AGILE, COMPREHENSIVE AND PRINCIPLES-BASED: POLICY MAKING FOR A DIGITAL AGE

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ABSTRACT

Digital transformation holds great promise for development, spurring innovation that can improve the lives of people worldwide. The COVID-19 pandemic showcased the potential of digital technologies to help manage crises and support resilience. It also raised concerns with data governance and privacy and underscored the need for integrated and agile policy. Comprehensive policy approaches are needed to address interrelated challenges such as digital security and taxation. Policy making also must be agile to accompany rapid technological change and manage the risks. This chapter highlights lessons from the OECD's Going Digital project, which fosters integrated and principles-based policy making that ensures inclusive digital transformations, strengthens institutional and regulatory frameworks of digital governance, and promotes growth and well-being.

Key messages

- Availability and use of digital technologies varies significantly: In 2020, fixed broadband penetration in OECD countries was 33 subscriptions per 100 inhabitants, versus 11.9 in non-OECD countries.
- Policies that spur investment and increase competition in broadband networks are essential to boosting connectivity, closing digital divides, and unlocking the benefits of digital transformation.
- Digital transformation cuts across traditional sectoral boundaries necessitating a whole-of-government approach to realise its potential and to manage trade-offs across policy areas.
- Agile, principles-based policies are needed to adapt to rapid technological change. The success of these policies relies on regular monitoring, including through the cross-country comparison enabled by the OECD Going Digital Toolkit and the OECD AI Policy Observatory.

More and more economic and social activities around the world are digital and data driven, fundamentally altering how people live, work, interact, transact and engage with their government. These changes, often collectively referred to as digital transformation, hold great promise to spur innovation, boost efficiencies, and improve economic growth and well-being. Digital transformation, however, also restructures firms and markets, raising policy concerns related to privacy, security and inclusion. As data, information and ideas flow easily across borders, increasing digitalisation raises global concerns as well. The pace of change is only accelerating. The COVID-19 pandemic has further moved activities on line and placed new demands on networks, highlighting both opportunities and challenges accompanying digital transformation.

While countries are at different stages of digital transformation, common challenges and themes have emerged as important areas for policy action. As a first step, for instance, policy makers should ensure reliable connectivity, as this enables interactions between people, organisations and machines – a basic precondition for digital transformation. OECD countries' experiences also suggest that in addition to high-quality communication infrastructures and services, principles-based and integrated policies are important to shape an inclusive digital transformation. Finally, digital transformation has global implications that call for international collaboration. As commerce becomes increasingly digital and global, for example, new approaches are needed – both to govern international data flows, which underlie the increasingly global digital trade, while upholding privacy (Casalini and López González, 2019[1]), and to manage digital security risk, which can easily spread across borders through global firms and value chains (OECD, 2015[2]; 2019[3]).

Digital transformation is particularly salient for the OECD, a forum for international policy-making discussions on such issues as global taxation, international trade, digital security and development co-operation. In light of the rapid changes underway, these policy challenges have taken on new urgency. Notably through the Going Digital project (Box 9.1), the OECD is providing tools and evidence to help policy makers design holistic approaches and sound digital economy and data governance policies that will promote growth and enhance well-being in the digital era.

Digital transformation: Promises, pitfalls and the pandemic

Access to the Internet and digital technologies is a gateway to a world of economic and social opportunities. Frictionless access to new and up-to-date information can reduce co-ordination costs,

BOX 9.1. THE OECD GOING DIGITAL PROJECT: POLICIES TO PROMOTE GROWTH AND WELL-BEING IN THE DIGITAL AGE

Since 2017, the OECD Going Digital project has supported policy makers seeking to shape a positive digital future through a better understanding of digital transformation and how digital technologies impact economies and societies. The project has benefited from the input of almost every policy and measurement community at the OECD, including the International Transport Forum and the International Energy Agency which have contributed expertise to the project. The project provides targeted policy advice in specific areas – labour markets, trade, finance, consumer policy, small and medium-sized enterprises, agriculture, health, public governance, competition, and the environment as well as complementary cross-cutting, evidence-based policy analysis that draws on the OECD's expertise in measurement.

The first phase of the project (2017-18) delivered new evidence and policy insights on the effects of digital transformation on economies and societies and launched the OECD Going Digital Toolkit (OECD, n.d.[4]), which helps countries assess their state of digital development. Notable deliverables include the launch of the cross-cutting OECD Going Digital Integrated Policy Framework (OECD, 2020[5]), which has been used to develop country digital strategies and serves as the analytical lens for OECD Reviews of Digital Transformation. Reviews have been conducted of a range of countries and regions, among them Sweden (OECD, 2018[6]), Southeast Asia (OECD, 2019[7]), Colombia (OECD, 2019[8]), Brazil (OECD, 2020[9]) and Latvia (OECD, 2021[10]).

