaches

This section discusses governments' efforts to develop and implement innovative, agile and forward-looking approaches to rulemaking in areas pertaining to innovation, which are necessary to ensure regulatory quality when confronted with many of the regulatory challenges discussed earlier in this report. It notably examines the extent to which governments are engaging in strategic foresight (e.g. horizon scanning or scenario analysis) to anticipate and monitor the implications of innovation, issuing regulatory guidance to reduce uncertainty levels faced by businesses regarding compliance with existing requirements, and applying outcome- or performance-oriented approaches to regulation. In addition, it considers the extent to which G20 members are resorting to experimental approaches and regulatory exemptions in controlled environments (e.g. regulatory sandboxes, testbeds, innovation spaces and laboratories) with a view to supporting innovation and fostering policy learning and adaptation.

Twelve respondents reported to engage in strategic foresight (e.g. horizon scanning or scenario analysis) to anticipate and monitor the implications of innovation/technological change. Nearly all of them indicated that these foresight activities draw on relevant international knowledge and expertise. Box 3.1 summarises several examples provided by G20 members with regard to foresight-related practices.

## Box 3.1. Strategic foresight to anticipate and monitor the implications of innovation and technological change: selected examples

Since 2018, the **Korean** government has deployed government-wide efforts to predict and respond to the regulatory needs from rapidly growing, innovative industries. One of the main pillars of such efforts is the introduction of the Pre-emptive Regulatory Reform Roadmap. The roadmap reflects the government's determination to identify major regulatory issues in the development and commercialisation phases. Accordingly, the Korean government has established a plan to revise national regulatory frameworks, and each ministry is recommended to conduct international case studies. Progress to date in implementing the roadmap stands as follows: Autonomous vehicle sector (Nov. 2018); Drone sector (Oct. 2019); Hydrogen / Electronic vehicle sector (Apr. 2020); Virtual Reality / Augmented Reality sector (Aug. 2020); Robots sector (Sept. 2020).

**UNIDO** has contributed to supporting Member States in developing strategic foresights to increase their readiness to transition to the digital economy. Examples are UNIDO's role in co-authoring the "E-commerce" Chapter for Cambodia Trade and Strategy Integration Update 2019-2023 and authoring the "Digitalization, Industry 4.0 and E-commerce" Chapter for Bhutan's Diagnostic Trade Integration Study Update 2021-2025. In that context, UNIDO undertook detailed desk research and several interviews with stakeholders from different Government ministries and private sector enterprises. Both chapters are being used to develop policies and frameworks to anticipate and monitor the implications of innovation and technological change. Both Bhutan and Cambodia have committed to harnessing

international knowledge and expertise on technological trends in developing normative tools. UNIDO has also implemented a global initiative on Technology Foresight (TF) that draws on several regional initiatives. This initiative focuses on using TF in designing policies and strategies that exploit emerging and critical technologies.

The **European Commission's** Strategic Foresight Network ensures long-term policy coordination between all Directorates-General. The Commission is building close foresight cooperation and alliances with other EU institutions, notably in the context of the European Strategy and Policy Analysis System (ESPAS). In 2020, the European Commission published its first annual Strategic Foresight Report (*Strategic Foresight - Charting the course towards a more resilient Europe*), which presents the Commission's strategy to integrate strategic foresight into EU policy-making. The report analyses resilience along four interrelated dimensions (social and economic, geopolitical, green and digital) and explains its importance for achieving the Commission's strategic long-term objectives in the context of the digital, green and fair transitions.

In **Singapore**, the Centre for Strategic Futures (CSF),<sup>1</sup> within the Strategy Group in the Prime Minister's Office, is responsible for whole-of-government foresight work. It conducts regular scenario planning exercises on various topics. It regularly convenes roundtable discussions and conferences, bringing together international and local subject matter experts and policy makers to consider the trajectories and implications of emerging trends.

The Government Office for Science (GO-Science) Foresight and Futures Team is the **UK** Government's central team that supports strategic long-term thinking across government, to ensure policy is resilient to future challenges and opportunities. They also chair the cross-government Heads of Horizon Scanning network. GO-Science publish the Guide to futures thinking and foresight, the Futures Toolkit, as well as all their past foresight projects, and blog about their work. They also offer training, advice and take direct enquiries from other government teams. Additional foresight-oriented activities in the UK include the following:

- Within the Ministry of Defence, the Development, Concepts and Doctrine Centre (DCDC) focuses on futures analysis. One of their most recent publications is on exploring the implications of climate change for UK defence and security.
- The Regulatory Horizon's Council is an independent expert committee overseen by BEIS and tasked with identifying the implications of technological innovation and providing government with impartial, expert advice on the regulatory reform required to support its rapid and safe introduction. It plans to create a network of like-minded national organisations to further harness international knowledge and expertise in this field.
- The Centre for Data Ethics and Innovation (CDEI) is another independent advisory body tasked by the UK Government to advise on to maximise the benefits from innovative technologies.

