Chapter 3

Improving ICT management and strategic planning in Norway

This chapter focuses on the existing capacities across the Norwegian public sector to support an efficient, coherent and sustainable digital transformation. Starting with an overview of the information and communications technology (ICT) expenditures in the Norwegian public administration, the analysis will assess the cost-benefit practices in use, namely business-case methodologies to guide ICT investments. The existence of standardised models for ICT project management in the public sector will also be explored as a relevant policy lever to increase co-ordination, synergies, knowledge sharing and sound monitoring of digital government development. The chapter will discuss the landscape of digital skills in the Norwegian public sector and the strategic selection of responsibilities between the public and private sector with regard to core functions and tasks, e.g. related to ICT projects management. The analysis will close with an assessment of the Norwegian public sector's experience and practices in the procurement of ICT.

Introduction

The progressive digitalisation of all public administration activities and the rising presence and uptake of digital technologies require governments' sound approaches for information and communications technology (ICT) deployment and maintenance. Strategic planning is necessary to structure ICT investments across sectors and levels of government, but also to secure the availability of appropriate skills in the public sector workforce. Digital technologies are increasingly diverse and come with progressive levels of complexity, demanding different cost structures (e.g. specialised human resources, specific hardware, development of tailored software, security tests, usability tests, load tests, legal consulting services) to face dependencies from numerous variables (e.g. economic or social sector to be applied, profile of final users, expected demands, foreseen technological evolution, national or international regulations). In this sense, ICT investments in the public sector are becoming more challenging in relation to budget size and management, as well as with regard to the choice of procurement methods, technical options and stakeholders' involvement (OECD, 2016).

Governments of OECD countries are adopting business-case methodologies and assuming a cross-cutting commitment to the development of project management and digital skills, as critical elements of the public sector's capability to develop a digital government sustainable approach (Principles 9 and 10 of the OECD Recommendation on Digital Government Strategies). The strategic planning of ICT investments, i.e. the process by which the public sector ensures the alignment of ICT projects with broader objectives set by national/or and institutional strategies, helps governments to evaluate the benefits of their investments, avoid gaps and overlaps in public sector efforts and provides for more accurate risk management strategies.

The adoption and regular use of common business-case approaches and project management tools can have a positive impact on the prioritisation of investments and the mobilisation of adequate financial resources, since they favour a more holistic mapping of public sector needs. Strategic planning mechanisms also enable the public sector to better spot synergies, integrate financial efforts and share returns, which are central features of the digital transformation of public sector organisations.

In Norway, ICT expenditures represent a substantial proportion of central government procurement (see Figure 3.1). The Ministry of Health reports that ICT procurement represents 30% of total procurement expenditures. ICT procurement represents 28% of total procurement expenditures for the Ministry of Economic Affairs and 27% for the Ministry of Education (OECD, 2017a). Regarding the distribution across levels of government, the central government spends as much as 57% of total public sector ICT expenditures, against 35% for municipalities and 8% for counties (OECD, 2017a).

Figure 3.1. **ICT expenditures in Norwegian ministries**

By individual ministry, in %
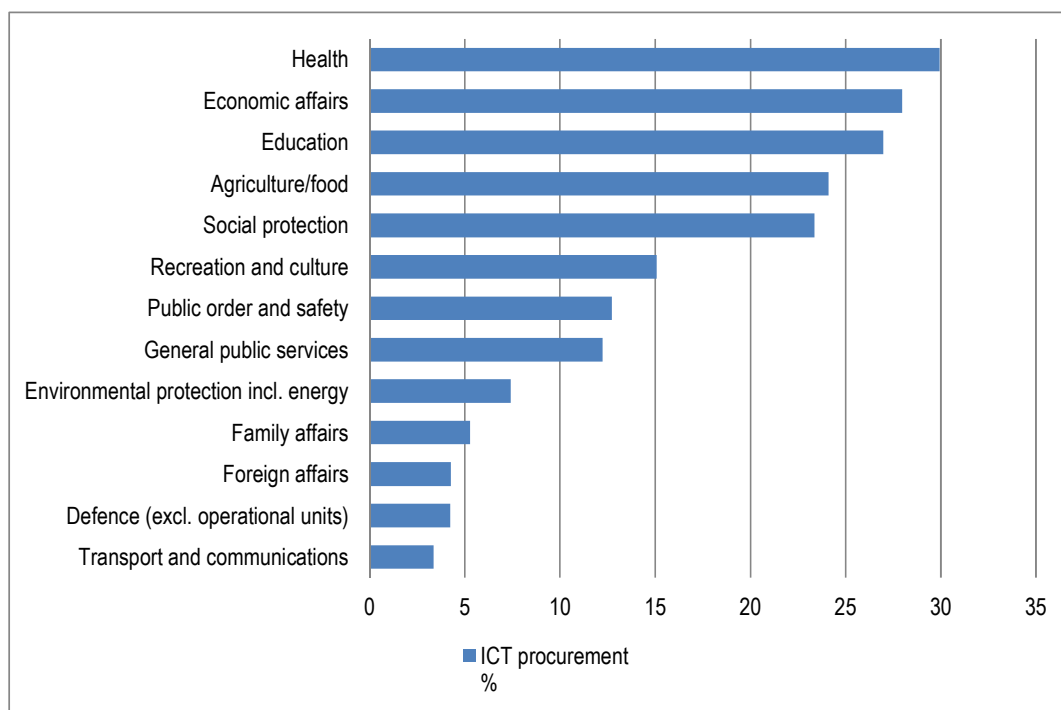
Source: OECD (2017a), "Digital Government Survey of Norway", central version, OECD, Paris. Based on the question, "Percentage of ICT procurement of the total procurement by individual ministry".

The significant weight of ICT expenditures on the Norwegian public sector highlights the relevance of ensuring robust and strategic ICT planning and management. This chapter provides a general assessment of the status of ICT planning and management within Norway's public administration. The next section advances an overview of the use of cost-benefit analysis, namely the use of business-case methodologies to guide ICT investments. The following section focuses on the importance of using standardised models for ICT project management across the public sector. The chapter continues by exploring how the needs in terms of digital skills are being tackled by the public sector, assessing in particular the need to ensure a proper balance between outsourcing and insourcing of the management of core tasks related to digital government development. The chapter concludes with an overview of the Norwegian public sector's strategic management of ICT procurement.

Reinforcing strategic planning and management of ICT projects

In order to fully realise the benefits of digital government, the public sector should be able to strategically prioritise, adequately structure and co-ordinate ICT expenditures across different sectors of government. This has led a majority of OECD countries to adopt tools for enhanced ICT project management and governance. Given the cross-cutting role of digital technologies, various policy mechanisms are used to optimise and rationalise ICT expenditures in the public sector, to make it more streamlined and coherent.

For instance, 80% of OECD countries use budget thresholds to structure the governance of ICT projects (OECD, 2014a). In these countries, ICT projects above a pre-determined budgetary value should meet certain administrative, financial, management or technical requirements in order to be approved. The level and scope of the thresholds is an important dimension to consider, as very different levels are used to make the evaluation mandatory or not with very different implications. In some countries, like Portugal and Spain, the value is substantially low, while in others, like Denmark, only large and structural ICT projects require the full development of a business-case proposition and all the phases of the ICT project management model (OECD, 2016).

Ex ante *evaluation mechanisms for sound ICT investments*

During the peer review mission in Oslo, the Norwegian stakeholders fully recognised the importance of value proposition practices to support ICT investments. The country's institutional framework to strengthen coherence and secure the sustainability of ICT expenditures comprises several elements.

The Ministry of Local Government and Modernisation (KMD) is the main co-ordination body for digital government development in Norway. KMD's subordinate agency, the Agency for Public Management and eGovernment (Difi), encourages the co-ordinated and cost-efficient use of ICT within the public sector. The Strategic Cooperation Council for Management and Coordination of eGovernment Services (SKATE) is a strategic collaborative council and advisory body meant to ensure co-ordination of the digitalisation of the public sector (see Chapter 2).

It is worth highlighting the role of the KMD in advising the Ministry of Finance on prioritisation of ICT investments within the yearly Budget Investment Proposal programme (Statsingsforslag). This policy mechanism is useful to align ministerial ICT projects with the national digital government strategic goals, e.g. as set in the national Digital Agenda. To apply projects to the Budget Investment Proposal programme, ministries must submit a form that includes information about the project's value creation. This information is used by the KMD to rank the submitted projects and for the final decision about the availability of funding.

