

ASSESSING NATIONAL DIGITAL STRATEGIES AND THEIR GOVERNANCE

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Foreword

The form, content and governance of national digital strategies varies significantly across countries, and questions have arisen as to what a national digital strategy should cover and how to govern it. This paper analyses national digital strategies and their governance across countries. It proposes a novel methodology to assess the comprehensiveness of national digital strategies using newly collected policy information and applying the OECD Going Digital Integrated Policy Framework as a benchmark. The resulting indicator – the NDSC – measures national digital strategy comprehensiveness, providing insights into the potential of a country’s national digital strategy to co-ordinate the policies needed to make digital transformation work for growth and well-being. The [NDSC](#) is available interactively on the OECD Going Digital Toolkit.

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Introduction

The wide-ranging impacts of digital transformation on people, firms and governments raise challenges for policymakers as they develop and implement policies in response. Like other cross-cutting policy issues such as gender, green growth or development, digital transformation policies are relevant in many domains, which calls for a holistic and co-ordinated approach to policy making. National digital strategies have emerged in many countries as a key tool to address these challenges and to achieve policy co-ordination and coherence across domains.

National digital strategies usually promote a government's highest digital policy priorities and goals, and are conceived to shape the digital transformation of a country's economy and society. Prominent overarching goals of national digital strategies include the goal of making the country a digital front-runner, stimulating digital innovation, spurring productivity and growth, and enhancing well-being, including by bridging digital divides and increasing social inclusion.

The form, content and governance of national digital strategies can vary significantly across countries, and questions have arisen as to what a national digital strategy (NDS) should cover and how to govern it. While each government has its own rationale for developing a NDS in one way or another, OECD Members have agreed on the Going Digital Integrated Policy Framework (the Framework), which identifies the most relevant policy domains to consider in a NDS. The Framework can thus be used as a guide to developing national digital strategies (OECD, 2020^[1]).

As laid out in the Framework, a key to achieving policy co-ordination and coherence is a comprehensive NDS that covers all of the Framework's seven dimensions. A comprehensive NDS can: 1) enhance the awareness and attention to digital policy issues across the government; 2) facilitate the engagement of the multiple stakeholders required for broad-based support; and 3) foster co-ordination in strategy development and implementation. In particular, a comprehensive NDS is better placed to ensure policy co-ordination and coherence than narrow digital strategies in isolation.

This report proposes a novel methodology to assess the comprehensiveness of national digital strategies to support governments in developing, monitoring and evaluating their NDS. Applying the Framework as a benchmark for comprehensiveness, the methodology uses newly collected policy information to construct an indicator that measures national digital strategy comprehensiveness (NDSC). The NDSC provides insights into the potential of a country's NDS to co-ordinate policies needed to make digital transformation work for growth and well-being. It does not assess the quality or breadth of a country's entire digital policy landscape¹. This new policy indicator complements existing performance indicators available on the OECD [Going Digital Toolkit](#).

Achieving policy co-ordination and coherence with the help of a NDS requires engaging multiple actors from different parts and levels of government, non-governmental stakeholders, as well as international actors in the development and implementation of the NDS (OECD, 2019^[2]). This report analyses NDS governance approaches across countries, focusing on the following key aspects: 1) the allocation of responsibility for strategy development, 2) specific co-ordination arrangements (e.g. for stakeholder engagement), 3) funding the implementation of the NDS, and 4) monitoring its implementation.

Comprehensiveness of national digital strategies

This section presents a novel methodology for assessing the comprehensiveness of national digital strategies, applying the Framework as a benchmark. The methodology involves four main steps. First, identifying a country's NDS (Box 1). Second, compiling a policy database with information from the NDS and co-ordinated strategies. Third, applying the Framework as a benchmark for comprehensiveness, i.e. mapping the information collected to the policy domains of the Framework. Fourth, constructing an indicator that measures NDS comprehensiveness, the NDSC.

Identifying a country's national digital strategy

Today, most OECD and many other countries have a NDS, although the content of such strategies differs markedly (Box 1). Many countries also have more focussed “digital” strategies or policies, often targeting a sector, a policy domain or a technology. Examples include strategies for broadband development, artificial intelligence (AI), the Internet of Things (IoT), digital security, digital government, and skills. While such focussed strategies may be co-ordinated by a NDS, they do not constitute a NDS in themselves. A NDS often contains or should at least co-ordinate the major digital policy measures in the country's digital policy landscape, including those from more focused strategies, to ensure policy coherence across domains.

Box 1. What is a national digital strategy?

While it may seem obvious at first blush what a national digital strategy is, such strategies can include very different content. Some are more aspirational, while others are specific and action-oriented. Some contain a large amount of policy measures, including from co-ordinated strategies, while others include fewer measures but are well co-ordinated with related strategies and policies.

In this report, a NDS is understood as the government's most comprehensive digital strategy at the national level that exclusively or primarily addresses digital policy issues across policy domains affected by or affecting digital transformation. As such, a NDS as defined in this report contains and/or co-ordinates the major policy measures in the country's digital policy landscape. The list of national digital strategies assessed in this report can be found in Table A3.

Some countries also have broader, higher level national plans or strategies, such as a national development plan, a sustainable development strategy or a well-being strategy. While such a strategy or plan often has a co-ordination function and may also address digital policy issues, it usually only addresses the latter as one of several or many other policy issues. In this case, and if such a more general plan or strategy has no explicit co-ordination function for more focused digital strategies or policies, it is not considered a NDS in this report.

Most countries' policy landscape also includes laws and regulations that are relevant for digital transformation. While a country's NDS would not be expected to provide a full record of all relevant laws and regulations on the books, it should recognise the most important ones (e.g. a digital security law or a personal data protection law), in order to ensure co-ordination between existing laws and regulations and new policies provided by the NDS, including legal and regulatory changes.

After publication of a NDS, governments may develop new related strategies and policies that should be co-ordinated with the NDS and be taken into account in its next revision. To ensure that the NDS remains an effective co-ordination tool, some countries (e.g. Germany, Switzerland) maintain their NDS as a “living document” and publish frequent updates, including via a dedicated website. This report considers the most

recently published NDS of the countries covered in the assessment as well as strategies and policies co-ordinated by their most recent NDS.

Compiling a policy database: Sources and information considered

To assess the comprehensiveness of national digital strategies, the Secretariat compiled a unique policy database. This database contains information on policy measures from the country's NDS and from co-ordinated strategies and policies. All information in this database has been verified by the countries concerned, and it consists of verbatim text from the considered strategy and policy documents, labelled according to its provenance².

To qualify as a country's NDS, the strategy must be in line with the description provided in Box 1 above. To qualify as a co-ordinated policy or strategy, the respective document needs to be initiated, discussed or referenced in a section of the NDS that addresses issues in the policy domain(s) for which the measure(s) from a co-ordinated document may be considered³. In turn, measures from a co-ordinated document are considered only for this respective policy domain. Co-ordinated documents that are more recent than the NDS must be explicitly linked with the NDS to be considered.

To qualify as a policy measure, the text in the NDS or the co-ordinated strategy needs to spell out concrete and new policy action and ideally specify the actual measure to be implemented, such as an investment programme, a regulatory change, etc. At a minimum, the text needs to provide a clear commitment to action. The mention of a pre-existing policy measure is only considered in the assessment if the text explicitly instructs action to improve on or at least to prolong the existing measure.