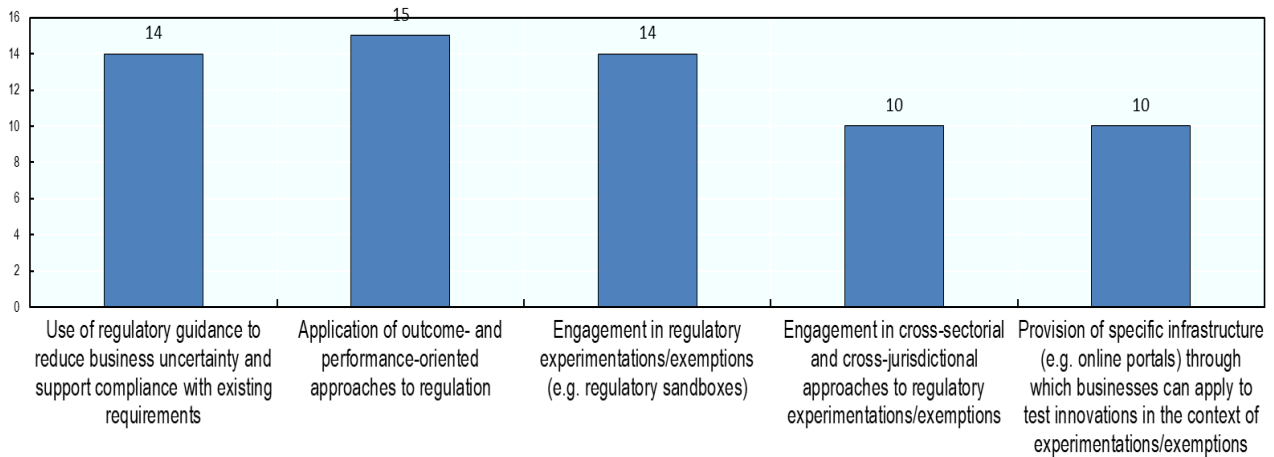
<sup>1</sup> [www.csf.gov.sg](http://www.csf.gov.sg).

Source: G20 survey on agile approaches to the regulatory governance of innovation.

Figure 3.1 presents survey results regarding uptake of selected categories of measures aimed at fostering a supportive regulatory environment for innovation. Innovators often face difficulties in identifying and interpreting applicable rules, in particular when innovation is straddling or blurring the boundaries of traditional market definitions. To overcome this difficulty, most respondents indicated that their country issues regulatory guidance to provide clarification and insights on how existing regulations apply to a given technological development in order to reduce business uncertainty and support compliance with existing requirements. In addition, G20 members provided many valuable examples of this kind of guidance in the context of the survey. Box 3.2 outlines a selection.



**Figure 3.1. Measures aimed at fostering a supportive regulatory environment for innovation**



Source: G20 survey on agile approaches to the regulatory governance of innovation.

### Box 3.2. Examples of regulatory guidance to support compliance

To enhance the predictability and operability of **China's** anti-monopoly legislation, six guidelines, including those on the platform economy and intellectual property rights, have been issued. Additional ones, on pharmaceutical ingredients and overseas enterprises, are under development. Moreover, the People's Bank of China has issued documents including a White Paper on Regulatory Toolbox for Fin-tech Innovation, General Rules for Security of Fin-tech Innovation, Regulation on Fin-tech Innovation Risk Monitoring, Regulation on Fin-tech Innovation Application Testing, to provide guidance on Fin-tech innovations.

The **European Commission** has issued guidelines sharing private sector data in the European data economy.<sup>1</sup>

As part of **Germany's** Regulatory Sandbox Strategy, practical information is provided including in the form of a "Handbook for Regulatory Sandboxes" and a practical guide on data protection in regulatory sandboxes for businesses, research institutions and administrations.

Under its Industrial Competitiveness Enhancement Act, **Japan** has set up a "Consultation for Removal of Regulatory Gray Zone" mechanism under which private business operators can consult with regulatory authorities to confirm whether a given regulation is applicable to their business conduct.