The Digitalisation Council (Digitaliseringsrådet) is another collective body of the Norwegian digital government institutional framework. It was established in 2016 to assist public sector institutions succeed in their digitalisation efforts through the provision of quality assurance for ICT projects (KMD, 2016). Chaired by Difi, the Council has representatives from the public sector (central and local government), the private sector and the academia (see Box 3.1).

Box 3.1. **Norway's Digitalisation Council (Digitaliseringsrådet)**

Mission

"The government has established a digitisation council that will help public agencies to succeed in digitisation projects. The council will also help state agencies to learn from each other's successes and mistakes." (Difi, 2017)

Members

- Svein R. Kristensen, Difi (Chair)

- Toril Nag, Executive Vice President of Lyse

- Nina Aulie, Director of the Directorate of Health

- Kjetil Århus, Director of ICT Group in Bergen Municipality

- Magne Jørgensen, Researcher at Simula Research Laboratory

- Jan-Olav Styrvold, Director of Economics and IT at Vinmonopolet

- Eli Stokke Rondeel, Project Manager in Hospital Partner

- Øivind Christoffersen, Special Advisor

Review process for ICT projects

The process is divided into three stages:

1. **Preparations**: The public body contacts the Digitalisation Council and reports the interest for a project's review. The timeframe and the group of documents to be submitted are agreed.
2. **Project review**: The Digitalisation Council takes around three weeks to treat the process. The documents are reviewed by the secretariat as a preparation for the council. The leader of the public body meets the council and the project is broadly discussed. After the treatment in the council, the public body receives a written recommendation.
3. **Follow up**: After consultation in the Digitalisation Council, the public body can get guidance from the secretariat.

Source: Difi (Agency for Public Management and eGovernment) (2017), www.difi.no, official agency website (accessed 1 April 2017).

The Digitalisation Council has a determinant role in ensuring coherence of decisions and respect of established standards for major ICT projects, since public institutions are advised to submit to this collective body project proposals with a budget between NOK 10 million and NOK 750 million. However, the guidance and coaching role of the Digitalisation Council is not mandatory, thus relying on the institutions' willingness to follow its recommendations or not.

A second *ex ante* evaluation mechanism for public projects (including ICT projects) is applied to initiatives over NOK 750 million. Over this threshold, a cost-benefit assessment - known as KS-ordningen or Quality Assurance scheme (QAs) - is required.

The assessment is carried out by the Ministry of Finance, typically with the support of external consultancy firms.

The Quality Assurance scheme mechanism was established in 2000 after several examples of national projects that had failed due to costs overruns, delays and lack of quality standards (NTNU, 2017). The Ministry of Finance signed a framework agreement with diverse consultancy companies to perform the QAs. Since then, the framework agreement evolved. The current QAs was established in September 2015 and will last two years, with the possibility of being extended for another two years by the Ministry of Finance. The QA scheme in place nowadays comprises two external reviews in an investment project's planning process (NTNU, 2017) (see Figure 3.2):

1. **QA1 – Quality assurance of choice of concept**

The purpose of this stage is to ensure that alternative concepts are considered and subject to the political control of the Government's Cabinet in the decision to start a project. The stage is also important to guarantee that the documents informing the decision are of high quality.

2. **QA2 – Quality assurance of the management base and cost estimates**

Developed before the project being submitted for Parliament's approval and consequent funding consent, its main purpose is to control the documentation behind the proposition. The cost estimates and the foresight scenarios for the management challenges in the following phases of the project are at the centre of this stage.

Figure 3.2. **Norwegian scheme for quality assurance of major public investments (the QA scheme)**
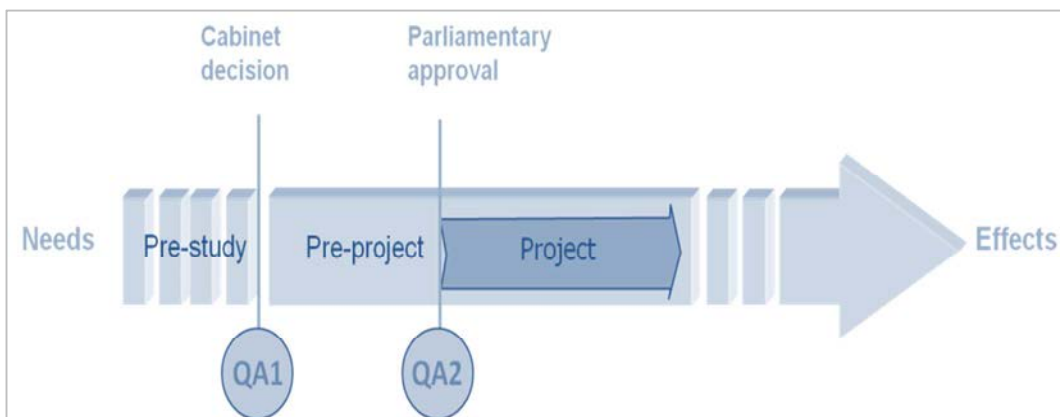
Source: NTNU (Norwegian University of Science and Technology) (2017), "The Norwegian scheme for quality assurance of major public investments (the QA scheme)", webpage, www.ntnu.edu/web/concept/qa-scheme1 (accessed 12 August 2017).

Although the two *ex ante* evaluation mechanisms – Digitisation Council and Quality Assurance Scheme – represent an important contribution to improving the efficiency and coherence of ICT initiatives, there was a general consensus among the public stakeholders during the peer review mission about the need to better use existing mechanisms for cost-benefit analysis of ICT projects. The recent establishment of the Digitisation Council, in 2016, might explain why even though an increasing number of actors is aware of its existence, insufficient awareness was found among the stakeholders

about its advisory role. The Norwegian government would benefit from better promoting and clarifying the mission of the Council, inasmuch as it would help demonstrate the benefits for individual ICT projects' assessment and for the efficiency of the public administration as a whole.

The experience of OECD countries is diverse in terms of mechanisms in place to enhance projects' scrutiny and quality assurance. However, given the technical specificities and complexities of public sector ICT projects, governments have made efforts to streamline policy tools to guarantee the optimisation and increasing coherence of ICT expenditures, such as the acquisition and maintenance of hardware, deployment and development of software or contracting of ICT consultancy services (see Box 3.2).

Box 3.2. **ICT project assessment in Portugal**

The Portuguese Agency for Administrative Modernisation (AMA), an executive agency located at the Presidency of the Council of Ministers, has substantive powers in terms of allocation of financial resources and approval of ICT projects.

The AMA manages the administrative modernisation funding programme, which is composed of EU structural funds and national resources (SAMA2020). These funds are an attractive source of funding for agencies planning to develop ICT projects. This gives AMA important leverage as the approval of funding for digital government projects through this programme is conditioned on compliance with existing guidelines.

Similarly, every ICT project of EUR 10 000 or more must be pre-approved by AMA, which verifies compliance with guidelines, the non-duplication of efforts, and compares the prices and budgets with previous projects in order to ensure the best value for money.

Source: OECD (2016), *Digital Government in Chile: Strengthening the Institutional and Governance Framework*, OECD Digital Government Studies, OECD Publishing, Paris, http://dx.doi.org/ 10.1787/9789264258013-en.

In line with the progressive importance conceded by the Norwegian government to cost-benefit assessments, two relevant initiatives were implemented in 2016 to improve the quality of ICT projects:

1. **Difi's co-financing mechanism (Medfinansieringsordningen)**

This funding scheme led by Difi is intended to improve the digitalisation of the Norwegian public sector, investing in small- and medium-sized ICT projects that must be economically viable. To be considered for funding, ICT projects should have a total cost that ranges between NOK 5 million to NOK 50 million, and able to receive co-financing support from Difi of up to 50% of total costs, with a limit of NOK 15 million.

All submitted projects must present a simplified cost-benefit analysis that shows that the investment is financially viable. Proposals are ranked based on "which projects provide the highest socio-economic return per invested krone over the public budget" (Difi, 2017).

In 2017, Difi received a budget of NOK 111.8 million from central government to co-finance new projects.

