Deloitte.

Future Finance
Optimising management of the
public sector finance function

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Overview

Financial management in the public sector is complex. Multiple, sometimes conflicting, short- and long-term priorities must be addressed. Prudent budgets, managed borrowings and tax policies need to be balanced against support for economic growth, investment in infrastructure and increasing demands for public services.

Over the last decade, European governments have had to manage these tensions in the face of great financial turmoil, globalisation, demographic change, technological disruption, and more uncertain policy environments (for example, due to Brexit).

In response, fiscal spending and policy have come under continued scrutiny and significant transformations have been made to public balance sheets.

In this context, government financial managers – whether in central finance ministries or departments and agencies - are being challenged to support financial planning, budgeting and forecasting. They must also assess the financial impact of policy proposals and capital investment programmes. Flexible finance operating models, enhanced analytical capabilities and new skills are key to providing this support.

In this report we examine how the public sector finance function is evolving in an economic environment that has changed significantly over the past 10 years. We also present what senior financial managers in government regard as the challenges and opportunities for delivering services efficiently and effectively in the near- to long-term.

Report approach
Deloitte has interviewed senior government finance specialists in nine European countries (Austria, Denmark, Finland, Germany, Ireland, Luxembourg, Netherlands, Norway, and the UK).

The interviews provided perspectives from finance leaders in functions relating to:

- Implementation of strategy, planning and budgeting (8 Central Finance Ministries)

- Management of operational improvements, such as shared services (2 Government Finance Agencies)

- Connecting financial management to policy and service delivery (2 Sectoral Ministries).

Insights were provided over a 12 month period into:
01. Recent and current challenges
02. Priorities for public finance managers
03. Opportunities to enhance financial management and finance functions across government.

Using insights from these interviews and from Deloitte's own subject matter experts, the report highlights a range of measures to drive an efficient, effective future finance function.
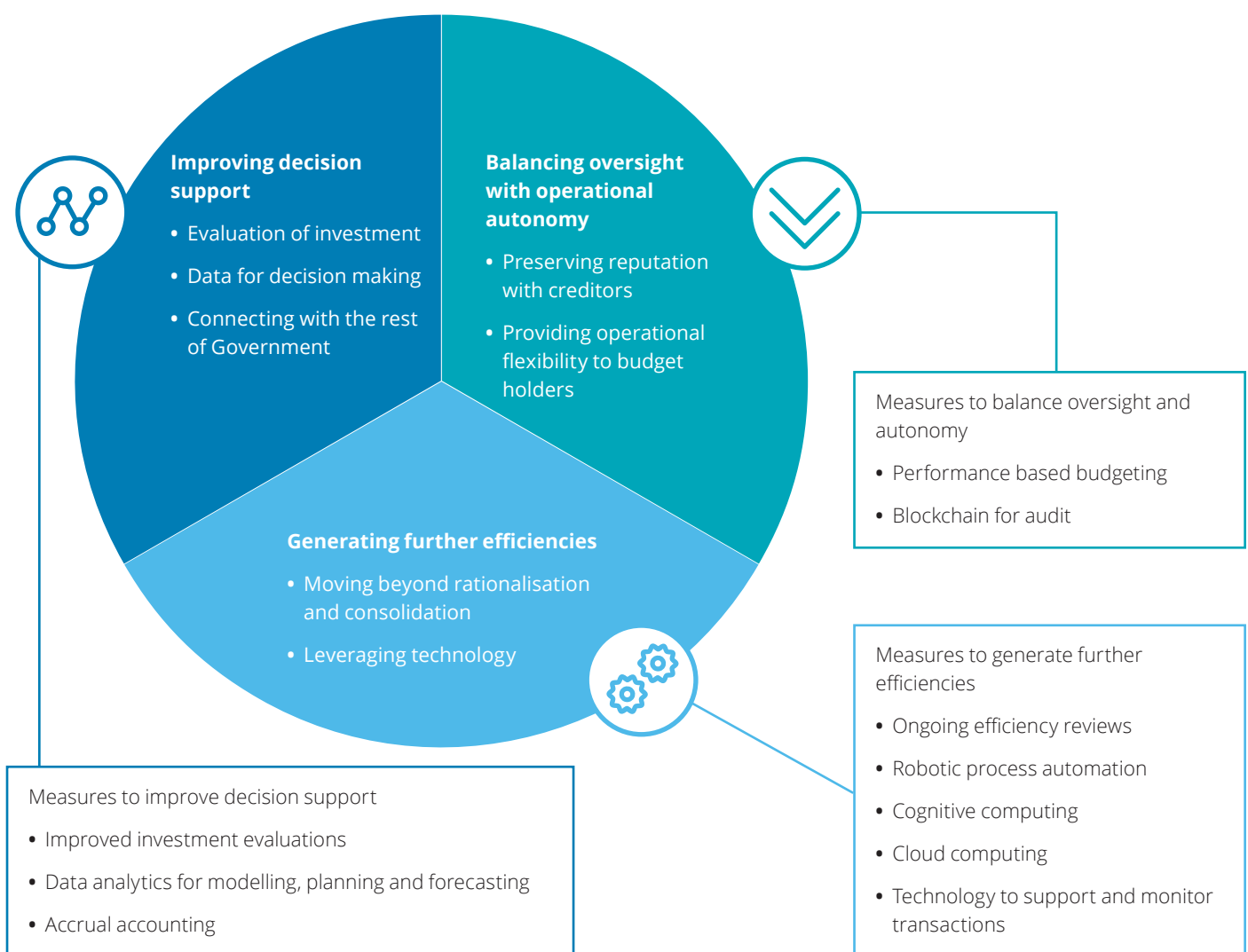
Report summary

Financial picture

A decade on from the onset of the financial crisis, European economies are now in a healthier position. All EU economies have now returned to growth and the EU as a whole has experienced moderate GDP growth, averaging 1.8 per cent over the last five years according to the European Commission)[1].