The **UK's** Regulators' Code provides that "Regulators should ensure clear information, guidance and advice is available to help those they regulate meet their responsibilities to comply".<sup>2</sup> In line with this provision, a number of UK regulators have established dedicated advice services to provide innovators with guidance and support them in bringing their products to the market.<sup>3</sup>

<sup>1</sup> <https://digital-strategy.ec.europa.eu/en/news/staff-working-document-guidance-sharing-private-sector-data-european-data-economy>.

<sup>2</sup> <https://www.gov.uk/government/publications/regulators-code>.

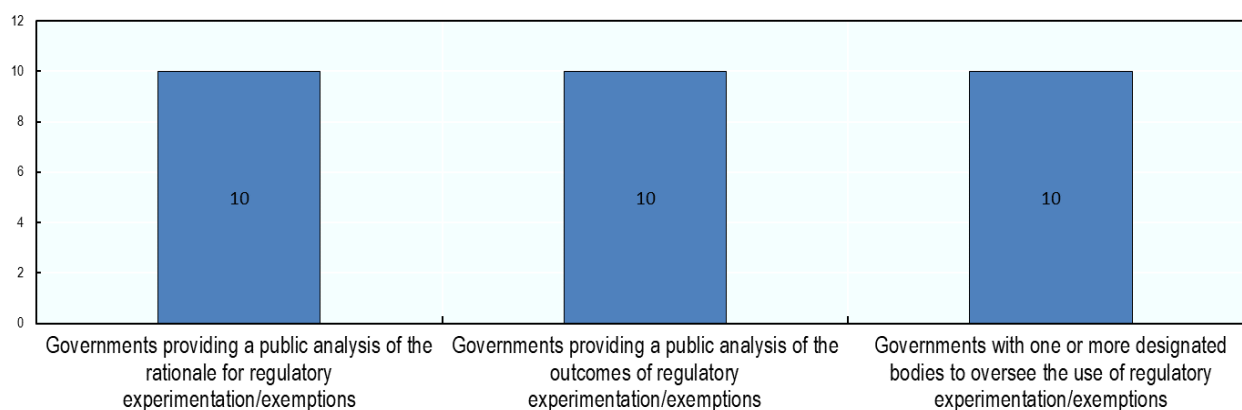
<sup>3</sup> Further information can be found at: <https://www.gov.uk/guidance/business-regulation-guidance-and-tools>.

Source: G20 survey on agile approaches to the regulatory governance of innovation.

Outcome- and performance-oriented approaches are also powerful means for governments to render regulatory governance more agile and innovation-friendly. Fifteen respondents claimed to adopt such approaches. In Brazil, for instance, the Quality of Telecom Service Providers Regulations<sup>1</sup> does so. In the EU, an example comes from eco-design provisions<sup>2</sup>, which include concrete energy performance thresholds for electronic products. In France, Telecom and Postal Services regulator Arcep has adopted a data driven, outcome-oriented approach based on the publication of maps designed through digital simulations, which provides detailed data and information on the French operators' coverage and service quality across the country. It has also set up a reporting platform ("J'alerte l'Arcep") allowing any stakeholder (individual, businesses or local authority) to report malfunctions experienced with a service provider, be it a telephone operator (fixed or mobile), internet service or postal operator. Japan is also adapting regulation to make it more outcome-based, as confirmed by the Regulatory Reform Promotion Council in June 2020.<sup>3</sup> Moreover, the UK's White Paper Regulation for the Fourth Industrial Revolution set out the UK Government's ambition to create an outcome-focused, flexible regulatory system that enables innovation to thrive while protecting citizens and the environment. Moreover, as part of Korea's Regulatory Innovation Evaluation Implementation Plan and Framework Act on Government Work Evaluation, efforts for regulatory innovation and associated results are assessed as part of the performance evaluation of each ministry

An important area of focus for the survey relates to regulatory experimentation and exemptions including regulatory sandboxes,<sup>4</sup> which can help governments create space for experimentation to support innovation while fostering policy learning and adaptation. Such approaches offer important opportunities to foster the uptake of new technologies such as AI, not only by innovators (including small and medium sized businesses) but also by governments themselves. These approaches can also be capitalised upon to improve RIAs by extracting relevant information on the potential effects of regulatory measures. Fourteen respondents reported resorting to regulatory experimentation and exemptions, of which ten also declared to do so via cross-sectorial or cross-jurisdictional initiatives. The latter are of particular relevance in that they can enhance regulatory cooperation and promote interoperable regulatory frameworks. In most cases, governments provide specific infrastructure (e.g. online portals) through which businesses can apply to test innovations in the context of regulatory experiments and exemptions. In addition, a number of G20 members reported to take steps to ensure sufficient transparency and appropriate oversight of regulatory experiments, which are essential for public acceptability and societal buy-in of agile regulatory approaches (see Figure 3.2).