Although counties and municipalities cannot apply for co-financing, many of the projects that receive financing have significant benefits for the municipal sector. For example, projects funded in 2016 will provide benefits in the municipal sector in the range of NOK 133.7 million annually from 2018. Fourteen projects have received provisional funding commitments, from NOK 2.6 million to NOK 15 million. The total socio-economic profitability (net present value over ten years) is estimated at NOK 6.5 billion and the possible savings over public budgets are around NOK 3 billion for the same period (Difi, 2017).

The Norwegian government is also reinforcing the funding mechanisms for ICT projects in the municipalities. NOK 25 million were allocated in 2017 and the government plans to allocate NOK 100 million in 2018, to be administrated by Norwegian Association of Local and Regional Authorities (KS). This new funding mechanism envisages supporting ICT projects in municipalities that develop solutions that can be used by all municipalities.

2. Digitalisation Memorandum (Digitaliseringsrundskrivet)

This yearly KMD's policy document is addressed to all the ministries and underlying/subordinate agencies and directorates. It compiles orientations about requirements and provides recommendations to promote the digitisation of the public sector (see Chapter 2). The areas covered in 2016 are very diverse, ranging from the use of national components to the "digital first" initiative (Digitalt førstevalg) (see Chapter 4).
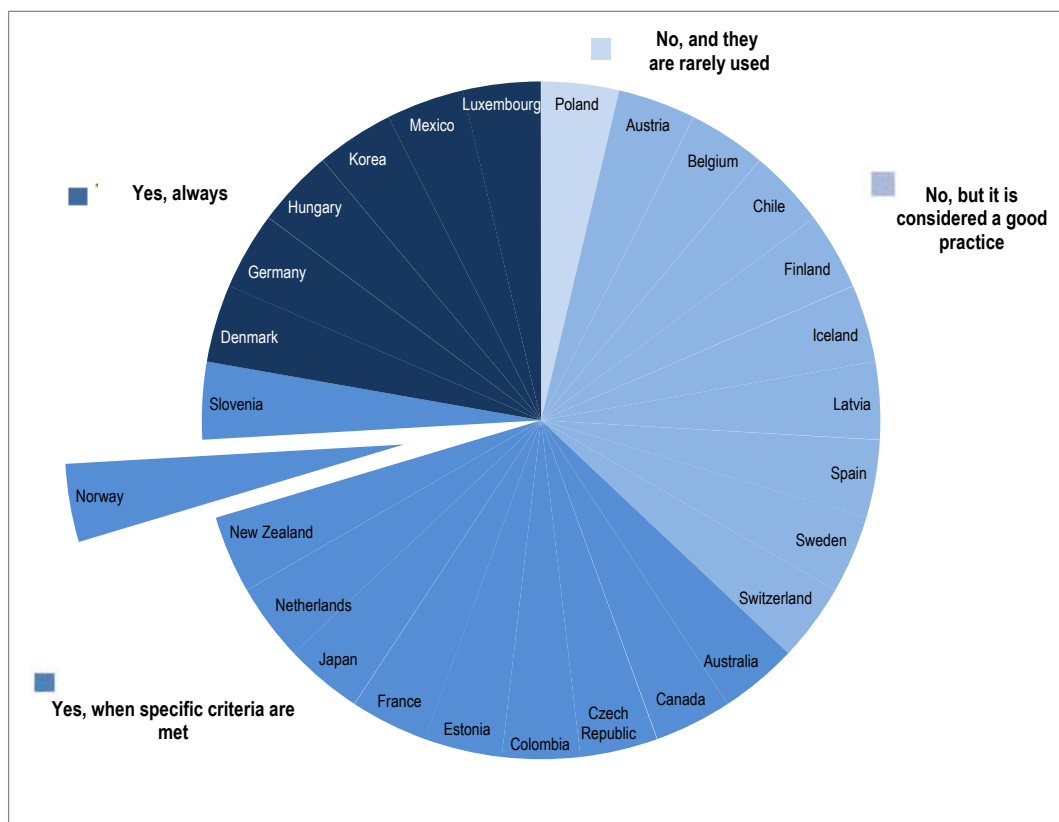
One of the orientations of the memorandum is the requirement that ICT projects over NOK 10 million should use a best practice project management model. The model should have "clear phases and decision points, and requirements for which management documentation will be available at each decision point" (Difi, 2017) (see the next section, Improving ICT project management).

Difi's co-financing mechanism and the Digitalisation Memorandum are good examples of the Norwegian government's commitment to spreading cost-benefit analysis across the public sector, improving the quality of ICT projects.

Business cases for improved cost-benefit analysis

The use of common business-case methodologies is one of the central policy tools used by OECD countries to structure and secure strategic and efficient planning of ICT investments through cost-benefit analysis (see Figure 3.3). Some countries use it as a mandatory mechanism for all ICT projects in central government – e.g. in Denmark, Korea and Luxembourg. Others have more flexible approaches, considering it mandatory when specific criteria are met (e.g. Canada, New Zealand). The mandatory use of business-case methodologies above a certain threshold is the most common scenario.

Figure 3.3. **Business-case methodologies mandatory for ICT projects in central government in selected countries**

In Norway, the use of a business-case model is mandatory when a project is above NOK 750 million. As previously mentioned, a detailed cost-benefit assessment of such large-scale projects is required by the Ministry of Finance. Projects of small and medium scale are not required to follow this requisite and a standard model at national level for ICT project cost-benefit evaluation is not currently in place in the Norwegian public sector.

Nevertheless, when asked about the effective use of mechanisms for cost-benefit analysis for ICT projects, the majority of Norwegian institutions states using business-case models. Some 24% use it for all ICT projects and 29% use it for projects that meet specific criteria (Figure 3.4). The Brønnøysund Register, a public entity responsible for managing several Norwegian basic registries, was one of the stakeholders that stressed the utility of using business-case methodologies in all ICT projects.

Figure 3.4. **Business-case usage in Norway's central government**
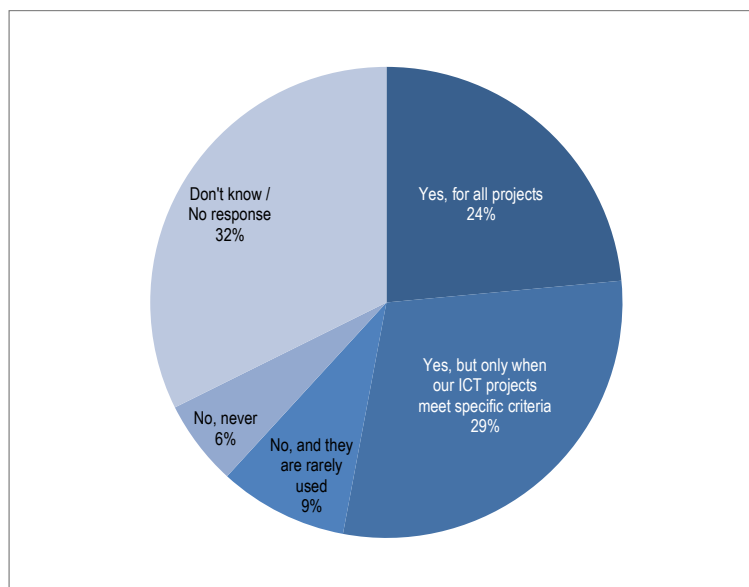
Source: OECD (2017b), "Digital Government Survey of Norway", public sector institutions version, OECD, Paris.

Beyond the use of business-case models, 89% of the Norwegian public institutions estimate the financial benefits for ICT projects (*ex ante*) (Figure 3.5 further below). This practice demonstrates that, although a standard business-case model has not been established and is not being used in Norway, and tight mechanisms for ICT project evaluation and financial approval are also missing, a culture of efficiency – with a strong focus on financial benefits - is grounded in the overall culture of the public sector, which is a key requirement for the success of the Norwegian model. The model is based on recommendations, guidelines and incentives, as opposed to strong requirements and obligatory practices found in other jurisdictions. The model provides the example of a high degree of compliance achieved without having to resort to obligatory measures.

Several institutional tools are also in place, applicable to all policy domains, supporting the Norwegian culture focused on efficiency and financial benefits. For instance, in the Budget Investment proposal (Satsingsforslag), there is a requirement to develop a business case. The Instructions for Official Studies (Utredningsinstruksen) aimed to provide a good basis for decisions about government measures, such as reforms, regulatory changes and investments, and include requirements such as: 1) What is the problem and what will we achieve?; 2) What measures are relevant?; 3) What fundamental questions do the measures take?; 4) What are the positive and negative effects of the measures, how long are they and who will be affected?; 5) Which measures are recommended and why?; 6) What are the prerequisites for successful completion? The Rules for Financial Management in the Staten (Regelverk for økonomistyring i staten) also require a cost-benefit analysis (Government of Norway, 2017).