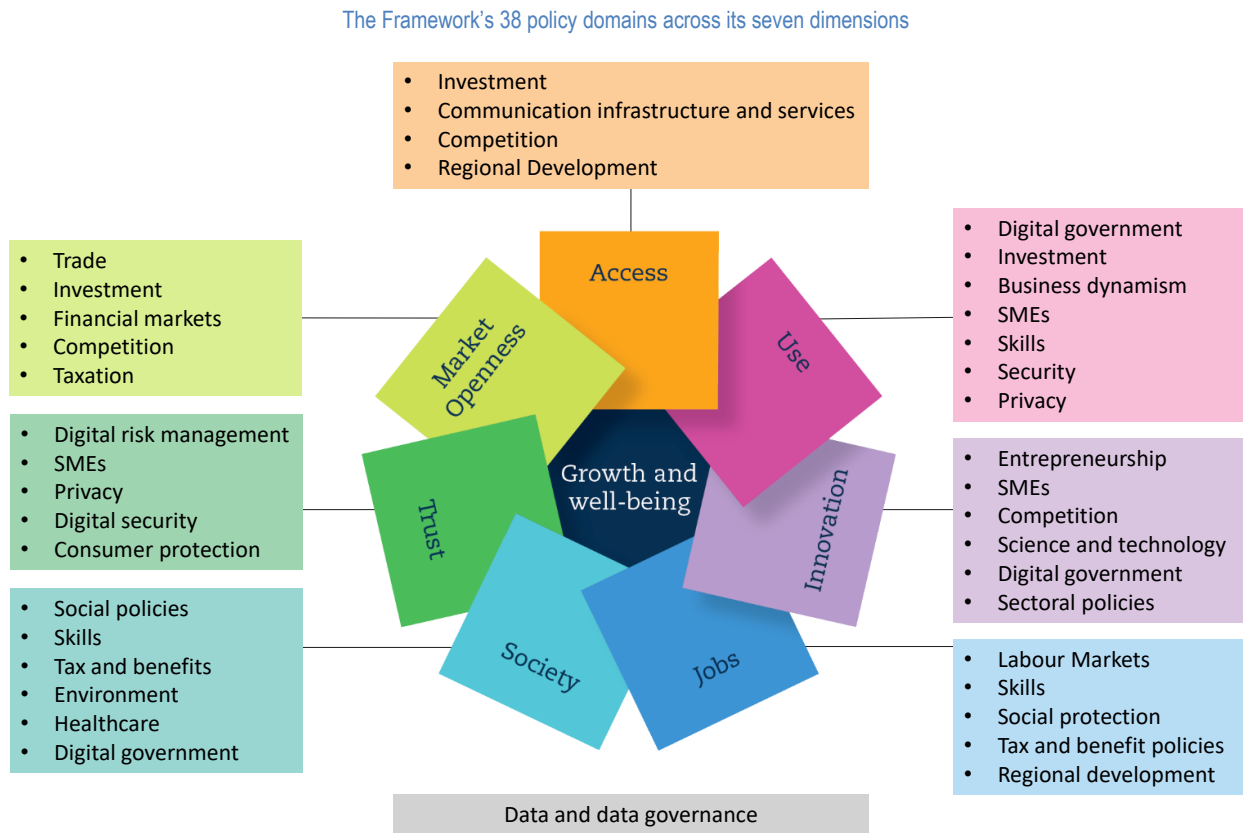
Policy information that is not provided by the NDS or by a co-ordinated strategy or policy is not taken into account in the assessment. One reason for this is that the existence of many digital transformation policies outside the scope of a country's NDS arguably weakens the strategy's capacity to co-ordinate and achieve policy coherence across domains. In addition, considering all elements of a country's digital policy landscape, including all relevant laws and regulations on the books and any policy enacted after the latest revision of the NDS, would go beyond the scope of this assessment, although it could be considered as an extension of this work in the future.

Applying the Framework as a benchmark for comprehensiveness

As a key deliverable of the Going Digital project, OECD Members agreed on the Framework which can function as a guide for developing and improving digital transformation policies in general and national digital strategies in particular. The Framework was developed in a multi-stakeholder process and benefited from the expertise of almost every policy and measurement community at the OECD and beyond. It consists of seven overarching dimensions – Access, Use, Innovation, Jobs, Society, Trust and Market Openness – that bring together 38 specific policy domains to be considered jointly in a NDS rather than as separate policy silos. The Framework also recognises data and data governance as transversal policy issues that cut across all of the Framework's dimensions (Figure 1).

The methodology for assessing national digital strategies applies the Framework as a benchmark for comprehensiveness. A NDS is considered to be fully comprehensive if either the NDS itself or a co-ordinated strategy or policy provides at least one policy measure in each of the Framework's 38 policy domains. The policy measures from respective documents are mapped to the policy domains according to the criteria provided by the Framework and additional criteria described in Annex A.

Figure 1. The Going Digital Integrated Policy Framework



Note: Gender policies are considered in social policies under the Society dimension.

Source: Authors, based on (OECD, 2020^[1]).

While a NDS can be found fully comprehensive in one or several of the seven dimensions (Access, Use, etc.), it may be less so in others. For policymakers, knowing in which dimension(s) their NDS is more or less comprehensive provides useful insights to further improve their NDS. In addition, knowing how comprehensive other countries' national digital strategies are further helps policymakers identify policies that may be useful to consider for improving their own strategy. This being said, the assessment is not designed to rank countries by the comprehensiveness of their NDS.