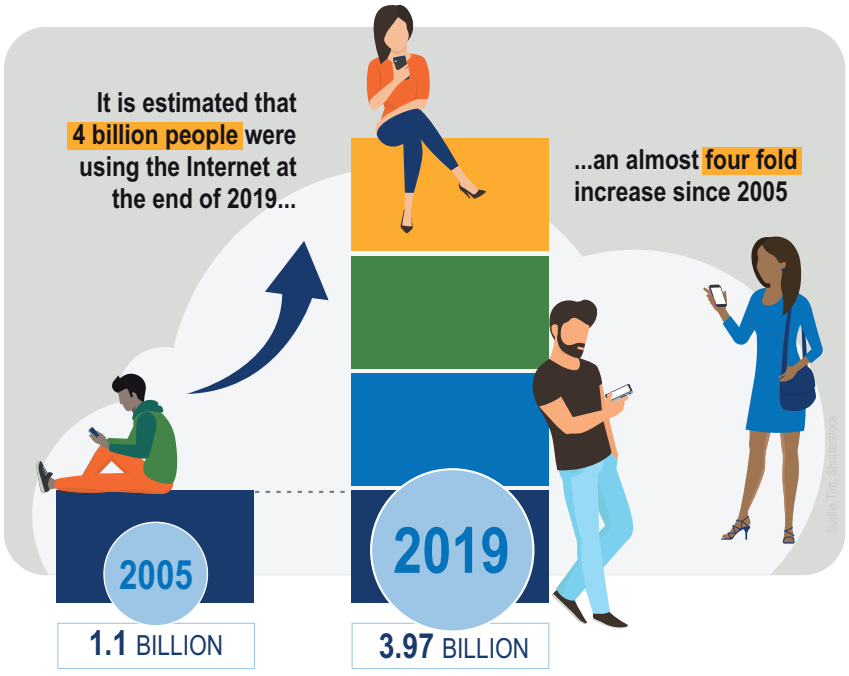
Building on this base, the second phase of the project (2019-20) analysed frontier technologies, notably artificial intelligence (AI) and blockchain, with an ongoing focus on jobs, skills and social inclusion as well as productivity, competition and market structures. A key achievement of Phase II was the launch of the OECD. OECD.AI Policy Observatory (OECD, 2021[11]) and the development of the OECD AI Principles (OECD, 2019[12]), which have been widely adopted and frame the development of AI policies all over the world.

The current third phase (2020-21) turns to data, which drive digital transformation, constitute a key ingredient of digital technologies such as AI, and are an increasingly essential enabler of enhanced productivity and improved decision making, including during the COVID-19 crisis. In this phase, the Going Digital project aims to support countries in designing interoperable data governance policies that promote growth and well-being. While still underway, this work is already pushing the international policy agenda, notably through the OECD Recommendation of the Council on Enhancing Access to and Sharing of Data (OECD, 2021[13]), which was adopted in October 2021.

overcome information asymmetries and spur new forms of data-driven innovation in a wide range of applications, including finance, health, education, agriculture and public governance (OECD, 2019[14]; 2020[15]). These have already transformed lives in low- and middle-income countries (World Bank, 2016[16]; 2021[17]). By enabling the flow of data between connected devices, the Internet facilitates previously impossible economic transactions, for instance sales through e-commerce platforms between far-flung producers and consumers (OECD, 2019[18]; 2019[19]). Through other innovations such as mobile money, digital technologies can speed up activities that were already taking place, make them more efficient and extend services to people who were previously out of reach (AUC/OECD, 2018[20]) (Figure 9.1).