Nevertheless, improving the performance of ICT investments requires going beyond the institutional culture and cost-benefit mechanisms applicable to all policy areas. The adoption and use of standardised tools for ICT projects could lead to even higher coherence of practices and financial decisions. When asked about monitoring (*ex post*)

the financial benefits of ICT projects, less than half of the Norwegian institutions (47%) that responded to the OECD questionnaire report that they do so (Figure 3.5). This substantial gap between the use of *ex ante* and *ex post* mechanisms for financial benefits calculation demonstrates that there is still room for improvement in the Norwegian digital government landscape.

Figure 3.5. *Ex ante* **and** *ex post* **financial benefits:**
Practices employed by Norway's central government
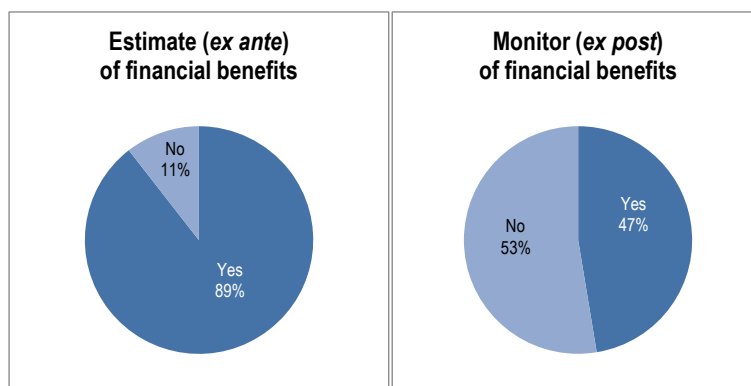
Source: OECD (2017b), "Digital Government Survey of Norway", public sector institutions version, OECD, Paris.

The Norwegian public sector would also benefit from a broader assessment of financial benefits of ICT projects, looking at the broader ecosystem of digital government stakeholders (e.g. private sector, third sector, citizens) beyond the public sector. According to Norwegian central government institutions that answered the OECD survey, the calculation of financial benefits of ICT projects for businesses, citizens or specific groups of the population is still an exception (Figure 3.6).

Figure 3.6. **Measurement of financial benefits outside the public sector**
by Norway's central government
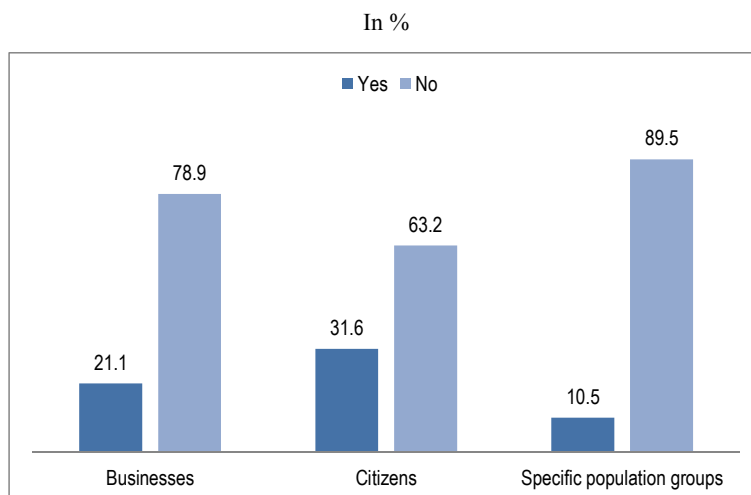
In %

Source: OECD (2017b), "Digital Government Survey of Norway", public sector institutions version, OECD, Paris.

Sound financial approval mechanisms, connected with agile and streamlined cost-benefit analysis, can improve the strategic organisation and systemic governance of ICT projects. In this sense, given the considerable dimension and significant financial risks of the projects assessed by the Digitalisation Council (between NOK 10 million and NOK 750 million), the Norwegian government would benefit in shifting from a non-mandatory to a mandatory approach. Building on the consensus found among the stakeholders for the need for more consistency, it may be worth considering establishing a new non-mandatory mechanism for pre-evaluation of projects below NOK 10 million to increase the overall performance of ICT investments across the entire public sector.

The development of a clear, specific and standard business-case models that can be used as a mandatory requirement in the pre-evaluation of ICT projects is also a policy lever to be considered to promote greater coherence in cost-benefit analysis across sectors and levels of government. The model could be articulated with the best practice ICT project management model used in the framework of the Digitalisation Memorandum for projects above NOK 10 million.

Improving ICT project management

Due to the constant development of digital technologies, their rising scope and the urgency for their rapid uptake – also within the public sector - the management of ICT projects is becoming increasingly complex. The technical, financial, legal and institutional variables to be considered demand project management models able to structure public sector's efforts to maintain the alignment of the stakeholders' technological choices with overall strategic objectives and secure the quality and sustainability of results (Principle 10 of the OECD Recommendation on Digital Government Strategies).

A growing number of OECD member countries has established standardised models of ICT project management to face this challenge (e.g. Denmark; see Box 3.3), and to secure better alignment, comparability and performance of public efforts in this policy area. Some 60% of the countries that responded to the OECD (2014a) Survey on Digital Government Performance confirm the existence of a model for the central government level (see Figure 3.7). These models complement business-case methodologies and provide a framework for the effective implementation of projects as planned.

Box 3.3. **The Danish ICT Project Model**

The Danish ICT Project Model provides a standardised way of managing ICT projects across the government administration. With clear reference to the UK ICT project model, Prince2, it provides guidelines for how to organise and manage ICT projects and delivers concrete templates for all generic products in the process. The overall phases covering all projects are illustrated below:

The model has enabled the establishment of a specific governance structure, for example requiring approvals of well-developed business cases, as well as ongoing approvals – so called "stop-go" decisions - each time a project passes from one phase to the next.

Source: OECD (2016), *Digital Government in Chile: Strengthening the Institutional and Governance Framework*, OECD Digital Government Studies, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264258013-en.

Figure 3.7. **Existence of standardised models of ICT project management at the central government level in selected countries**
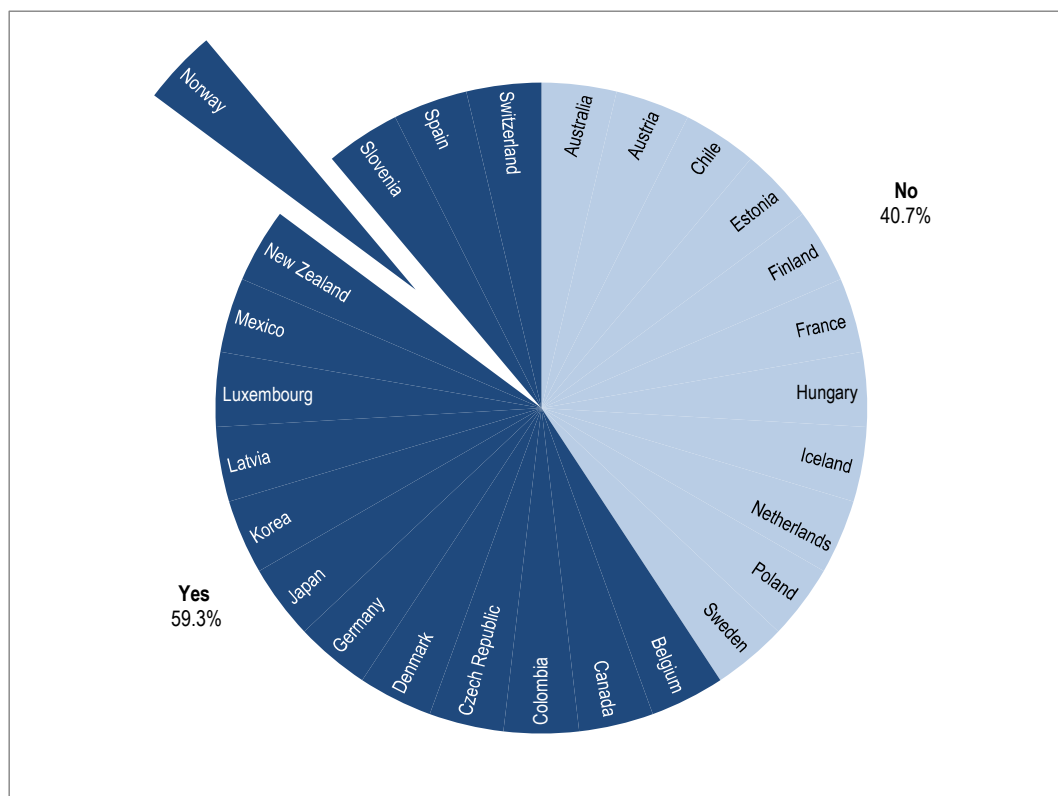
Source: OECD (2014a), "OECD Survey on Digital Government Performance" (dataset), OECD, Paris, http://qdd.oecd.org/subject.aspx?Subject=6C3F11AF-875E-4469-9C9E-AF93EE384796.