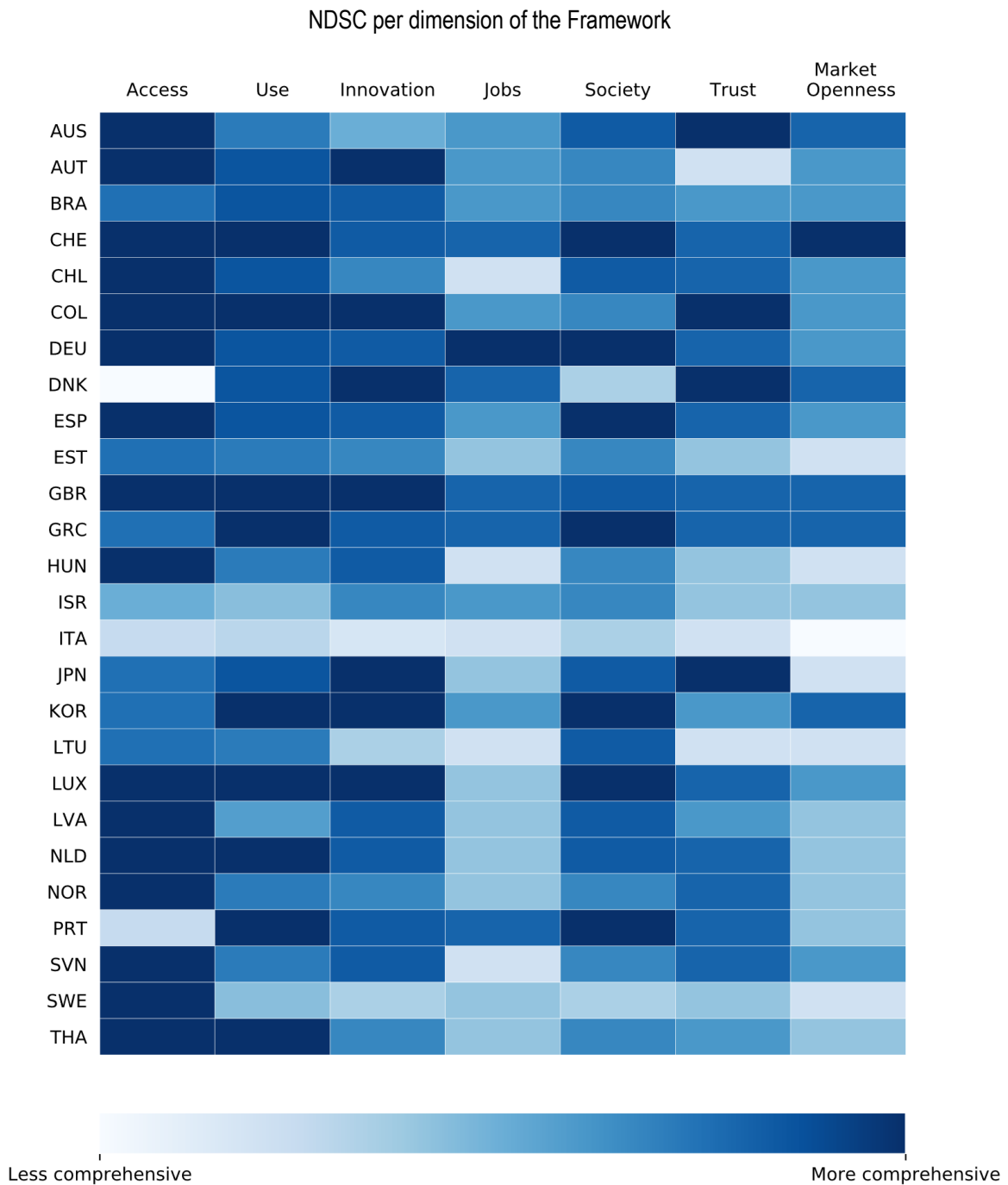
Constructing an indicator to measure the comprehensiveness of national digital strategies

To construct the NDS comprehensiveness indicator, the NDSC, the qualitative information in the policy database is first converted into numerical data, based on a simple rule. Each policy domain that contains at least one policy measure from the country's NDS or from a co-ordinated strategy or policy translates into one point.

The NDSC is calculated per Framework dimension. The number of points (policy domains with at least one policy measure) are summed up per dimension. The maximum number of points a country can have per dimension equals the total number of policy domains contained in the respective dimension. The NDSC value is calculated as the country's number of points over the total number of policy domains per dimension (see example in Table A2).

Figure 2 presents the NDSC for 26 countries, broken down by dimension of the Framework. For each dimension, the darker shades of blue indicate more comprehensiveness and the lighter shades indicate less comprehensiveness of the country's NDS. The NDSC provides insights into the potential of a country's NDS to co-ordinate policies needed to make digital transformation work for growth and well-being. It does not assess the quality or breadth of a country's entire digital policy landscape.

Figure 2. NDSC - National digital strategy comprehensiveness



Source: Authors, based on the sources in Table A3, https://goingdigital.oecd.org/datakitchen/#/explorer/1/toolkit/indicator/explore/en?mainCubelId=GD_BREAKDOWNS_21&mainIndId=NDSC&chart=heatmap&time=2021.2021.

A vast majority of countries' national digital strategies cover all dimensions of the Framework to some extent, which shows that the Framework is being put into practice, albeit to varying degrees across dimensions. The NDSC also reveals a number of opportunities to improve the comprehensiveness of national digital strategies across countries and, while no country has a fully comprehensive NDS, some are getting close.

On average, Access is the most comprehensive dimension across countries, which is unsurprising given that the earliest digital policies often involved connectivity and the information and communication technology (ICT) sector, and many countries have a broadband strategy that is co-ordinated with their NDS. The Use dimension is also very comprehensive in most countries' NDS, reflecting in part diffusion of information and communications technologies (ICTs), skills and digital government strategies or other policies that have been in place for some years.

The Innovation, Society and Trust dimensions follow as the next most comprehensive. Under Innovation, sectoral, science and technology, and digital government⁴ policies are very common, while competition policies are much less frequent. Under Society, the skills, health care and social policies domains are best covered, with the tax and benefits domain markedly less frequent. Under Trust, the digital security and privacy domains are well-covered, which is unsurprising given the prevalence of digital security strategies for many years, while much fewer national digital strategies contain policies targeting small and medium-sized enterprises (SMEs).

Jobs and Market Openness are the dimensions that appear to be the least comprehensive on average. This is somewhat surprising given the potential implications of digital transformation for changes in jobs, labour markets and social protection, and given the importance of digital technologies to taxation (e.g. base erosion and profit shifting), competition (e.g. online platforms), trade (e.g. data localisation), and financial markets (e.g. fintech). However, policies in some of these domains are still emerging or are evolving rapidly and national digital strategies may not yet be the primary tool to co-ordinate them.

Three policy domains stand out for being covered by all national digital strategies of the countries in Figure 2: Digital government (Use), skills (Society) and digital security (Trust). On the other end of the spectrum, the three least well covered policy domains are: Regional development (Jobs), tax and benefits (Jobs) and taxation (Market Openness). The fact that very few national digital strategies include these domains raises the question of whether they are simply often overlooked in the development of the country's NDS, or whether the Framework itself may need to be revisited to ensure all domains' continued relevance.

It should be noted that a fully comprehensive NDS for a specific dimension primarily indicates that the country's NDS provides essential policies to be co-ordinated under this dimension. However, it does not follow that the country's state of digital development, which may be measured with relevant performance indicators such as those on the Going Digital Toolkit, is necessarily advanced in the respective dimension. Some policies may in fact be new and their effects will take time before being measurable.

Different levels of comprehensiveness may also reflect different approaches to using a NDS as a part of the broader digital policy landscape. When developing a NDS, not all countries start from the same baseline. Some countries may be in a phase of catching up with other countries that have prioritised digital transformation policies in earlier years. While the latter may currently favour more focussed digital strategies, the former may leverage a comprehensive NDS to catch up or get ahead.

That said, given the rapid evolution of digital transformation, it is important that digital policies are periodically reviewed across all dimensions. Using a NDS to do so is one way of ensuring that countries with stronger states of digital development do not lose their edge.