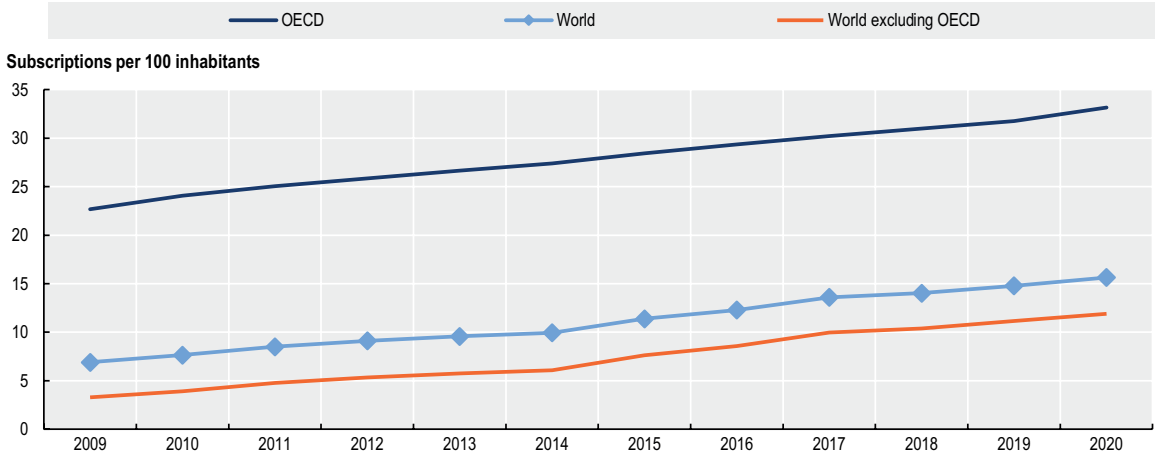
The pace of digitalisation is accelerating alongside the wider penetration of digital technologies and data into every sphere of life. It is estimated that 4 billion people were using the Internet at the end of 2019, an almost fourfold increase since 2005 (ITU, 2021[21]) (see Figure 9.2). While most people go on line via mobile networks, availability and use vary across and within countries. In non-OECD countries, an average of 56 per 100 people had a mobile broadband subscription in 2020, a 13-fold increase since 2010 (ITU, 2021[21]). The average was

Figure 9.1. The number of people online has increased



Source: Author's illustration.

Figure 9.2. Global increase in fixed broadband connections, but with disparities across countries



Sources: ITU (2021[21]), "Individuals using the Internet, total and by sex and age", ITU World Telecommunications/ICT Indicators (database), https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx; OECD (2021[22]), Broadband Portal (database), Broadband Portal - OECD.

118.3 in OECD countries (OECD, 2021[22]). Similarly, OECD countries had a level of fixed broadband penetration almost three times higher than the average in non-OECD countries, at 33 versus 11.9 subscriptions per 100 inhabitants, respectively, in December 2020.

Connectivity is not only a prerequisite for digitalisation. It also is critical to ensuring that no one is left behind as social and economic activities as well as public services delivery move on line. Further increasing connectivity will require overcoming barriers to broadband investment such as lack of

competition and policy and regulatory obstacles to infrastructure deployment. Likewise, increasing the availability and use of digital technologies will require policies to foster enablers and to address digital security and privacy risks.

Digital technologies proved essential for managing the COVID-19 crisis

The pandemic demonstrated the extent to which the Internet has become a major factor for resilience during a crisis. Public health-related restrictions on movement made it the primary arena for retail, work, education, global trade, culture and other day-to-day activities. To remain operational, many organisations brought forward investments in digital technologies (OECD, 2021[23]; 2020[24]). Across OECD countries, 21.15 million new fixed broadband connections – a record – were added in 2020 alone (OECD, 2021[22]). At the same time, Internet traffic in some countries skyrocketed by as much as 60% over pre-pandemic levels as bandwidth-intensive activities such as videoconferencing became essential for many (OECD, 2020[15]). Digital divides within and between countries, which remain wider in low- and middle-income countries, thus became more consequential. With economic and social life moving on line, offline populations found themselves not only locked down, but also locked out. This continues to be a concern due to the online nature of many activities, and the associated demands on networks are expected to persist past the end of the pandemic (McKinsey & Company, 2020[25]; Cil and Golnarian, 2020[26]; OECD, 2021[27]).

Similarly, the pandemic showcased novel ways data and digital technology could be put to use. Real-time data from hospitals helped burdened public health systems reallocate resources to where they were needed most (OECD, 2020[28]), and AI systems were used to accelerate medical research on drugs, treatments and vaccines (OECD, 2020[29]). New sources of data, like mobile call data and geolocation records, were used to monitor population movements and co-ordinate public health measures (OECD, 2020[28]), while biometric and AI systems, including those using facial recognition data, were a feature of many government-issued contact tracing and quarantine mobile applications (OECD, 2020[30]).