Norway has realised the relevance of such tools to ensure effective project delivery and has put in place its own model: Difi's Project Wizard (Projectveiviseren). Some 90% of the Norwegian institutions state being aware of the existence of this tool, and almost 80% of the institutions that are aware of it confirmed using it (Figure 3.8).

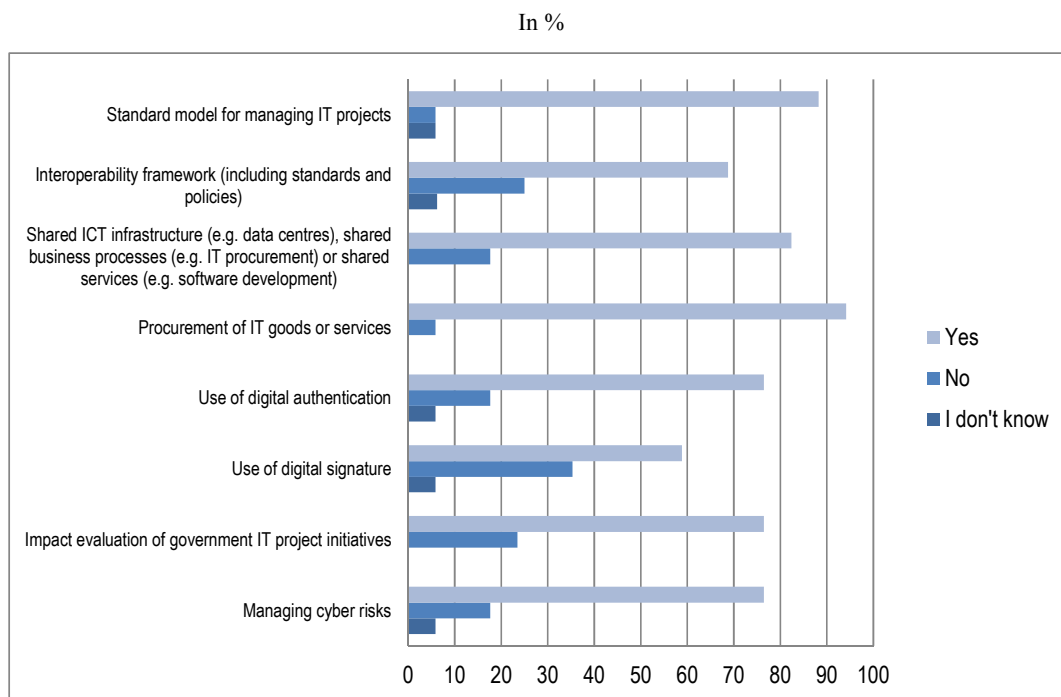Figure 3.8. **Awareness of Difi's Project Wizard within Norway's central government**
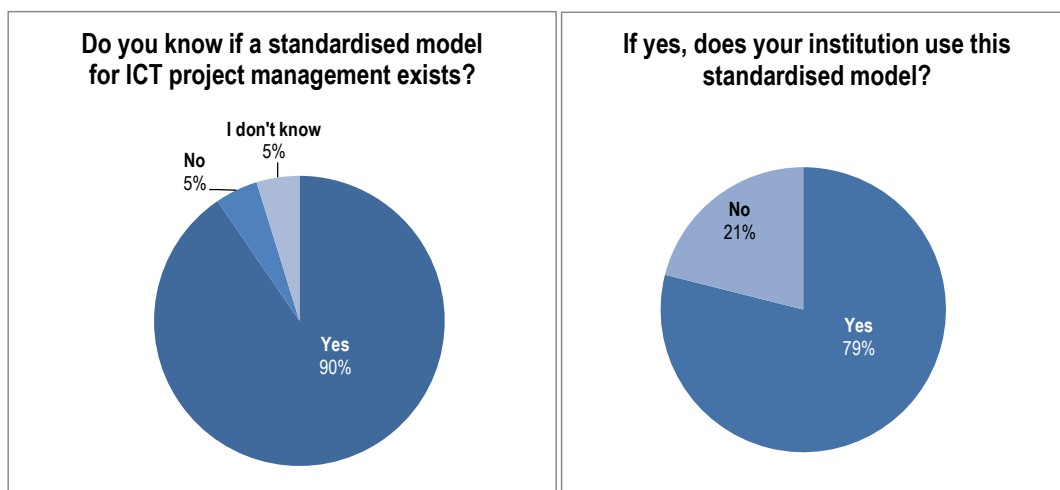
Source: OECD (2017b), "Digital Government Survey of Norway", public sector institutions version, OECD, Paris.

The involvement of external stakeholders in ICT project management is a practice that allows for the integration of different angles and perspectives in the development of the project, promoting shared ownership and encouraging a system-thinking culture in the public sector (see Chapter 2). Two-thirds of the Norwegian institutions state involving external stakeholders in ICT project management (OECD, 2017b). When asked to further specify, the line ministry responsible for the project, the executive agency, private information technology (IT) management consultancies and end users are most often stated as being frequently involved.

Norwegian public sector institutions also stated that they follow diverse guidelines and procedures in the design and development of their ICT projects (Figure 3.9). These are followed mostly for the procurement of IT goods or services, for the use of shared services (e.g. ICT infrastructure, shared business processes), the use of digital authentication or the management of cyber risks. The connection of these guidelines or procedures with existing or future digital government policy levers – funding mechanisms, pre-evaluation of ICT expenses, business-case models – is a key step for integrated policies able to drive the digital transformation of the public sector.

Figure 3.9. **Guidelines or procedures followed when managing IT projects in Norway's central government**

In %

Source: OECD (2017b), "Digital Government Survey of Norway", public sector institutions version, OECD, Paris.

The Norwegian public sector landscape seems to be significantly mature in the cross-cutting use of ICT project management approaches. The requirement established by the 2016 Digitalisation Memorandum regarding the mandatory use of a best practice project-management model for ICT projects over NOK 10 million should contribute to increasing the country's capacities to maintain high levels of performance in the development of digital government, providing new opportunities for coherence and promoting the capturing of synergies. The requirement is also an opportunity to better map and share knowledge about the government's practices, contributing to strengthening the foundations of the digital transformation of the public sector.

Difi's Project Wizard is the recommended (although not mandatory) project management model indicated by the Digitalisation Memorandum. Understood as a common project-management model for the public sector, this online tool directed to project managers aims to reduce complexity and risks in public ICT projects. Based on the internationally renowned PRINCE2® (PRojects IN Controlled Environments) projection method, Project Wizard describes a set of phases that projects must go through, with specific decision points. It covers the full scale project management, including benefits' realisation.

The fact that a common model is available on line - Difi's "Project Wizard" platform www.prosjektveiviseren.no – is a very positive sign of progress and commitment from the Norwegian government to streamline ICT project management at the central and local levels of government. At the time of the drafting of this review, the launch of Project Wizard 3.0, including several new and relevant features, was still recent and its adoption

was at the very early stages; thus, a full evaluation of its impact across the Norwegian Public sector was not possible. Nevertheless, the way the platform is structured and the fact that its usage benefits from substantial institutional support – Digitalisation Memorandum – set the stage and expectations for this promising initiative.

Project Wizard can indeed be assumed as a strategic tool for better development as well as monitoring of digital government projects across the Norwegian government. In fact, this standardised ICT project management model offers new possibilities to monitor projects' implementation in articulated ways, thus enabling smarter project management and data-informed improvements. The alignment of Project Wizard with the previously mentioned need for an ICT business-case model to be commonly used is one of the key developments that the Norwegian government could consider to improve the performance of its ICT investments.