Governance of national digital strategies

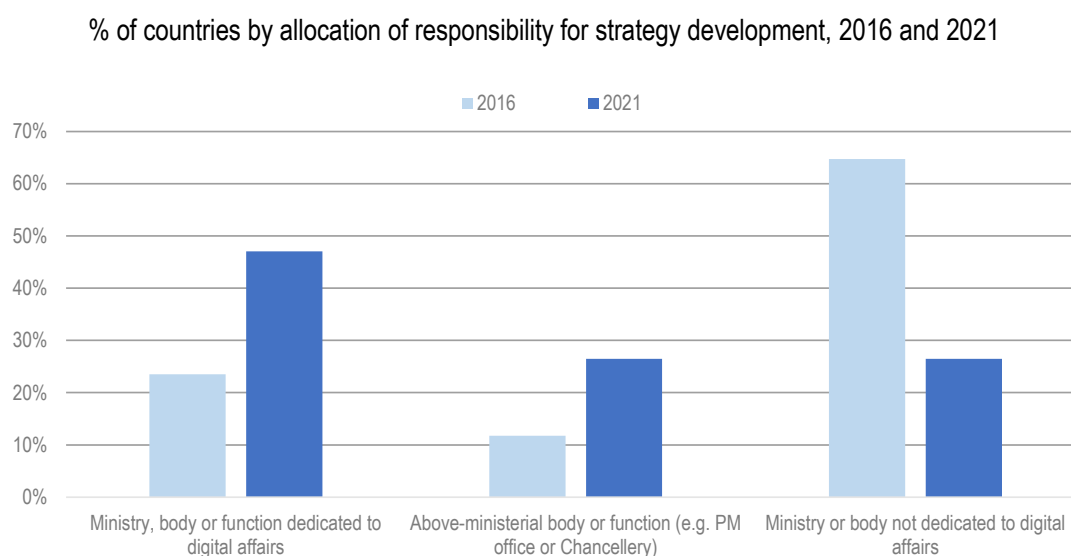
Successful development and implementation of national digital strategies requires effective governance. This section analyses NDS governance approaches in place across countries. While governance is often country-specific and shaped by domestic factors, several aspects help distinguish different types of approaches and identify respective strengths: 1) the allocation of responsibility for strategy development, 2) specific co-ordination arrangements (e.g. for stakeholder engagement), 3) funding the implementation of the NDS, and 4) monitoring its implementation. This section builds on information on NDS governance for 34 countries⁵ in 2016 and 34 countries⁶ in 2019, including 2021 updates.

Strategic responsibilities

A comprehensive NDS is by definition a broad strategy that involves many different actors and stakeholders. A key function of governance is to involve and co-ordinate all concerned government actors and non-governmental stakeholders. Particular attention in this regard should be paid to actors that may be newer to digital policy issues, such as tax offices, or to those whose competence is in policy domains where digital transformation has advanced rapidly and in sometimes unexpected ways, such as Labour and Trade ministries. Specialised bodies, such as those in charge of consumer protection and competition, also need to be included systematically. Moreover, stakeholders outside of government (e.g. business, civil society, the Internet technical community, and trade unions) are crucial for shaping the development and in some cases supporting the implementation of national digital strategies. Only if all concerned parties are engaged can a NDS be comprehensive and successful.

The strategic responsibility of developing and co-ordinating the NDS should be allocated to a body or function that has the political clout, legitimacy and the mandate needed to lead and co-ordinate a comprehensive NDS (OECD, 2019^[2]). This is one reason for which a growing number of countries allocate strategic responsibility above ministerial level, e.g. to the Chancellery, the Prime Minister's Office or the Presidency (OECD, 2020^[1]). While such a high-level approach has advantages for co-ordination, it relies mostly on the expertise across participating ministries, agencies and stakeholders. Other countries have established a Ministry for Digital Affairs, bundling such expertise, while also providing it with a strong mandate for co-ordination. Either approach may suit depending on domestic factors such as the political system and institutional legacy. However, both approaches seem more promising than the allocation of strategic responsibility to a ministry or body not dedicated to digital affairs or a body underneath, which is still the case in several countries.

In recent years, the governance of national digital strategies has evolved significantly (Figure 3). Between 2016 and 2021, the share of countries that allocate the responsibility for developing their NDS to a ministry, body or function dedicated to digital affairs increased most from 24% to 47%. A significant increase can also be observed in the share of countries that allocate this responsibility to an above-ministerial body (e.g. a Prime Minister's office or Chancellery) or an above-ministerial function (e.g. a Deputy Prime Minister), from 12% to 26%. In contrast, the share of countries that assign the same responsibility to a ministry or body not dedicated to digital affairs decreased sharply, from 65% to 26%. These developments may reflect the growing importance of digital transformation policies on political agendas in general as well as a need for stronger leadership and more effective co-ordination of such policies via national digital strategies in particular.

Figure 3. Allocation of responsibility for developing the country's national digital strategy

Source: Authors, based on the OECD Digital Economy Policy Questionnaires 2016, 2019 and 2021 updates.

In addition to monitoring these general trends in the evolution of governance approaches, it is useful to refine the types NDS governance observed in previous OECD work (OECD, 2017^[3]); (OECD, 2019^[2]); (OECD, 2020^[4]) to better account for the diversity of approaches across countries. Table 1 identifies four approaches to the allocation of responsibility for strategy development: 1) a high-level body or function above ministerial level; 2) a dedicated ministry for digital affairs; 3) a body or function dedicated to digital affairs, often below ministerial level; and 4) a ministry or body not dedicated to digital affairs.

Table 1. Allocation of responsibility for developing the country's national digital strategy, 2021

Above-ministerial body or function	Ministry dedicated to digital affairs	Body or function dedicated to digital affairs	Ministry or body not dedicated to digital affairs
Australia, Belgium, Colombia, Chile, Finland, Japan, the Russian Federation, Switzerland, Turkey	Austria, Germany, Greece, Luxembourg, Portugal, Spain, Sweden, the United Kingdom, Thailand	The Czech Republic, Hungary, Iceland, Israel, Italy, Slovenia, Norway	Brazil, Costa Rica, Denmark, Estonia, Korea, Latvia, Lithuania, the Netherlands, Singapore

Source: Authors, based on the OECD Digital Economy Policy Questionnaire 2019 and 2021 updates.

A second key responsibility in NDS governance concerns co-ordination. This responsibility can apply to co-ordinating the development and/or to implementing the NDS. In line with the above, strategic co-ordination in the development of the NDS is increasingly allocated at above-ministerial level or to a ministry or body dedicated to digital affairs. Once developed, the NDS needs to be implemented, which requires more operational co-ordination. Such co-ordination is often ensured by actors directly involved in implementation, for example chief digital officers (CDOs) from implementing ministries and agencies.

Co-ordination arrangements

Effective co-ordination is not only a function of responsibility, but also of practical co-ordination arrangements. Two main types of co-ordination arrangements are frequently found across countries: 1) co-ordination groups or committees and 2) consultations.

Co-ordination groups or committees vary in composition and tasks, but they have several features in common. Such groups tend to operate throughout the entire process of strategy development and/or implementation of the NDS, and they address multiple issues. In 2019, the vast majority of countries had a co-ordination group or committee, either for both strategy development and implementation or at least for one part of the process.

Co-ordination groups or committees mostly consist of government actors only. On the one hand, they are used for strategic co-ordination among the actors involved in strategy development, usually at ministerial or state secretary level. On the other hand, co-ordination groups also serve for operational co-ordination of strategy implementation and in this case more often involve CDOs or other senior officials. Some countries also have working level co-ordination groups that focus on specific and often more technical issues related to strategy implementation.

In contrast to co-ordination groups, consultations are rather one-off events or processes that serve a specific co-ordination task. In 2019, over two thirds of countries carried out multi-stakeholder consultations, for the most part in the context of strategy development. Consultations are most commonly used to involve multiple actors and stakeholders, including those outside of the government, on specific issues, for example ahead of drafting or on proposed text. Consultations are increasingly carried out online.