**Figure 3.2. Oversight and transparency of regulatory experiments and exemptions**



Source: G20 survey on agile approaches to the regulatory governance of innovation.

Box 3.3 illustrates the variety of initiatives regulatory experimentation and exemptions reported by G20 members as part of the survey, including, for some of these initiatives, their governance arrangements and supporting infrastructure.

### Box 3.3. Selected examples of regulatory experiments and exemptions

**Canada's** Centre for Regulatory Innovation was established to promote a whole-of-government approach to regulatory experimentation, including by providing support to federal regulators. The Centre's Regulatory Experimentation Expense Fund<sup>1</sup> provides funding to regulators to offset expenses incurred while undertaking regulatory experiments. The Fund provided support to three regulatory experiments following its 2020 call-out, and is reviewing proposals as part of its second call-out. In addition, Transport Canada has set up a regulatory sandbox on Electronic Shipping Documents.<sup>2</sup>

**China** is exploring the creation of a platform of Fin-tech innovation, which will provide fin-tech applications testing with life-cycle management, dynamic risk monitoring, comprehensive assessment, and coordinated risk control. The platform will support the efficient operation of innovation testing mechanisms and help manage innovation-related risks.

**Italy** has passed legislation to develop regulatory experimentation (sandbox) in the field of Fintech. It aims to provide operators in the finance, credits and insurance markets with opportunities to test technologically innovative products and services, thanks to a simplified regulatory regime and ongoing dialogue with competent authorities. A Coordination Committee (*Comitato FinTech*) has been designated in this context to ensure appropriate institutional dialogue and co-operation.

**Korea** launched a regulatory sandbox in 2019 to identify and eliminate regulatory barriers that SMEs and micro-businesses may face in development of new technologies and entry to innovative industries. 410 projects have been approved within two years after its introduction. Korean government ministries and regulatory agencies are expected to identify global policy trends through various international case studies when designing innovation-friendly regulatory frameworks. For instance, the Korean government has conducted thorough case study analyses of regulatory sandbox operation practices in Singapore and the UK, prior to design and implementation of the Korean regulatory sandbox.

**France's** ARCEP is promoting a "pro-innovation prism" by lowering the regulatory barriers to experimentation. This involves opening up access to rare resources such as frequencies and protecting innovators by adopting a neutral attitude, allowing new technologies to evolve until they are eventually adopted by the market. To implement this approach, ARCEP has launched a regulatory sandbox providing a relaxed regulatory framework for up to two years. It can now ease an operator's obligations temporarily in order to support the development of innovative technologies and services, both technically and commercially. This programme has allowed the testing of use cases over the 26GHz band. Arcep's services also respond to entrepreneurs' questions, meet with start-ups on a regular basis, inform innovative companies about the experimental framework and encourage them to submit applications for experimentation. In 2017, Arcep also launched a one-stop shop called "guichet start-up et expérimentations" and the "portail bandes libres". Furthermore, in 2019, it published a memo on spectrum sharing issues, together with a scientific board and as part of the "Future Networks" cycle of inquiry. ARCEP has also authorised experiments on TV white spaces; e.g. Microsoft trial in the Gers Prefecture. Moreover, it has opened a 5G pilots window "guichet des pilotes 5G", which offers spectrum to test the full-scale deployment of 5G. Beyond telecommunications, France's "Expérimentation" initiative<sup>3</sup> aims at unlocking firms' innovation capabilities by offering them the possibility to apply for regulatory derogations through a single-window scheme whenever they would like to experiment innovative projects. Applicable procedures and standards can be adapted or lifted to meet the companies' needs and boost innovation. This scheme can apply to all sectors of the economy.

**Germany** is promoting the use of experimentation clauses in German law that allow for the use of regulatory sandboxes; e.g. in the area of autonomous driving, passenger transport, drones and digital identity.<sup>4</sup> Exemplary sandboxes are awarded the “Innovation Price for regulatory sandboxes”.<sup>5</sup> The country’s Regulatory Sandbox Strategy is implemented by the Regulatory Sandboxes Coordination Office in the Federal Ministry for Economic Affairs and Energy, with support of an inter-ministerial working group encompassing representatives from all relevant Federal ministries. The regulatory sandboxes themselves are overseen by the competent authorities tasked with implementing the respective legislation. As part of the national Strategy, a “Regulatory Sandbox Network” has been set up to allow the sharing of knowledge about regulatory sandboxes and experimentation clauses. This network currently encompasses 530 members from sectors such as mobility, e-health, e-government, logistics and *reg tech*.<sup>6</sup>