On the other hand, this common project management tool can also improve institutional learning and knowledge sharing on successes and failures in ICT projects. The Norwegian government, through KMD and Difi, has an interesting opportunity to leverage and spread public sector experience, building on that knowledge for more robust and sustainable policy approaches to strengthen public sector capabilities to support the implementation of digital government.

Balancing public and private sector roles: Developing internal capacities vs. outsourcing

Public sectors are experiencing a shortfall in ICT professional skills (see Box 3.4). Public sectors across OECD countries are finding it challenging to satisfy internal demand for ICT professionals capable of responding to the rising complexity of users' needs associated with the rapid uptake of digital technologies. This is partly driven by a supply of emerging digital skills that does not currently respond to, or match, the demand of the labour market (see Box 3.4). One of the possible solutions adopted by governments is to increasingly contract external service providers. The complexity of the tasks involved and the lack of the necessary internal capabilities to carry them out are some of the most cited reasons used to justify the outsourcing of ICT services from the public sector. Another typical argument used to explain or justify outsourcing is that some routine ICT tasks are performed in a more cost-efficient way by specialised companies. For instance, general user assistance, development of software security tests or management of the IT infrastructure are some of the activities commonly outsourced in many countries.

Box 3.4. **The European skills gap in ICT professionals**

Following a trend that has been identified among its 28 member countries over more than a decade, the European Commission forecasts a 500 000 ICT professionals gap in Europe in 2020.
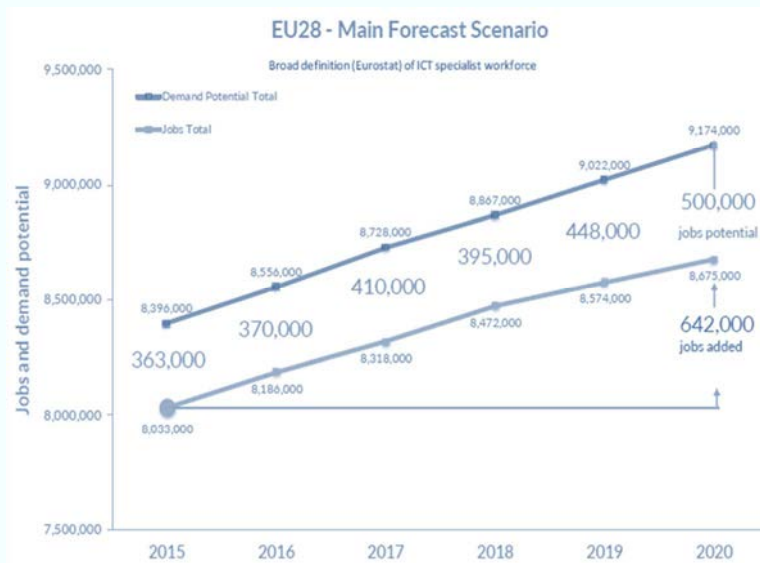
Source: European Commission (2017), "Digital Skills and Jobs Coalition", webpage, https://ec.europa.eu/digital-single-market/en/digital-skills-jobs-coalition (accessed 8 April 2017); Hüsing, Tobias and Eriona Dashja (2017), "Innovation Leadership Skills for the High-Tech Economy - Demand, Supply and Forecasting", presentation at the High-Tech and Leadership Skills for Europe Conference, Brussels, 26 January 2017, empirica, https://www.slideshare.net/TobiasHsing/innovation-leadership-skills-demand-supply-and-forecasting.

Outsourcing approaches generate some risks for the global management of digital technologies in the public sector. The creation of dependencies from big consultancy firms and situations of vendor-locked hardware and mostly software are frequent scenarios identified by senior digital government officials.

Alongside the use of outsourcing solutions to respond to the increasing demand for ICT related skills – including emerging needs for new digital skills, e.g. for data analysis - some OECD countries have dedicated strategies to attract, develop or retain digitally skilled civil servants in government. Given the competitive working conditions for this profile is high in the market, some OECD countries developed special career conditions to attract and maintain these professionals in the public sector. The Presidential Innovation Fellows programme of the United States is a good example of a fluid approach to attract highly qualified ICT professionals to the public sector (Box 3.5). Australia, Canada and Ireland have also taken important steps with relation to the formulation of initiatives and strategies aimed at increasing the availability of the necessary digital skills across the public sector.

Box 3.5. **Presidential Innovation Fellows programme of the United States**

Established by the White House in 2012, the Presidential Innovation Fellows programme is an initiative that brings together top innovators from the private sector, civil society, and academia with innovators in government to collaborate on the development of concrete solutions in a short period of time. Presidential Innovation Fellows serve for 12 months at federal agencies to which they are assigned, during which they work on one or several initiatives.

The Fellows' goal is to transform ideas into tangible results at startup speed, tackling issues at the convergence of technology, policy, and process. Fellows operate with wide latitude for individual initiative in planning and executing solutions to problems, and spend a significant portion of their time co-working and collaborating with other Fellows.

Throughout the programme, Fellows receive support from partners and change agents in the White House across various federal agencies.

Source: US General Services Administration (n.d.), "Presidential Innovation Fellows", webpage, www.presidentialinnovationfellows.gov (accessed 12 August 2017).

When questioned about the existence of a specific strategy at national level to attract, develop or retain ICT-skilled civil servants, more than half of the respondent countries answered affirmatively (Figure 3.10).

Figure 3.10. **Existence of national strategies to attract, develop or retain ICT-skilled civil servants in selected countries**
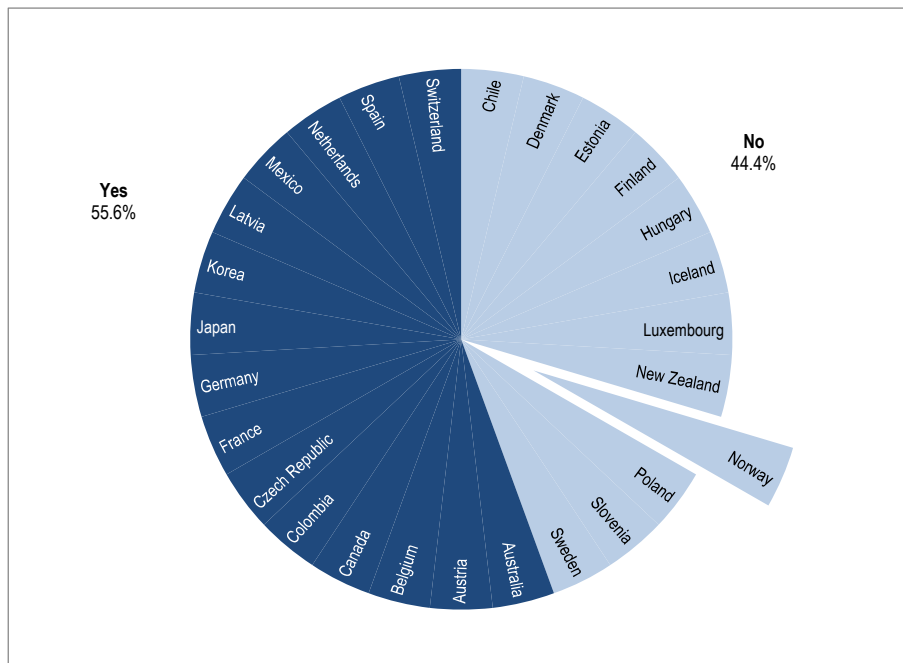
Source: OECD (2014a), "OECD Survey on Digital Government Performance" (dataset), OECD, Paris, http://qdd.oecd.org/subject.aspx?Subject=6C3F11AF-875E-4469-9C9E-AF93EE384796.

In Norway, KMD's Programme for Better Governance and Leadership in the Public Sector gives substantial relevance to the reinforcement of skills of public officers from central and local government. The programme focuses on – and highlights the urgency of - defining actions at the policy implementation and public management level, centring on five transversal areas of work (see Figure 3.11). The relevance of public managers is underlined based on their role as strategists. As such, managers should be capable of translating high-level policy objectives into co-ordinated actions at the institutional level and being accountable for delivering results.