Funding implementation

Many policy measures provided by national digital strategies require funding to be implemented. The NDS should therefore not only initiate and specify the measures themselves, but also provide information on the budget required for their implementation. Some strategies provide budgetary information directly, while others have an action plan that specifies the source and amount of funding available to implement specific measures.

In terms of the actual budget available to implement the NDS, two main cases exist: 1) either countries allocate dedicated funding explicitly attached to the NDS, or 2) they use decentralised funding from the budgets of different ministries and agencies in charge of implementing specific measures of the NDS. If no budget is allocated to implementing the NDS, the strategy can be expected to have low chances of success. Most countries have a budget associated with their NDS, but only a few countries have a budget explicitly attached to it. In 2019, almost all countries had a budget associated with their NDS in one way or another, while less than a third of countries had a budget explicitly attached to it.

A potential pitfall of a decentralised funding approach is that the implementing ministries and agencies may repurpose existing budget rather than allocate new funding dedicated to implementing the NDS, or they may not allocate any funding at all. Accountability is also likely to suffer with a decentralised budget, in particular if no single entity in the government has full oversight of the funding associated with implementing the NDS, which ultimately risks undermining the strategy's success.

A budget that is explicitly attached to the NDS can also serve as a useful co-ordination tool. If the overall budget for implementing the NDS is distributed across many different ministries and agencies, the budget does not practically serve to co-ordinate strategy implementation. If, however, the budget is centrally administered, for example by a high-level body or a ministry dedicated to digital affairs in charge of strategic co-ordination, the budget can help to co-ordinate and monitor implementation. Against this background, it seems coherent that out of the countries with a budget explicitly attached to their NDS, most allocate

responsibility for strategic co-ordination to a high-level body or function or to a ministry or body dedicated to digital affairs.

Monitoring implementation

Overseeing progress towards the policy priorities and objectives of a NDS requires monitoring its implementation. To effectively monitor progress, countries need to set measurable targets, collect data, and use relevant indicators to measure progress against their targets. In many countries, the body responsible for developing the NDS also oversees the monitoring of its implementation, in particular in countries with a ministry or body dedicated to digital affairs. Otherwise (or in addition), monitoring is often overseen by a body or a co-ordination group of key actors that are more directly involved in implementation. Some countries systematically integrate specific policy measures in their NDS with relevant indicators to measure the implementation and/or effects of these measures.

In 2019, all countries reported that their government monitors the implementation of their NDS in one way or another. However, only two thirds of countries indicated that their government sets measurable targets, and only less than half of countries report that they have defined indicators to measure progress against these targets. Several countries also report that they use international data and indices for domestic monitoring.

Conclusion

Developing and implementing digital transformation policies is challenging, in part because it involves many interrelated policy domains. While the Framework provides the conceptual underpinning to develop well-co-ordinated policies, it must be put into practice. Many countries have turned to a NDS as a tool to do this, but the content and governance of national digital strategies can vary significantly across countries, and questions have arisen as to what a comprehensive national digital strategy should cover and how to govern it. This report provides key answers to these questions.

The new NDSC indicator presented in this report measures the comprehensiveness of national digital strategies benchmarked against the seven dimensions of the Framework, providing insights into the potential of a country's NDS to co-ordinate policies across domains. The results indicate, for example, that policies under the Access dimension are on average the most comprehensive across countries, which reflects the strong tradition of ICT sector specific strategies, such as for broadband development. On the other hand, much scope remains for national digital strategies to better reflect and co-ordinate policies under the Jobs and Market Openness dimensions.

Governance of national digital strategies has evolved in line with the growing importance of digital transformation policies and the need for stronger leadership and more effective co-ordination of such policies via national digital strategies. This is evident in the trend towards allocating responsibility for developing the NDS to a ministry, body or function dedicated to digital affairs or to an above-ministerial body or function. While a majority of countries have adopted a multi-stakeholder approach to developing and implementing their NDS, other essential success factors, notably dedicated funding for implementation, still have substantial room for improvement in many countries.

The insights from the assessment of national digital strategies and their governance in this report can help policymakers as they develop new or revise existing national digital strategies and governance arrangements. Looking ahead, it may be beneficial for future work to also consider assessing countries' broader digital policy landscape.

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Annex A. Criteria for mapping information to the Framework's policy domains

Criteria for mapping information to the Framework's policy domains

The Framework provides sufficient guidance and detail overall to map the policy information to the 38 policy domains (Figure 1). While most policy domains are clearly distinguished from one another, some are transversal, i.e. they appear under several dimensions: 1) investment, 2) competition, 3) digital government, 4) skills, 5) SMEs, 6) tax and benefits, 7) regional development, 8) privacy and 9) security. To map information to these transversal policy domains, detailed criteria are provided in Table A1 and in the discussion of additional mapping criteria below.

Some policies bundle several measures that could be mapped to more than one policy domain. In such cases, one measure of the policy can be considered in one domain and a different measure of the same policy in another domain. For example, a training policy may include a measure to increase the number of ICT specialists and a measure to improve science, technology, engineering and math (STEM) skills. These two measures could be mapped to two domains – the ICT training measure to the skills domain under Use and the STEM training measure to the skills domain under Jobs.

To avoid double counting, each policy measure is mapped to one policy domain only. This also applies to policy measures that are mapped to a transversal policy domain. For example, a skills policy is either mapped to the skills domain under Use, or to the skills domain under Jobs, or to the skills domain under Society.

Table A.1. Criteria for mapping policy information to transversal policy domains

	Dimensions of the Going Digital Integrated Policy Framework							
Transversal policy domains	Access	Use	Innovation	Jobs	Society	Trust	Market Openness	Additional comments
Investment	Increase investment in communication infrastructures, incl. via competition measures that explicitly aim at promoting investment, and public and private investment, and public-private partnerships.	Enhance investment in the enablers of digital transformation in firms, e.g. to favour the adoption and use of ICTs and complementary assets.					Reduce barriers to and promote investment that supports digital transformation, including foreign direct investment.	
Competition	Maintain or increase competition in telecommunication markets.		Avoid market concentration and oversee mergers and acquisitions of young firms, particularly in digital-intensive sectors. Support de-regulation facilitating market entry. Encourage regulatory flexibility to foster competition.				Address competition issues arising from digital transformation, e.g. fair competition between more versus less digital (and data-driven) business models or disruptive digital or digitally enabled products; market concentration in digital markets, incl. platform dominated markets; consumer data; competition issues with international implications.	
Regional development	Reduce/close geographic digital connectivity divide(s).			Improve job opportunities, incl. enhancing skills, in regions that are adversely affected by or do not benefit from digital transformation. Encourage job mobility, e.g. through housing policies.				