The crisis also focused renewed attention on the implications of using digital tools. In the context of exceptional public health measures, this specifically concerned data governance and privacy challenges, particularly when such technologies are used without specific guidance or fully informed consent (OECD, 2020[30]). Facial recognition systems, including when paired with AI, can also have inherent bias, for example when based on race or ethnic origin (OECD, 2020[31]).

The pandemic alongside the rapid digitalisation evident around the world underscore the need for policy action to maximise the benefits and manage the pitfalls of the digital age. The aim of the OECD's Going Digital project is to foster integrated and principles-based policy making that ensures inclusive digital transformations, strengthens institutional and regulatory frameworks of digital governance, and promotes growth and well-being.

Going Digital: Policies to unlock investment, manage risks and reap benefits

Equitable, high-quality and affordable access to the Internet is a precondition for digital transformation, and with more activities moving on line, the need for infrastructure investments will grow. However, to fully reap the benefits of these dynamic changes and address the challenges that arise from rapidly evolving digital technologies, countries need a holistic approach and a wider set of integrated policies, as emphasised by the OECD Going Digital Integrated Policy Framework (OECD, 2020[5]).

Increasing connectivity through policies that spur competition and investment

A strong institutional and regulatory framework plays a key role in broadband development, and two overarching policy areas in particular are key to bridging connectivity divides: fostering competition in broadband markets and encouraging investment in those markets (OECD, 2021[32]; 2021[33]).

Increasing competition in communication markets is one of the strongest levers to extend connectivity and increase quality, including in underserved areas. Communication markets are characterised by high fixed costs and barriers to entry, meaning that sectoral competitive conditions can have large impacts on the quality, affordability and availability of services. A strong institutional framework also fosters long-term investment because market players undertake most of the investment for network rollout. Competition in OECD communication markets has led to more innovation, increased investments and reduced prices for communication services (OECD, 2021[33]). For example, Mexico adopted pro-competitive regulatory reforms in 2013, with the result of an additional 50 million mobile broadband subscriptions by 2017 (OECD, 2017[34]).

Policies to encourage investment in infrastructure for both mobile and fixed networks also are important to reduce connectivity divides and unlock the benefits of digital transformation. Basic applications such as text messaging and mobile money have already transformed the lives of many in low- and middle-income countries. However, as evidenced during the pandemic, bandwidth-intensive applications are increasingly necessary for economic and social participation, and as countries develop, demand for data transmission over networks is likely to increase (OECD, 2021[33]).

At the same time, while most people go on line using mobile networks, fixed networks also are necessary to support increases in speed and capacity across all access technologies (OECD, forthcoming[35]; 2020[15]). This calls for additional investment particularly in fibre deployment. Deploying fibre further into fixed networks is viewed as necessary to boost network resilience (OECD, 2020[36]) and enable fifth generation wireless network technologies (5G), which support the high-volume, low-latency data transfers required for emerging digital applications, including those making use of AI systems and the Internet of Things (OECD, forthcoming[35]).

To fully reap the benefits of these dynamic changes and address the challenges that arise from rapidly evolving digital technologies, countries need a holistic approach and a wider set of integrated policies

Smart policies that ease broadband deployment can reduce network deployment costs, incentivise investment and reduce digital divides. For example, infrastructure sharing, such as antennae or fibre optic cables, has proven useful in expanding broadband coverage, including in underserved areas across the OECD. Well-designed spectrum assignment mechanisms, such as auctions, and easing the administrative burden to install necessary broadband infrastructure can also help spur investment (OECD, 2021[37]; 2021[33]).

Many lessons for expanding connectivity, including in low- and middle-income countries, have emerged from the extensive body of OECD work on communication infrastructures and services policy and through its Going Digital project (see Box 9.1). In Brazil, for example, the OECD provided advice on adapting the telecommunication regulatory framework, including taxation and fees, and on improving market conditions to