**Brazil**’s ANATEL uses specific regulations, such as Temporary Use of Spectrum<sup>7</sup> and Scientific and Experimental Services<sup>8</sup> to perform experiments. Prospective participants can apply through various channels including the regulations’ dedicated online portals and ANATEL’s Electronic Information Service.<sup>9</sup>

In the **Russian Federation (“Russia”)**, according to the Federal law of 31 July 2020 No. 258-FZ, both regulators and official business representatives scrutinize the results of regulatory experiments. The relevant oversight body monitors all stages of regulatory sandbox progress and ensures implementation of all risk mitigation measures. The experiment ends immediately if the oversight body finds any kind of rule violation.

In the **UK**, regulatory sandboxes have been introduced in innovative finance, information and communication technology convergence, industry convergence, smart city and other sectors since 2019. The Financial Conduct Authority (FCA, the UK’s independent statutory regulator for the financial services industry) is part of the Global Future Innovation Network and participates in cross-jurisdictional sandboxes.<sup>10</sup> The FCA is also an example of good practice in that it evaluates the results of its sandboxes.<sup>11</sup> In addition, the UK’s Medical and Healthcare products Regulatory Agency is part of the Access Consortium along with the Therapeutic Goods Administration (Australia), Health Canada, Health Sciences Authority of Singapore and Swissmedic. This Consortium aims to promote greater regulatory collaboration and alignment of regulatory requirements through cross-jurisdictional initiatives. For example, pharmaceutical companies that submit applications in one of the Access countries benefit from having their products evaluated in other member countries simultaneously, with reduced evaluation times.

**Indonesia**’s Financial Service Authority Regulation No. 13 of 2018 on Digital Finance Innovation governs regulatory sandboxing as a policy instrument to examine various newly developed financial service innovations. Their purpose is to assess the suitability of the innovation in accordance with the law, or if a new policy is required. The country’s Financial Service Authority has established the OJK Gesit Application<sup>12</sup> enabling interested parties to apply and find information regarding the regulatory sandbox.

**Japan** implemented a regulatory sandbox in 2018, which notably applies to financial services, the healthcare industry, mobility and transportation.<sup>13</sup> There is an application form in Japanese.<sup>14</sup> For foreign businesses, Japan’s External Trade Organization provides the necessary support.

In the **EU**, the Better Regulation Toolbox includes the rationale for considering regulatory experimentation and sandboxing when developing new EU regulations.<sup>15</sup>

**South Africa**’s Centre for the Fourth Industrial Revolution was established by the Science and Innovation ministry to promote the adoption of public-private collaborations to co-design, prototype and pilot policy frameworks. Moreover, the Finance ministry together with various financial sector regulators

supports the development of the Fintech sector in the country through a regulatory sandbox known as the Intergovernmental Fintech Working Group.

**Saudi Arabia** has developed two relevant initiatives. First, the SAMA regulatory Sandbox for Fintech innovation, which welcomes local as well as international firms wishing to test new digital solutions in a 'live' environment.<sup>16</sup> Second, as part of its mandate to regulate delivery services through electronic platforms (delivery applications), the Communication & Information Technology Commission (CITC) developed a regulatory sandbox with a view to enhancing the sector's effectiveness and operational efficiency in the face of increased demand during the COVID-19 pandemic. CITC subsequently launched the second phase of the sandbox, which focuses on four main objectives: flexibility of regulations, promotion of investment, protection of beneficiaries, and support of innovation.<sup>17</sup>

<sup>1</sup> <https://www.canada.ca/en/treasury-board-secretariat/news/2020/11/canadas-centre-for-regulatory-innovation.html>.

<sup>2</sup> <https://tc.canada.ca/en/dangerous-goods/regulatory-sandbox-electronic-shipping-documents>.

<sup>3</sup> <https://www.modernisation.gouv.fr/nos-actions/france-experimentation-entreprises/entreprises-avec-france-experimentation-faites-avancer-votre-projet-innovant>.

<sup>4</sup> <https://www.bmwi.de/Redaktion/EN/Publikationen/Digitale-Welt/handbook-regulatory-sandboxes.htm>.

<sup>5</sup> [www.innovationspreis-reallabore.de](http://www.innovationspreis-reallabore.de).