Digital government		<p>Improve digital public services for individuals and organisations.</p> <p>Improve use of ICTs and data within the public sector.</p> <p>Digital public procurement.</p>	<p>Improve open government data provision and use.</p> <p>Digital innovation in the public sector.</p>		<p>Expand civic engagement, e.g. in policy making and through digital means.</p>			<p>Digital public service improvements with an objective for a specific policy domain, e.g. taxation or social protection, are considered in that particular domain unless this policy domain already features another policy measure.</p>
SMEs		<p>Enhance adoption and use of ICTs in SMEs.</p>	<p>Enhance the digital innovation potential of SMEs, e.g. via R&D measures or accelerators targeting SMEs.</p>			<p>Improve SME's capacity to address digital security and/or privacy related issues.</p>		
Skills		<p>Support education and training to improve ICT generic, specialist and complementary skills of individuals, for firms and in the public sector.</p> <p>Promote ICT training of teachers.</p> <p>Use recruitment policies to increase relevant skills to thrive in the digital age.</p>		<p>Promote education and training to improve STEM skills and other relevant skills (e.g. ICT skills) to succeed in a digital world of work.</p> <p>Promote vocational training.</p>	<p>Support education and lifelong learning to improve foundational skills (e.g. literacy and numeracy) that empower people to participate in a digital society and to reduce digital divides.</p>			<p>Skills policies that target specific skills for a particular policy domain (e.g. digital security skills) are considered in that particular domain, unless this domain already features another policy measure.</p>
Privacy		<p>Address privacy issues, notably by enhancing the management of privacy risk by individuals, firms, or in the public sector.</p>				<p>Ensure privacy and personal data protection.</p>		
Security		<p>Address digital security issues, notably by enhancing the management of digital security risk by individuals and/or firms and/or the public sector.</p>				<p>Enhance digital security.</p>		<p>Under Trust, in addition to policies that enhance digital security, digital security risk management policies are considered in a</p>

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		Promote e-authentication, including e-identity and e-signatures, to enable wide adoption of ICTs.						separate policy domain.
Tax and benefits				Improve job-related taxes, i.e. translating into benefits for employees, entrepreneurs or workers. Support job-related benefits.	Use redistribution targeted at vulnerable or disadvantaged social groups. Provide in-kind transfers.			

In principle, data and data governance related issues cut across all of the Framework's dimensions. For the assessment in this report, data policies can be considered in several policy domains. For example, data policies may be mapped to the digital government domain (e.g. open government data) under Innovation, to the privacy domain (e.g. data protection) under Trust, or to the trade domain (e.g. data localisation) under Market Openness.

Business dynamism under Use and entrepreneurship under Innovation are in principle two distinct policy domains, but some policies could potentially be considered relevant for both. Fostering business dynamism under Use involves structural policies that favour more efficient resource allocation (e.g. facilitating the scaling up, scaling down and exit of inefficient firms) and aim to increase firms' adoption of ICTs; it also includes policies to improve access to financing for existing firms. Fostering entrepreneurship under Innovation involves policies that support starting an innovative digital or data-driven business, such as via incubators or measures that improve seed or other start-up funding.

Specific policy instruments, such as regulation or regulatory sandboxes, are considered in the policy domain to which they apply. For example, if a regulatory sandbox is set up to facilitate experimentation and innovation with digitally enabled business models in the transport sector, it would be mapped as a sectoral policy under Innovation; if the objective of a regulatory sandbox is to improve competition, it is mapped to competition.

Similarly, smart city policies can be mapped to different policy domains depending on their objective. Often, such policies target transport, energy or housing (i.e. specific sectors at the urban level). In these cases, they are mapped to sectoral policies under Innovation. In another case, when smart city policies, for example, aim primarily to reduce adverse effects on the environment or decrease greenhouse gas emissions, they are mapped to environment under Society.

Since the outbreak of the Covid-19 pandemic, telework has gained strongly in importance and some national digital strategies, in particular more recent ones, include policies on telework. Despite the fact that the Framework does not explicitly discuss telework policies, to take them into account the following mapping criteria apply. The teleworking policy is mapped depending on its focus and objective, for example under Jobs, to either labour markets, regional development, or tax and benefit policies. If the teleworking policy targets firms, it is mapped under Use, for example to investment or to business dynamism. If the policy targets adverse effects of telework on well-being, such as work-life balance issues, it is mapped to social policies under Society.

In addition to the policy issues that the Framework discusses for social policies under Society, policies on the protection of children online are mapped to this domain. While they are not discussed specifically under social policies in the Framework, policies aimed at protecting children online are alluded to in the Society dimension. Gender policies are also mapped to social policies, in line with the Framework's discussion thereof.

For consumer protection under Trust, a variety of different policies are considered. In addition to any policy that addresses specific consumer protection issues related to digital transformation, policies to improve consumers' digital financial literacy are considered. While sector-specific consumer policies are also considered, a policy in one sector only, such as in communication services, is not sufficient to cover the policy domain of consumer protection.

Table A.2. Calculation of the NDSC indicator for an example country

Framework dimensions:	Access	Use	Innovation	Jobs	Society	Trust	Market Openness
(A) Total number of policy domains per Framework dimension	4	7	6	5	6	5	5
(B) Country X, number of domains with a policy measure	2	5	4	3	5	5	4
Calculation of NDSC: (B) / (A)	2/4	5/7	4/6	3/5	5/6	5/5	4/5
Country X's NDSC values	0.5	0.71	0.67	0.6	0.83	1	0.8

Table A.3. NDSC sources

National digital strategies and related strategies and policies assessed in Figure 1, 2021

Country	National digital strategy	Co-ordinated strategies or policies
Australia	Australia's Tech Future – Delivering a strong, safe and inclusive digital economy, https://www.industry.gov.au/sites/default/files/2018-12/australias-tech-future.pdf	<p>Cybersecurity Strategy 2020, https://www.homeaffairs.gov.au/cyber-security-subsite/files/cyber-security-strategy-2020.pdf</p> <p>5G – Enabling the Future Economy, https://www.communications.gov.au/departmental-news/5g-enabling-future-economy</p> <p>Australia's International Cyber Engagement Strategy, https://www.dfat.gov.au/sites/default/files/DFAT%20AICES_AccPDF.pdf</p> <p>Advancing Women in STEM strategy, https://www.industry.gov.au/data-and-publications/advancing-women-in-stem-strategy</p> <p>Toward 2025: An Australian Government Strategy to boost women's workforce participation, https://womensworkforceparticipation.pmc.gov.au/sites/default/files/towards-2025-strategy.pdf</p>
Austria	Digital Austria, 2021, https://www.digitalaustria.gv.at/	<p>BMLRT, 2019, Broadband Strategy 2030 – Austria's Path to the Gigabit Society, https://info.bmlrt.gv.at/dam/jcr:bbe177b0-893a-4f23-a461-ac44e109c6a6/breitbandstrategie2030_ua.pdf</p> <p>Digital Austria Actionplan 1 – Ziele, Leitlinien & Prinzipien, https://www.digitalaustria.gv.at/downloads.html</p> <p>Digital Austria Actionplan 2 – Die große Daten-Chance, https://www.digitalaustria.gv.at/downloads.html</p> <p>Digital Austria Actionplan 3 – Digitalisierung nützen und krisenfest wachsen, https://www.digitalaustria.gv.at/downloads.html</p>