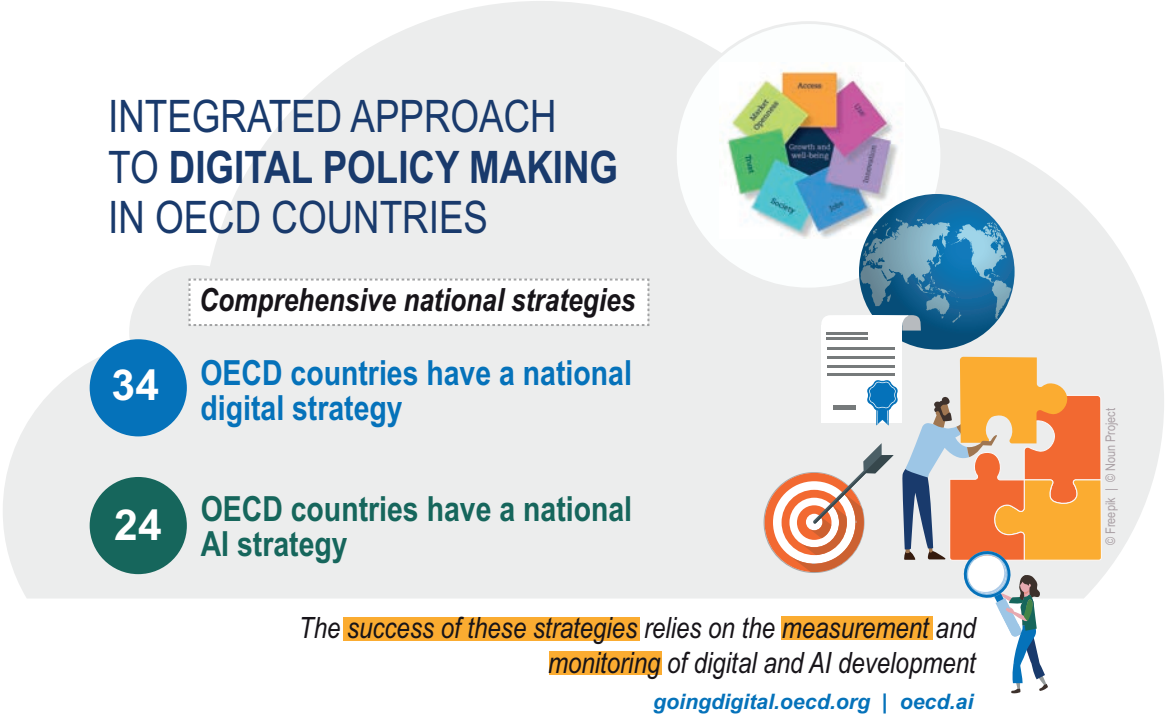
foster competition and encourage investment (OECD, 2020[38]). Another example is the OECD Recommendation of the Council on Broadband Connectivity, adopted in February 2021, which offers a roadmap for policy makers to unleash the full potential of connectivity for the digital transformation and to ensure equal access for all users.

Integrated policies can holistically address digital opportunities and challenges

The interrelated opportunities and challenges of digital transformation cut across traditional sectoral boundaries, presenting trade-offs across policy dimensions, defying siloed approaches to policy making and necessitating a holistic approach to realise the potential of digital transformation (OECD, 2020[5]; 2020[9]). The OECD Going Digital Integrated Policy Framework is a guide to such an approach. As illustrated in Figure 9.4 it sets out seven interrelated policy dimensions – access, use, innovation, jobs, society, trust and market openness – and the multiple policy domains for each dimension that should be considered jointly rather than in policy silos. For example, the framework emphasises the need to build trust in digital transformation by considering digital security, consumer protection, privacy, and small and medium-sized enterprises policies jointly and by encouraging individuals and organisations to manage their digital risks rather than seek to completely erase them.

Across the OECD, comprehensive national strategies use such an integrated approach to digital policy making: 34 OECD countries have a national digital strategy and 24 also have a national AI strategy (OECD, 2020[15]; forthcoming[39]) (Figure 9.3). Successful digital economy policy making relies on regular monitoring, including through the cross-country comparison enabled by the OECD Going Digital Toolkit,[1] which is based on

Figure 9.3. OECD countries' digital strategies: State of play



Note: AI: Artificial intelligence.
Source: Author's illustration.

Figure 9.4. OECD Going Digital Integrated Policy Framework

Source: OECD (2020[5]), "Going Digital integrated policy framework", *OECD Digital Economy Papers,* No. 292, https://dx.doi.org/10.1787/dc930adc-en.

the dimensions of the OECD Going Digital Integrated Policy Framework (OECD, 2020[5]). The framework has also been put into practice outside the OECD. Box 9.2 discusses how Thailand made use of it, with particular emphasis on the policy dimension of "use".

Agile, principles-based policies are needed to adapt to rapid technological change

The rapid advance in digital technologies can challenge traditional policy making, which is often purposefully process-driven and deliberative (OECD, 2019[43]). For example, advances in AI have exploded in recent years and hold much promise, but the technology can feature a lack of transparency that challenges traditional accountability mechanisms and could propagate biases (OECD, 2019[44]). These challenges call for policy action that minimises risks but is also agile enough to foster continued research, innovation and technology diffusion.