Figure 3.11. **KMD's Programme for Better Governance and Leadership in the Public Sector**
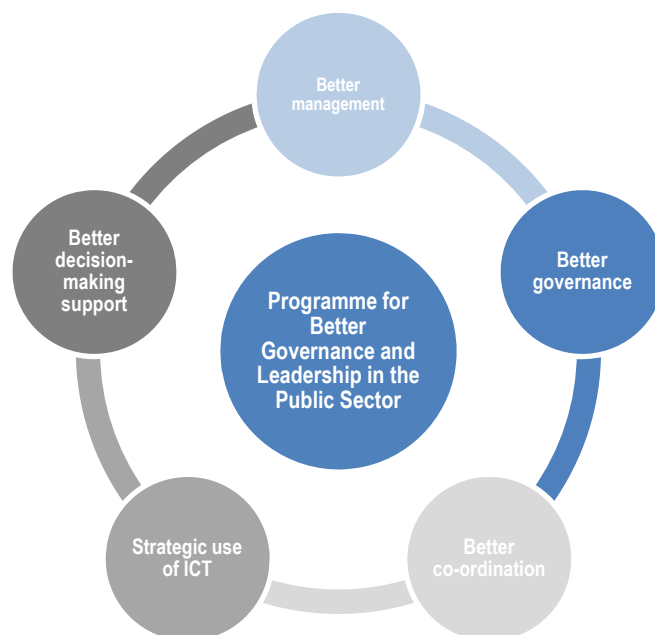
Source: Author, based on information provided by the Norwegian government.

While building ICT competencies among public managers is a key element of the programme, evidence from the OECD survey shows that building ICT-related and digital skills might not be seen as the most urgent digital government challenge to be tackled. The level of priority attributed to the development of ICT skills for public officers in the Digital Agenda for Norway is not substantial (OECD, 2017a). As shown in Figure 3.10, Norway belongs to the group of countries that does not have a specific strategy dedicated to attracting ICT professionals, nor to attract foreign highly skilled ICT workers. In addition, no ICT-specific policy is in place to spread ICT skills among public servants or develop digital skills (OECD, 2017a).

The need for specific policies to develop ICT skills and capabilities in the public sector is in line with growing worries about the risk of overdependence of the Norwegian public administration on ICT external suppliers. Overdependence on consultancy firms was identified as critical from an economic perspective, since the cost of outsourcing some ICT tasks may be higher than the adoption of in-house development, or management of, solutions. The excessive reliance on external providers was also considered responsible for a progressive deflation of ICT knowledge and capabilities in the public sector. Since external ICT providers are responsible for a growing number of

core tasks within the Norwegian public sector (e.g. reviewing ICT projects or ideas for new projects), many public agencies are overloaded with the co-ordination and management of these services and dedicate fewer efforts to the development of in-house knowledge or solutions.

In opposition to the overdependence highlighted by public sector officials regarding ICT external companies, the Norwegian private ICT industry stressed, on the other hand, the reluctance of the public sector to outsource ICT development efforts The public sector officials and the private stakeholders present, in this sense, contradictory visions about the range and scope of their roles.

As found in most OECD member countries, a need to better balance the public and private responsibilities towards the digital transformation was identified in Norway. Clarification with regard to the areas and aspects for which the government considers itself ultimately responsible to maintain its leading role in the digital transformation, and those that can be outsourced to the private sector, would help. This discussion should be aligned with a national vision of ICT strategic human resources management in the public sector, with an eye on the need to consider the development of new digital skills, as it also relates to the strategic procurement of ICTs.

ICT procurement as a strategic asset

The OECD Recommendation on Digital Government Strategies (2014b) highlights the importance of an adequate ICT procurement framework for the sound development of digital government (Principle 11). As previously mentioned, the constant evolution and increasing complexity of digital technologies create significant challenges for public sector institutions. ICT procurement is a strategic aspect of digital government policies made even more challenging today by the strict legal and regulatory environment the public sector needs to follow for the acquisition of ICT products and services – due to requirements for transparency, openness and inclusive procurement processes.

The challenges created by the uptake of digital technologies and related trends – such as cloud computing, cloud-based forms of service provision, open data) that have emerged in recent years (e.g. infrastructure as a service, platform as a service, software as a service) illustrate the importance of updated ICT procurement frameworks. The public sector needs to have properly updated procurement mechanisms and strategies, enabling news forms of acquisition of products and services. The changing needs in a context of digital transformation of public sectors – e.g. in terms of innovative services relying on testing and prototyping, of engaging new actors like start-ups, of enabled use of open source and open standards - generate considerable challenges for existing procurement frameworks.

More than half of responding countries (52%) report having an ICT procurement strategy for the central government (Figure 3.12). Besides addressing the acquisition of emerging digital technologies, several reasons justify why a specific procurement strategy can be an asset for digital government development, including:

1. **Demand aggregation**: Given the frequent common needs for ICT products and services, a common procurement approach supports the creation of mechanisms that aggregate the demand across sectors and even levels of government (e.g. software, hardware), benefiting the public sector capacity of negotiation with private suppliers and rationalising needs.

2. **Promotion of common standards**: An ICT procurement strategy is a perfect policy lever to promote the use of common standards and the application of guidelines since criteria need to be established for the acquisition of products and services. A procurement strategy contributes, in this sense, to reinforcing the interoperability of ICT public platforms and the uptake of strategic approaches (e.g. cloud computing, open data).

3. **Increased transparency and accountability**: A structured approach for ICT expenditures boosts transparency and accountability in the public sector, helps better track the options made by public entities and keeps a better record of the service providers and the prices charged for the products.

Figure 3.12. **Existence of ICT procurement strategies across central government in selected countries**
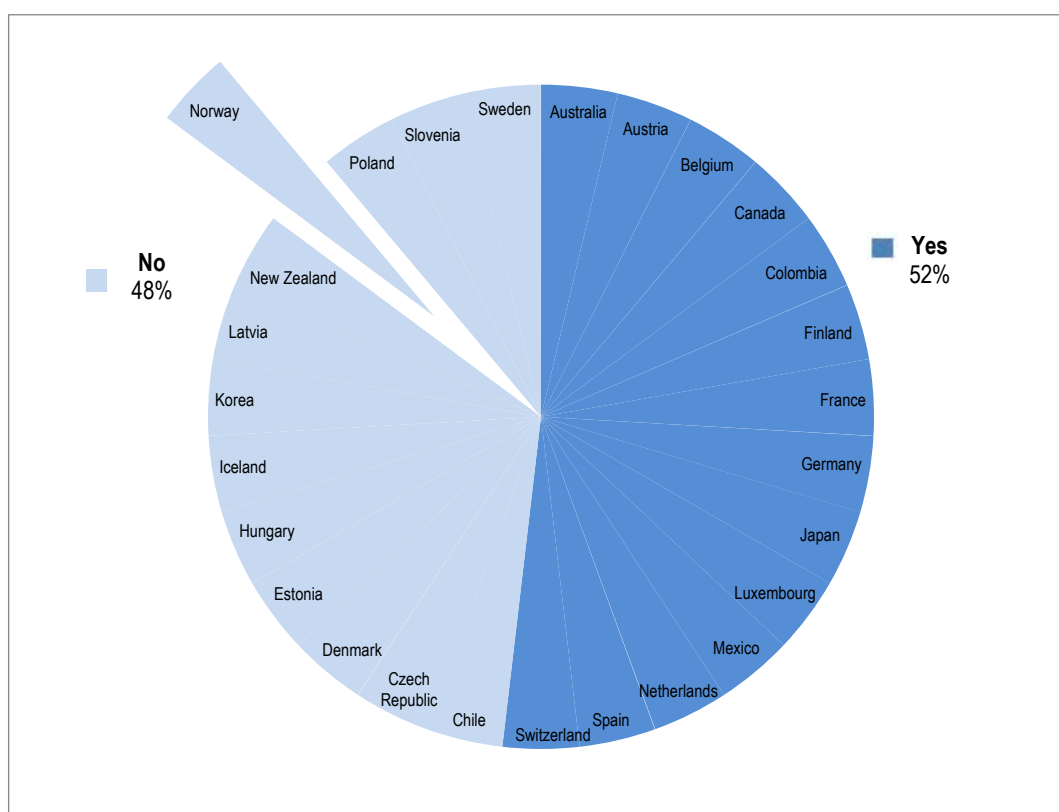
Source: OECD (2014a), "OECD Survey on Digital Government Performance" (dataset), OECD, Paris, http://qdd.oecd.org/subject.aspx?Subject=6C3F11AF-875E-4469-9C9E-AF93EE384796.