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		Digital Austria Actionplan 4 – Digitale Wirtschaftstransformation, https://www.digitalaustria.gv.at/downloads.html
Brazil	Estratégia Brasileira para a Transformação Digital, 2018, https://www.gov.br/mcti/pt-br/centrais-de-conteudo/comunicados-mcti/estrategia-digital-brasileira/estrategiadigital.pdf	National Strategy for Science, Technology and Innovation 2016-22, https://portal.insa.gov.br/images/documentos-oficiais/ENCTI-MCTIC-2016-2022.pdf
Chile	Agenda Digital, Imagina Chile 2013-2020, https://www.siteal.iiep.unesco.org/sites/default/files/sit_accion_files/siteal_chile_5034.pdf	National Cybersecurity Policy, https://www.ciberseguridad.gob.cl/media/2017/05/NCSP-ENG.pdf Productivity Agenda, Innovation and Growth, http://servicios.produccion.gob.ec/siiipro/downloads/temporales/5_Gobierno%20de%20Chile_Agenda%20de%20Productividad.compressed.pdf
Colombia	National Development Plan 2018-2022: Pacto por Colombia, pacto por la equidad, https://colaboracion.dnp.gov.co/CDT/Prensa/Ley1955-PlanNacionaldeDesarrollo-pacto-por-colombia-pacto-por-la-equidad.pdf	Plan TIC 2018-22, El Futuro Digital es de Todos, https://www.siteal.iiep.unesco.org/sites/default/files/sit_accion_files/11055.pdf Digital Security Policy, CONPES 3854, https://colaboracion.dnp.gov.co/CDT/Conpes/Econ%C3%B3micos/3854.pdf National Data Exploitation Policy, CONPES 3920, https://colaboracion.dnp.gov.co/CDT/Conpes/Econ%C3%B3micos/3920.pdf National Policy for Digital Transformation and Artificial Intelligence, CONPES 3975, https://colaboracion.dnp.gov.co/CDT/Conpes/Econ%C3%B3micos/3975.pdf National Electronic Commerce Policy, CONPES 4012, https://colaboracion.dnp.gov.co/CDT/Conpes/Econ%C3%B3micos/4012.pdf National Trust and Digital Security Policy, CONPES 3995, https://colaboracion.dnp.gov.co/CDT/Conpes/Econ%C3%B3micos/3995.pdf
Denmark	Strategy for Denmark’s Digital Growth, 2018, https://eng.em.dk/media/10566/digital-growth-strategy-report_uk_web-2.pdf	Danish Cyber and Information Security Strategy, 2018, https://en.digst.dk/media/17189/danish_cyber_and_information_security_strategy_pdf.pdf Strategy for growth through sharing economy, 2017,

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Estonia	Digital Agenda 2020 for Estonia (2013-20), http://old.itl.ee/public/files/DigitalAgenda2020_Estonia_ENG.pdf ; https://www.mkm.ee/sites/default/files/digital_agenda_2020_web_eng_04.06.19.pdf	Competitiveness Strategy “Estonia 2020”, https://ec.europa.eu/info/sites/info/files/2019-european-semester-national-reform-programme-estonia-en.pdf “Sustainable Estonia 21” Strategy, https://www.oneplanetnetwork.org/sites/default/files/se21_eng_web.pdf
Germany	Digitalisierung Gestalten, 6. Juni 2021, https://www.bundesregierung.de/resource/blob/975292/1605036/339a38c264fd50ff9efca6ad8da64bae/digitalisierung-gestalten-download-bpa-data.pdf?download=1	
Greece	Digital Transformation Bible 2020-2025, https://digitalstrategy.gov.gr/vivlos_pdf	
Hungary	National Infocommunication Strategy 2014-20, https://akadalymentes.2015-2019.kormany.hu/download/5/ff/70000/NIS_EN_clear.pdf	National Development and Territorial Development Concept (NDTDC), https://regionalspolitika.kormany.hu/download/b/c9/e0000/OFTK_vegleges_EN.pdf National Cyber Security Strategy, https://sherloc.unodc.org/cld/uploads/res/lessons-learned/national_cyber_security_strategy_of_hungary_html/National_Cyber_Security_Strategy_of_Hungary.pdf
Israel	The Digital Israel National Initiative: The National Digital Program of the Government of Israel, https://www.gov.il/BlobFolder/news/digital_israel_national_plan/en/The%20National%20Digital%20Program%20of%20the%20Government%20of%20Israel.pdf	ICT Authority Strategic Plan 2016-18, https://www.gov.il/blobFolder/generalpage/stratigy_eng/he/STRATIGY-%20ICT%20ATHORITY%20-%20ENGLISH.pdf
Italy	Italia digitale 2026, https://innovazione.gov.it/dipartimento/focus/italia-digitale-2026/	National Plan of Recovery and Resilience, https://italiadomani.gov.it/en/home.html

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<p>Japan</p>	<p>Declaration to be the World's Most Advanced Digital Nation: Basic Plan for the Advancement of Public and Private Sector Data Utilization, July 17 2020, https://cio.go.jp/node/2413</p>	<p>Cybersecurity Strategy, 2018, https://www.nisc.go.jp/eng/pdf/cs-strategy2018-en-booklet.pdf</p> <p>AI Strategy 2019, https://www.kantei.go.jp/jp/singi/ai_senryaku/pdf/aistrategy2019en.pdf</p>
<p>Korea</p>	<p>6th Master Plan for National Informatization, 2018 https://www.nia.or.kr/site/nia_kor/ex/bbs/View.do?cbldx=66361&bcldx=20513&parentSeq=20513</p>	
<p>Latvia</p>	<p>Information Society Development Guidelines 2014-20 ISDG, https://www.varam.gov.lv/sites/varam/files/content/files/information_society_development_guidelines_2014_2020.docx</p>	<p>Concept on Development of a Uniform Geospatial Information Portal (Order No. 737 of 27 November 2007 of the CM “On the Concept “On Development of a Uniform Geospatial Information Portal”), https://likumi.lv/ta/en/en/id/235212-regulations-regarding-the-state-uniform-geospatial-information-portal</p> <p>“Electronic Communications Sector Policy Plan 2018-20”, https://likumi.lv/ta/id/297668-par-elektronisko-sakaru-nozares-politikas-planu-20182020-gadam</p> <p>Concept for the Development of Next Generation Broadband Electronic Communications Networks for 2013 - 2020 (Order No. 589 of 7 December 2012 of the CM “On the Concept for the Development of Next Generation Broadband Electronic Communications Networks for 2013 – 2020”), https://www.sam.gov.lv/sites/sam/files/item_5264_samkonc_250315_ngnkonceptija_precizeta_20151.doc</p> <p>Employment and Inclusive Growth Guidelines for 2014 – 2020, https://likumi.lv/ta/id/273969-par-ieklaujosas-nodarbinatibas-pamatnostadnem-2015-2020-gadam</p> <p>Education Development Guidelines for 2014 - 2020 (draft), https://likumi.lv/ta/id/266406-par-izglitibas-attistibas-pamatnostadnu-20142020gadam-apstiprinasanu</p> <p>Guidelines of the “Latvian Information Technology Safety Strategy for 2013 - 2018”, http://tap.mk.gov.lv/doc/2005/SAMPam_070213_itds.317.doc</p> <p>State ICT security strategy - draft guidelines for “Latvian Information Technology Security Strategy 2013-2018”, https://www.enisa.europa.eu/topics/national-cyber-security-strategies/ncss-map/lv-ncss</p>
<p>Lithuania</p>	<p>Information Society Development Programme for 2014-20; “Digital Agenda for the Republic of Lithuania”, Consolidated Version as of 23/12/2017, https://eimin.lrv.lt/uploads/eimin/documents/files/30310_LRV%20nutarimas(en).pdf</p>	<p>Priority Areas of Research and (Socio-Cultural) Development and Innovations (Smart Specialisation), https://www.smm.lt/uploads/documents/en_smm/smarts/Programme.pdf</p>