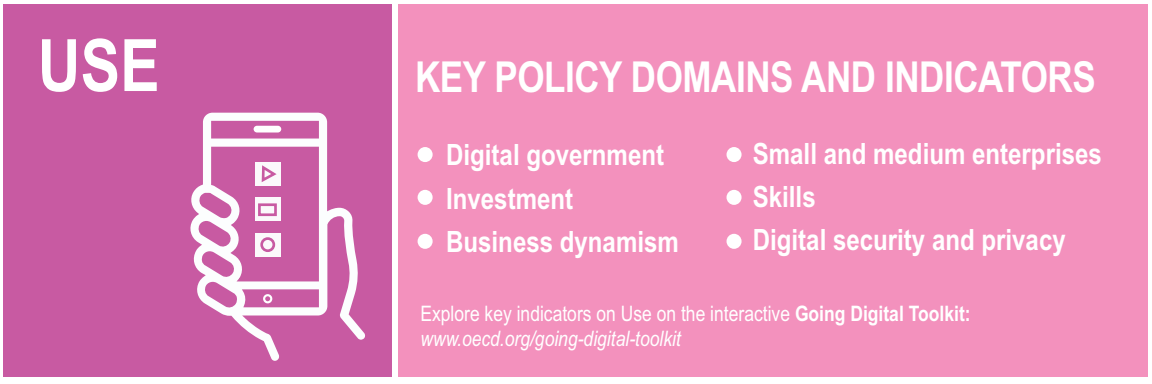
To address this technology governance challenge, governments across the OECD are adopting principles-based approaches to governance. An important example is the OECD AI Principles (OECD, 2019[12]), which were adopted in 2019 and subsequently formed the basis of the Group of Twenty's AI principles (OECD, 2019[7]). To date, OECD countries and eight non-OECD countries, including five low- and middle-income countries, adhere to the OECD AI Principles. These values-based principles[2] aim to foster confidence in the adoption of trustworthy AI, and they are designed to also stay implementable and flexible in order to adapt to future technological developments.

The OECD AI principles are an example of upstream governance that can be later complemented by downstream elements such as regulation and technical standards if necessary (OECD, 2021[45]). The OECD supports and tracks the implementation of the OECD AI Principles through its AI Policy Observatory,[3] which covers more than 60 countries, among them 12 low- and middle-income countries. The OECD AI Principles have informed the development of guidelines for trustworthy AI all over the world, including Singapore's Model AI Governance Framework and Egypt's forthcoming Charter on Responsible AI (OECD, 2021[46]).

BOX 9.2. HOW THAILAND PUT THE OECD GOING DIGITAL INTEGRATED POLICY FRAMEWORK INTO PRACTICE

Beyond OECD membership, Thailand has been using the OECD Going Digital Toolkit and Integrated Policy Framework to identify areas for policy action since 2018. The Office of the National Digital Economy and Society Commission collaborated with 19 strategic public and private partners to assess the level of digital development in Thailand, using the indicators outlined in the OECD Going Digital Toolkit for guidance (Office of the National Digital Economy and Society Commission, 2021[40]). This assessment found that the share of Thai small and medium-sized enterprises selling on the Internet and the level of monthly mobile data usage were both higher than the OECD average in 2020. Despite this potential, Internet users in Thailand bought products on line and interacted with public authorities much less than the average user in OECD countries (The Reporter, 2021[41]). Using the key policy domains brought together by the "use" policy dimension (see Figure 9.5), the Thai government was able to identify a lack of digital literacy and concerns about digital security and consumer protection in e-commerce markets as key areas for policy action to improve the use of digital technologies. Importantly, the cross-cutting policy analysis exercise resulted in a memorandum of understanding among Thai public services to foster integrated policy making.

Figure 9.5. What matters for use? A snapshot of policy domains under the use policy dimension in the OECD Going Digital Integrated Policy Framework



Note: For more details on the on the policy domains of the "use" policy dimension, see: https://dx.doi.org/10.1787/dc930adc-en.
Sources: OECD (2020[42]), "Going Digital integrated policy framework", *OECD Digital Economy Papers*, No. 292, https://dx.doi.org/10.1787/dc930adc-en.

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NOTES

1. See also: https://goingdigital.oecd.org.
2. The OECD values-based AI Principles include: inclusive growth, sustainable development and well being; human-centred values and fairness; transparency and explainability; robustness, security and safety; and accountability. See: https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449.
3. See also: https://www.oecd.ai.

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