<sup>6</sup> Results of a member survey from February 2020 are available (in German). at: [https://www.bmwi.de/redaktion/de/downloads/p-r/reallabore-ergebnisse-der-mitgliederbefragung-2020.pdf?\\_blob=publicationfile&v=8](https://www.bmwi.de/redaktion/de/downloads/p-r/reallabore-ergebnisse-der-mitgliederbefragung-2020.pdf?_blob=publicationfile&v=8).

<sup>7</sup> <https://www.gov.br/pt-br/servicos/obter-autorizacao-de-uso-temporario-de-radiofrequencias>.

<sup>8</sup> <https://www.gov.br/anatel/pt-br/regulado/outorga/servico-especial-para-fins-cientificos-e-experimentais>.

<sup>9</sup> <http://sei.anatel.gov.br>.

<sup>10</sup> <https://www.fca.org.uk/news/statements/fca-participate-gfin-cross-border-testing-financial-products-and-services><https://www.thegfin.com/crossborder-testing>.

<sup>11</sup> [https://www.fca.org.uk/publications/search-results?p\\_search\\_term=regulatory%20sandbox%20lessons%20learned%20report](https://www.fca.org.uk/publications/search-results?p_search_term=regulatory%20sandbox%20lessons%20learned%20report).

<sup>12</sup> <https://www.ojk.go.id/GESIT>.

<sup>13</sup> [https://www.jetro.go.jp/ext\\_images/en/invest/incentive\\_programs/pdf/Detailed\\_overview.pdf](https://www.jetro.go.jp/ext_images/en/invest/incentive_programs/pdf/Detailed_overview.pdf).

<sup>14</sup> <https://www.kantei.go.jp/jp/forms/regulatorysandbox.html>.

<sup>15</sup> [https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox\\_en](https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox_en).

<sup>16</sup> <https://www.sama.gov.sa/en-US/SandBox/Pages/default.aspx>.

<sup>17</sup> <https://www.citc.gov.sa/en/services/licensing/Documents/Regulatory-sandbox-delivery-application.pdf>.

Source: G20 survey on agile approaches to the regulatory governance of innovation.

Another prominent example in this area is *Sperimentazione Italia*,<sup>5</sup> a general legal provision that seeks to offer companies, universities, research bodies, university start-ups and spin-offs from any sector (except for some excluded areas of application) the opportunity to conduct pilot projects in the fields of digitalisation and technological innovation by derogating regulatory constraints. Temporary regulatory exemptions (sandboxes) may be conceded jointly by the Minister of Technological Innovation and Digital Transition and the Ministry of Economic Development, in conjunction with other relevant authorities, after an ex-ante evaluation based on pre-established criteria. Within 90 days from the date of the positive certification of the experimentation report, the President of the Council of Ministers or the delegated Minister, in agreement with the Minister responsible for the matter, will promote the necessary regulatory measures for the experimentation activity to be carried out. Authorities involved will also subsequently decide whether to introduce permanent revisions to the temporarily derogated regulation (data gathered through allowed experimentations will be presented in a report with a view to informing decisions in that respect).

Singapore's experience is also of particular relevance in that it provides examples of publication of regulatory experimentation results (in non-sensitive areas). In 2018, the Ministry of Health started a regulatory sandbox for telemedicine (TM) and mobile medicine to better understand the risks and co-create corresponding risk mitigation measures with the industry in the use of these service delivery models prior to licensing under the Healthcare Services Act. Insights from the sandbox were collated into a TM e-training

programme launched in March 2020, and subsequently made available free of charge to practitioners, service providers and the public.

## Notes

<sup>1</sup> <https://informacoes.anatel.gov.br/legislacao/resolucoes/2019/1371-resolucao-717>.

<sup>2</sup> [https://ec.europa.eu/energy/topics/energy-efficiency/energy-label-and-ecodesign/regulation-laying-down-ecodesign-requirements-1-october-2019\\_e](https://ec.europa.eu/energy/topics/energy-efficiency/energy-label-and-ecodesign/regulation-laying-down-ecodesign-requirements-1-october-2019_e).

<sup>3</sup> <https://www8.cao.go.jp/kisei-kaiaku/kisei/publication/opinion/200622honkaigi01.pdf>.

<sup>4</sup> For additional details, see policy note on “The role of sandboxes in promoting flexibility and innovation in the digital age” (OECD, 2020<sup>[8]</sup>).

<sup>5</sup> <https://innovazione.gov.it/notizie/articoli/en/sperimentazione-italia/>.