Luxembourg	<p>Digital Luxembourg, https://digital-luxembourg.public.lu/</p> <p>Digital Luxembourg 2020 Progress Report, https://digital-luxembourg.public.lu/sites/default/files/2021-02/DL_202005039_PROGRESS%20REPORT2019_low2.pdf</p>	<p>National strategy for very high-speed networks, 2010, https://smc.gouvernement.lu/dam-assets/Strategie-nationale-pour-les-reseaux-a-ultra-haut-debit-2010-05032019.pdf</p> <p>Data-Driven Innovation Strategy for the Development of a Trusted and Sustainable Economy in Luxembourg, https://gouvernement.lu/en/publications/rapport-etude-analyse/minist-economie/intelligence-artificielle/data-driven-innovation.html</p> <p>National Cybersecurity Strategy IV, https://hcpn.gouvernement.lu/en/publications/strategie-nationale-cybersecurite-4/strategie-nationale-cybersecurite-4.html</p>
Netherlands	<p>Dutch Digitalisation Strategy 2021, 2021, https://www.nederlanddigitaal.nl/documenten/publicaties/2021/06/22/the-dutch-digitalisation-strategy-2021-eng</p>	
Norway	<p>Digital Agenda for Norway (2015-16), https://www.regjeringen.no/no/dokumenter/meld.-st.-27-:20152016/id2483795/</p>	<p>National Cyber Security Strategy, https://www.regjeringen.no/contentassets/c57a0733652f47688294934ffd93fc53/national-cyber-security-strategy-for-norway.pdf</p> <p>Long-term plan for research and higher education 2019–2028, https://www.regjeringen.no/contentassets/9aa4570407c34d4cb3744d7acd632654/en-gb/pdfs/stm201820190004000enqpdfs.pdf (updated version 2019-2028)</p>
Portugal	<p>Portugal Digital, Portugal's Action Plan for Digital Transition, 2020, https://portugaldigital.gov.pt/wp-content/uploads/2021/11/Action-Plan-for-Digital-Transition.pdf</p>	<p>National Strategy for Cyberspace Security 2019-2023, https://www.cyberwiser.eu/sites/default/files/portugal_-_ncss_2019_2023_en_2.pdf</p> <p>AI Portugal 2030, https://www.incode2030.gov.pt/sites/default/files/julho_incode_brochura.pdf</p> <p>Advanced Computing Portugal 2030, https://www.incode2030.gov.pt/sites/default/files/advanced-computing-portugal_2030-acp-2030-relatorio.pdf</p>
Slovenia	<p>Digital Slovenia 2020 – Development Strategy for the Information Society Until 2020, https://www.gov.si/assets/ministrstva/MJU/DID/Digital-Slovenia-2020-Development-Strategy-for-the-Information-Society-until-2020.pdf</p>	<p>Cyber Security Strategy, https://www.gov.si/assets/ministrstva/MJU/DID/Cyber_Security_Strategy_Slovenia.pdf</p> <p>Plan for Developing Next-Generation Networks by 2020, https://www.gov.si/assets/ministrstva/MJU/DID/NGN_2020_Slovenia_EN.pdf</p> <p>RISS - Research and Innovation Strategy of Slovenia,</p>

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Spain	DIGITAL SPAIN 2025, https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/ficheros/Digital-Spain-2025.pdf	National Strategy for Artificial Intelligence, 2020, https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/ficheros/National-Strategy-on-AI.pdf National Cybersecurity Strategy, 2019, https://www.dsn.gob.es/ca/file/2989/download?token=EuVy2lNr#:~:text=Spain's%20first%20National%20Cybersecurity%20Strategy,governance%20model%20for%20national%20cybersecurity
Sweden	For a sustainable digitized Sweden – a digitization strategy, https://www.regeringen.se/49adea/contentassets/5429e024be6847fc907b786ab954228f/digitaliseringsstrategin_slutlig_170518-2.pdf	A Completely Connected Sweden by 2025 – a Broadband Strategy, https://www.government.se/496173/contentassets/afe9f1cfeaac4e39abddd3b82d9bee5d/sweden-completely-connected-by-2025-eng.pdf Comprehensive cyber security action plan 2019–2022, https://rib.msb.se/filer/pdf/28898.pdf Sweden's Export (Trade and Investment) Strategy, https://www.government.se/4b007e/contentassets/0effc2f3c24a4c58b7e2399fe1eeeb2/swedens-trade-and-investment-strategy.pdf Vision for eHealth 2025, https://www.government.se/4a3e02/contentassets/b0fd09051c6c4af59c8e33a3e71fff24/vision-for-ehealth-2025.pdf
Switzerland	Digital Switzerland Strategy, https://www.bk.admin.ch/bk/fr/home/digitale-transformation-ikt-lenkung/digitale-schweiz.html Digital Switzerland Action Plan, https://www.digitaldialog.swiss/en/actionplan	Bericht zu Rahmenbedingungen der digitalen Wirtschaft, https://www.admin.ch/gov/de/start/dokumentation/medienmitteilungen.msg-id-65223.html SIF's position on taxing the digitalised economy, https://www.sif.admin.ch/sif/en/home/finanzmarktpolitik/digit_finanzsektor/best_digit_wirtschaft.html Financial market policy for a competitive Swiss financial centre, https://www.sif.admin.ch/sif/en/home/finanzmarktpolitik/zusammenfassung.html Actionplan digitalisation in education, research and innovation in the years 2019 and 2020, https://www.sbf.admin.ch/sbfi/de/home/bfi-politik/bfi-2021-2024/transversale-themen/digitalisierung-

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United Kingdom	UK Digital Strategy, https://www.gov.uk/government/publications/uk-digital-strategy/uk-digital-strategy	National Cyber Security Strategy, https://www.gov.uk/government/publications/national-cyber-security-strategy-2016-to-2021 Government Transformation Strategy, https://www.gov.uk/government/publications/government-transformation-strategy-2017-to-2020
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Endnotes

¹ In many countries, the NDS does not contain or reference all policies in place – or put in place after the publication of the NDS – that make up the countries' entire digital policy landscape. For example, in Portugal the NDS contains only the set of measures that were considered to be of top priority; it does not include all the measures planned or already being carried out by different bodies. In Chile, several important initiatives, including related to AI, were developed after its NDS and as such are not reflected.

² Information from the policy database is available upon request by contacting: GoingDigitalToolkit@oecd.org.

³ If the reference occurs in a general section of the NDS, the referenced strategy or policy is only taken into account if it is specific enough to be attributable to a particular policy domain of the Framework or, if not, if it primarily concerns digital policies.

⁴ Focusing mainly on open data and innovation in the public sector.

⁵ The countries that responded to the relevant module of the 2016 Digital Economy Policy Questionnaire are: Austria, Belgium, Brazil, Canada, Chile, Costa Rica, the Czech Republic, Estonia, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, the Netherlands, Norway, the People's Republic of China, Poland, Portugal, the Russian Federation, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, and the United Kingdom.

⁶ The countries that responded to the relevant module of the 2019 Digital Economy Policy Questionnaire plus 2021 updates are: Australia, Austria, Belgium, Brazil, Chile, Colombia, Costa Rica, the Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Portugal, the Russian Federation, Singapore, Slovenia, Spain, Sweden, Switzerland, Thailand, Turkey, and the United Kingdom.