Norway does not have a specific procurement strategy dedicated to ICT. The OECD peer review mission in Oslo identified a consensus among stakeholders about the positive impact that such a policy lever could bring to the development of digital government in the country. The demand aggregation is expected to result in significant savings, and in the promotion of common standards.

Even though Norway does not have an integrated strategy for ICT procurement - which is an item covered generally in the Digital Agenda, but not coupled with an

operationalisation of general guidelines with a specific strategic approach to be followed by public sector agencies consistently - a good practice identified is that Difi recommends the use of the State Standard Agreements (SSA) for ICT purchases. These non-mandatory agreements developed by Difi provide extended guidance and substantial support for public sector institutions. Through the website anskaffelser.no (*acquisitions.no* in English), Difi makes available extensive information about the State Standard Agreements, sharing several alternatives that can be used by public institutions, namely:

- assistance agreement standards (SSA-B) for the acquisition of consultancy IT services

- agreement on current services purchases (SSA-L) directed to software as a service approaches

- purchases agreement (SSA-K) for buying standard ICT hardware or software

- development and adaptation agreement (SSA-T) for the development of specific IT systems.

The newly established Government Procurement Centre (Statens innkjøpssenter), managed by Difi, is another important statement of the government's commitment to streamline public expenses. Joint agreements in several areas (e.g. personal computers [PCs] and mobile phones, consumables, professional and legal assistance) that are applicable to all central government institutions were being finalised at the time of the drafting of this review. The portal anskaffelser.no is also an important example of a knowledge gateway for ICT procurement in the public sector. Detailed information is provided in a clear and intuitive way for public entities, with recommendations and guidelines to support the public procurement processes.

Regarding the procurement methods used, almost 90% of the responding Norwegian public institutions confirmed the use of framework agreements for the acquisition of ICT products and services (Figure 3.13). Direct purchases and public-private partnerships are methods rarely or never used by the vast majority of the entities that responded to the OECD survey.

Since transparency is one of the central drivers for governments to adopt strategic ICT procurement approaches, the structured publication of information about public contracts is a key aspect to be considered. Although a culture of openness and transparency was generally found across the Norwegian central government's agencies, with active support for measures that can make the public administration more accountable to citizens and companies, no searchable repository exists with information on public contracts in the public sector. The Norwegian government didn't adopt the Open Contracting Data Standard (OCDS) (see Box 3.6) and no central database for ICT contractors' performance evaluations is available as a reference for future ICT procurement decisions (OECD, 2017b). In this respect, there is room for improvement for the development of this approach in Norway (see Chapter 5).

Figure 3.13. **ICT procurement methods used in Norway's central government**
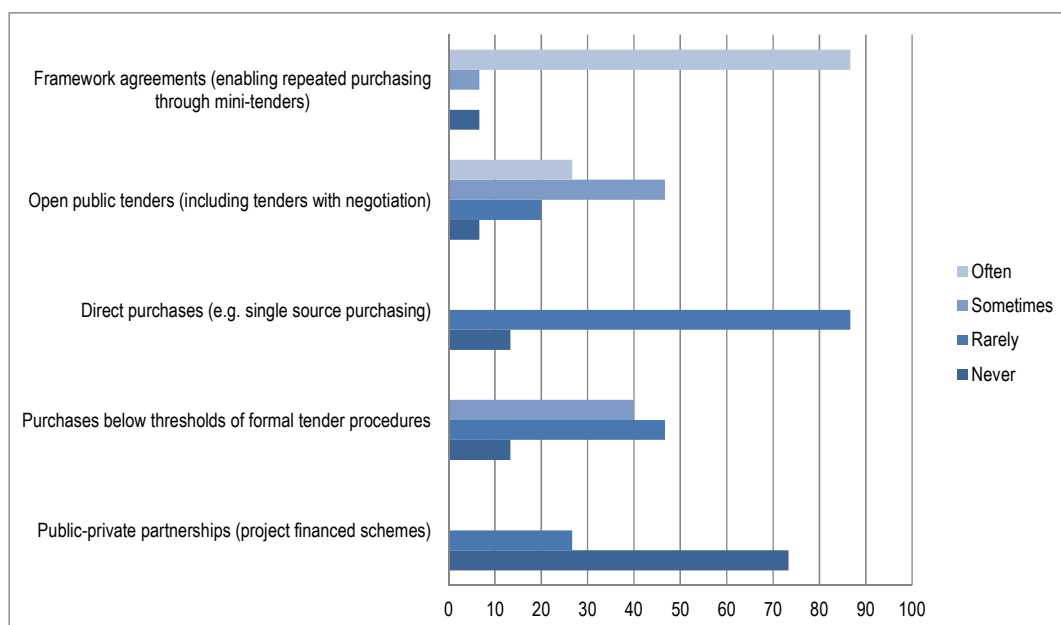
Box 3.6. **Open Contracting Data Standard**

The Open Contracting Data Standard (OCDS) enables the disclosure of data and documents at all stages of the contracting process by defining a common data model. It was created to support organisations to increase contracting transparency, and allow for deeper analysis of contracting data by a wide range of users. The OCDS was developed for the Open Contracting Partnership by the World Wide Web Foundation.

The OCDS approach is:

- publish early, and iterate: improving disclosure step-by-step

- simple and extensible JSON (JavaScript Object Notation) structure

- publish data for each step of the contracting process

- create summary records for an overall contracting process

- re-useable objects: organisations, tender information, line items, amounts, milestones, documents, etc.

- recommended data and documents at basic, intermediate and advanced levels

- common open data publication patterns

- guidance on improving data collection and data quality

- a growing community of users and range of open source tools.

Source: Open Contracting Partnership (2016), "Open Contracting Data Standard: Documentation", webpage, http://standard.open-contracting.org (accessed 12 August 2017).

When questioned about green IT procurement practices, the Norwegian government informed the OECD that the current regulations on public procurement of goods and services include considerations of environmental issues (e.g. Instructions for Official Studies – Utredningsinstruksen). This translates into some guidance and advice generally provided on green ICT procurement, but there is no formal requirement in Norway.

Norway has a propitious context for streamlining ICT strategic public procurement. The State Standard Agreements are a clear example of the importance attributed to structured procurement approaches. The Norwegian mostly consensus-based culture tends to be supported by soft policy levers (e.g. guidelines, recommendations). The adoption of some hard policy levers could help the Norwegian government to leverage ICT procurement as a strategic policy mechanism for coherent and optimised digital government development in the country. For instance, although the level of adoption of State Standard Agreements is very high according to the Norwegian government, its usage could be considered mandatory above the threshold of NOK 10 million. The mandatory use of State Standard Agreements could be connected with the mandatory application of project-management and business-case methodologies for ICT projects above the threshold.

In line with the efforts underway and the priorities set by the Digital Agenda for Norway, the development of a clearly identifiable and actionable ICT procurement strategy linked to the Digital Agenda, but recognised as a policy instrument to promote demand aggregation in the public sector, to foster the use of common standards, to strengthen collaboration across public sector entities and to increase the transparency and accountability of the procurement process, would provide the Norwegian government with the opportunity to further strengthen the soundness of its digital government policies. Building on the experiences of other countries, like the United Kingdom for instance (see Box 3.7), the development of a Norwegian public single digital marketplace would also be a strategic lever for an intelligent and sustainable ICT public procurement process.

Box 3.7. **Digital Marketplace in the United Kingdom**

Developed by the Government Digital Service, the United Kingdom's agency responsible for leading digital government policies, the Digital Marketplace is a portal where public sector organisations can find people and technology for digital projects. Three kind of agreements are available between the government and suppliers:

1. **Cloud services**: Around 20 000 cloud services on the Digital Marketplace through the G-Cloud framework (cloud hosting, cloud software and cloud support).
2. **Digital specialist services**: More than 1 000 suppliers provide digital specialist services, including digital outcomes (e.g. booking system or an accessibility audit), digital specialists (e.g. product managers or developers), user research studios, user research participants and data centre hosting services.
3. **Datacentre hosting services**: One supplier provides data centre hosting to government. It offers namely a flexible, pay-for-what-you-use model, secure facilities and leading environmental performance.

The Digital Marketplace is considered today a reference due to the amount of government frameworks agreements, making the buying of services faster and cheaper than entering into individual procurement contracts.

Source: UK Government (2017), "Digital Marketplace", webpage, www.digitalmarketplace.service.gov.uk/ (accessed 12 August 2017).

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