## **4** Data-driven and responsive regulatory enforcement

Rapid and dynamic innovations make state-led enforcement a challenging task, all the more since governments need to design, implement and enforce regulation effectively in the presence of innovations whose impact transcends administrative and jurisdictional boundaries. In this context, ensuring that regulatory management and compliance strategies are responsive and risk-based is greatly important. Therefore, this section investigates governments' use of data-driven and responsive approaches to identify, assess and manage risks, and revise existing risk governance frameworks accordingly. It also discusses the extent to which enforcement-related aspects are built into regulatory management tools; e.g. by considering data and information requirements to verify compliance in self- and co-regulation settings and needs for institutional and cross-border cooperation. Instances of cross-border cooperation on investigations or regulatory enforcement in areas related to technology and innovation are also considered in this section.

Thirteen respondents reported having adopted some sort of data-driven approach to identify, assess and manage risks. In some of them, there is a strong legal anchoring. For example, in Russia, the risk-oriented approach is established by Federal law 247 and Federal law 248, both of 21/07/2020. Brazil's ANATEL, in turn, acknowledges the importance of responsive and data-driven approaches to the agency's supervision, control and enforcement activities of the Agency in key strategic documents (Tactic Plan, Risk Assessment and Management Methodology). In the same vein, risk-based decision-making is at the core of the Canadian Food Inspection Agency's (CFIA) everyday work. This agency is working to improve its ability to effectively gather, analyse, and use data in their decision-making process. By leveraging risk information through analytical tools, they develop tactical work plans that guide inspection activities in a more consistent and efficient way while targeting areas with the greatest risk; e.g. development of the Establishment-based Risk Assessment model, which uses data and a mathematical algorithm to evaluate food establishments and determine the level of risk they represent to Canadian consumers. This information is then fed into the design of a risk-based work plan for inspectors.<sup>1</sup>

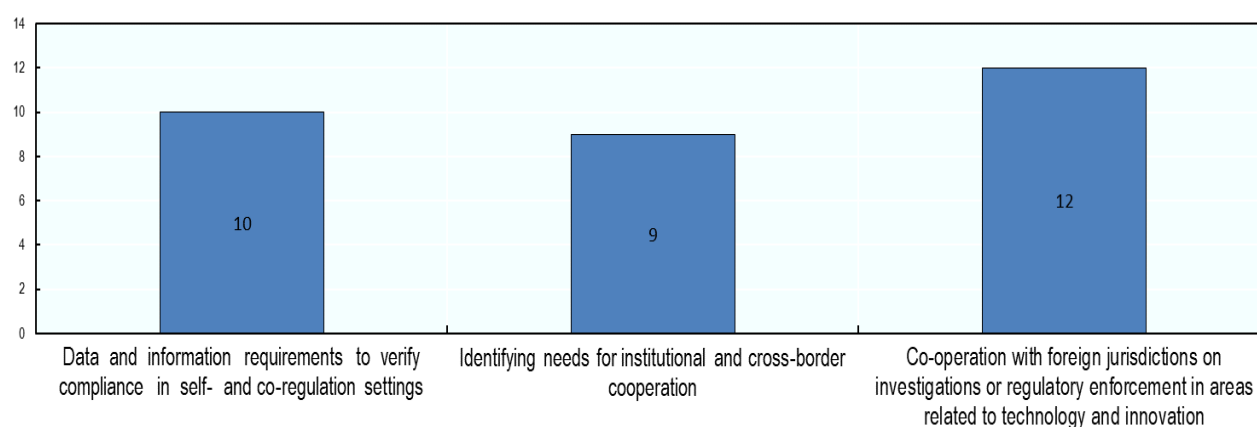
Singapore has increasingly leveraged on data analytics to calibrate appropriate regulatory approaches for enforcement. Singapore Customs, for instance, uses a four-step data analysis process for effective border management. Singapore Customs obtains data from multiple data sources (including international collaborative efforts like feeds from the World Customs Organisation); analyses the data with analytic tools like an anomaly-detection business intelligence tool; identifies irregularities that suggest non-compliance to better target suspicious shipments for inspections; and ensures its officers stay upskilled with comprehensive training in data analytics and stay updated on the evolving business environment through industry engagements. This data-driven risk management approach has helped Singapore Customs to strike a balance between ensuring sufficient controls are in place to interdict illicit trade and allowing legitimate trade to flow unhindered. In the same vein, the Ministry of Manpower (MOM) uses data science techniques to improve compliance with the Employment Act. Through data analytics, MOM has proactively identified companies that were at higher risk of breaching the Employment Act and intervened through

inspections. It intends to continue improving the data science techniques used, such as carrying out text mining of the accident reports received from employers and using results for risk analysis purposes.

In the UK, enforcement is carried out at a central and local level. It encompasses a data- and intelligence-driven approach to risk that is reflected in governance arrangements. Encouragement is given to regulators and local authorities to adopt data-driven approaches to facilitate effective risk-based regulation. The common approach to risk assessment for local authorities from the Better Regulation Delivery Office (now the Office for Product Safety and Standards – OPS&S) is one such example.<sup>2</sup> The UK’s Regulators’ Code also establishes how regulators within scope should deal with risks, and the National Intelligence Model, sets out how information and intelligence should be analysed, processed and used to drive future activity. Whilst there is no overarching whole-of-government approach or strategy on “risk and regulation” in place, the OPS&S has developed initiatives such as the Regulatory Delivery Model (RDM) and identifies risk-based prioritisation and risk assessment as core competencies for regulators.

As shown in Figure 4.1, twelve respondents reported cooperating with foreign jurisdictions on investigations or regulatory enforcement in areas related to technology and innovation when applying regulatory management tools. However, only a subset of them declared to identify needs for institutional and cross-border cooperation with regard to enforcement in those areas. Box 4.1 outlines a number of relevant practices reported by G20 members in this area.

**Figure 4.1. Integration of Enforcement-related Considerations into the Use of Regulatory Management Tools**



Source: G20 survey on agile approaches to the regulatory governance of innovation.

#### **Box 4.1. International cooperation on enforcement in innovation-related areas**

According to the country’s response to the survey, **China’s** anti-monopoly enforcement agencies have signed 55 cooperative documents with their counterparts in 33 countries and regions, providing institutional arrangements for international exchanges and law enforcement cooperation in the field of anti-monopoly. Japan reported, in turn, close cooperation with European Commission for information exchange regarding platform-to-business transactions.

**Indonesia’s** Ministry of Communication and Informatics indicated that they often co-ordinate with foreign authorities in responding to data protection incidents. The country also indicated that cross-



border cooperation is often required on spectrum and broadcasting governance, especially in remote and border regions.

**Mexico** reported that chapter 28 (on Good Regulatory Practices) of the new United States-Mexico-Canada Agreement notably seeks to foster regulatory compatibility and cooperation, including coordinating the implementation of regulations and sharing compliance information – including by entering into confidentiality agreements.

<sup>1</sup> <https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement/agreement-between>.

Source: G20 survey on agile approaches to the regulatory governance of innovation.

Moreover, a number of respondents reported that enforcement-related aspects are taken into account when assessing the monitoring and evaluation requirements of regulatory proposals, particularly those involving soft law and co-regulation approaches. The extent to which such aspects are systematically taken into account as part of RIA on other types of approaches can however not be assessed based on survey data.

## Notes

<sup>1</sup> <https://inspection.canada.ca/chronicle-360/science-and-innovation/using-data-to-make-a-difference-in-inspection-plan/eng/1553890300879/1553890301133>.

<sup>2</sup> <https://www.gov.uk/government/publications/common-approach-to-risk-assessment>.

# 5 Conclusions

Survey results demonstrate that G20 members are keenly aware of the far-reaching implications of innovation (including digitally enabled) for regulatory policy and governance and are taking steps to ensure regulatory quality in a context of increased uncertainty and rapid change.

This awareness has translated, for a number of G20 members, into changes to the guidance, requirements and methodology linked to the application of regulatory management tools in order to take better account of innovation and digital aspects. It has also led to more active involvement of innovative stakeholders, although it is not always clear the extent to which such practices are fully inclusive or systematic. Despite the existence of valuable examples of coordination of regulatory systems within governments and across borders, more extensive and systematic involvement of sub-national levels of government as well as foreign jurisdictions would prove beneficial.

Many G20 members are putting in place a range of measures to develop and implement innovative, agile and forward-looking approaches to rulemaking in areas pertaining to innovation; e.g. by bolstering strategic foresight capabilities, issuing guidance to reduce regulatory uncertainty, and developing performance-oriented. Regulatory experiments and exemptions are also being developed, including beyond the financial services industry. In addition, there are clear signs that countries are starting to adopt data-driven approaches to identify, assess and manage risks, which can contribute substantially to enhanced regulatory enforcement and delivery.

To facilitate mutual learning as well as the diffusion of good practices pertaining to agile regulatory governance, the present report provides a large number of examples of measures undertaken by governments in order to accommodate innovation-driven disruption while upholding key democratic principles and ensuring a sufficient level of protection for citizens and the environment. Quantitative survey results should however be interpreted with caution given the self-reported nature of the data as well as the limited number of questions. Those results should be considered an important first step that may be complemented through further data collection on aspects such as frequency, intensity and effectiveness of relevant practices.

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