Government budget deficits, which increased substantially to an average of 6.6 per cent of GDP in 2009 for the EU-28, have largely been brought back in check, and averaged 1 per cent of GDP in 2017[2]. This reflects not only the recovery in GDP growth but also public spending restraint and prioritisation. In the countries surveyed, increases across the board in social spending (primarily healthcare

and age-related expenditure) have been offset by cuts to expenditure on other public sector operations and to capital investment.

Despite government efforts to manage expenditure, public sector debt has risen substantially from 58 per cent of GDP in 2007 to 81.6 per cent in 2017[3]. »

Priorities for Public Sector Financial Management

Improving decision support

- Evaluation of investment
- Data for decision making
- Connecting with the rest of Government

Balancing oversight with operational autonomy

- Preserving reputation with creditors
- Providing operational flexibility to budget holders

Generating further efficiencies

- Moving beyond rationalisation and consolidation
- Leveraging technology

Measures to balance oversight and autonomy

- Performance based budgeting
- Blockchain for audit

Measures to improve decision support

- Improved investment evaluations
- Data analytics for modelling, planning and forecasting
- Accrual accounting

Measures to generate further efficiencies

- Ongoing efficiency reviews
- Robotic process automation
- Cognitive computing
- Cloud computing
- Technology to support and monitor transactions

Challenges to the government finance function

The financial crisis might have receded, but governments continue to face a range of external and internal challenges.

In the external environment, a modest upward trend in interest rates (in the UK and US at least) may present new challenges to fiscal sustainability, given high levels of public sector debt. There are also threats to tax bases, for example from globalisation, an ageing workforce, new technology (e.g. sharing economy business models) and regulatory changes (e.g. international tax reforms). Meanwhile, governments are experiencing shifts in requirements for social and infrastructure expenditure, related to population changes (most notably, due to care for the elderly and migration flows).

From the finance function perspective, our survey identified the following internal challenges:

- Interviewees commented on the need to do more to improve connections between financial managers and the broader administration, as well as with political leaders.

- Public sector officials struggle to obtain an accurate view of the public sector cost base, returns on investment and forecasts of expenditures and revenues.

- They also struggle to balance the financial demands of short-term priorities against investments to deliver greater long-term efficiency.

- At an organisational level, interviewees reported difficulties in making further efficiency gains.

- Additionally they struggle to balance requirements for central financial supervision and control with delegating more autonomy to line ministries, agencies and local government.

- At a resources level, finance functions have difficulty with recruiting and developing a workforce with the required skills for 21st century financial management; tax and legal, data science and digital skills were listed as key priorities.

While the external pressures on public finances are being mitigated to some extent through fiscal policy – for example through higher taxation or pensions reform – there is pressure on financial managers to do more with less. They are also required to operate in a much more flexible and insightful manner to respond to their dynamic operating environment.

Priorities for efficient and effective financial management in the public sector

In the course of our interviews, backed up with input from Deloitte subject matter experts, we identified the following priorities for enhancing financial management in government:

- improving decision support

- balancing financial oversight with operational autonomy

- generating ongoing efficiency in the finance function.

These priorities are being addressed through the following measures:

- Decision support: using analytics, improving value for money assessments, and enhancing budget transparency

- Balancing financial oversight with operational autonomy: performance-based budgeting and improving the audit trail.

- Generating ongoing efficiency: efficiency reviews, robotic process automation, cognitive computing, cloud computing, transaction technologies.

Conclusion

Through interviews undertaken for this report and through Deloitte's wider experience, we have identified key enablers for the successful implementation of the measures highlighted above. These include a workforce with a range of strategic and technical abilities to implement and capitalise on ambitious programmes for change, a high level of digital foresight, a flexible digital infrastructure, and a business case which highlights tangible benefits at a low cost, whilst providing opportunities to scale.

The financial crisis might have receded, but governments continue to face a range of external and internal challenges

# The Changing Landscape of Public Financial Management

Public finances: ten years on

In 2009, the EU economy experienced its steepest ever contraction in GDP, by more than four per cent. After an extremely challenging decade, all EU-28 economies have now returned to growth and the European Union's GDP expanded by 1.8 per cent of GDP between 2013 and 2017. Growth rose to 2.4 per cent in 2017[4].

European governments surveyed (8 EU members plus Norway) for this report undertook austerity measures to balance the books. In 2007, most public fiscal balances were in surplus, but the financial crisis and the consequent recession meant that by 2009 most EU countries had built up a substantial budget deficit (with many exceeding the EU's acceptable deficit benchmark of three per cent of GDP (see Figure 1). Since then, a combination of austerity and a return to economic growth have for the most part brought deficits into check.

Within the countries surveyed and across the OECD, expenditure on public pensions and health has increased substantially in recent years

Figure 1. Public sector budget surplus or deficit - EU and surveyed countries

General Government Balance deficit(-)/surplus(+) % of GDP

Legend: 2007, 2009, 2017
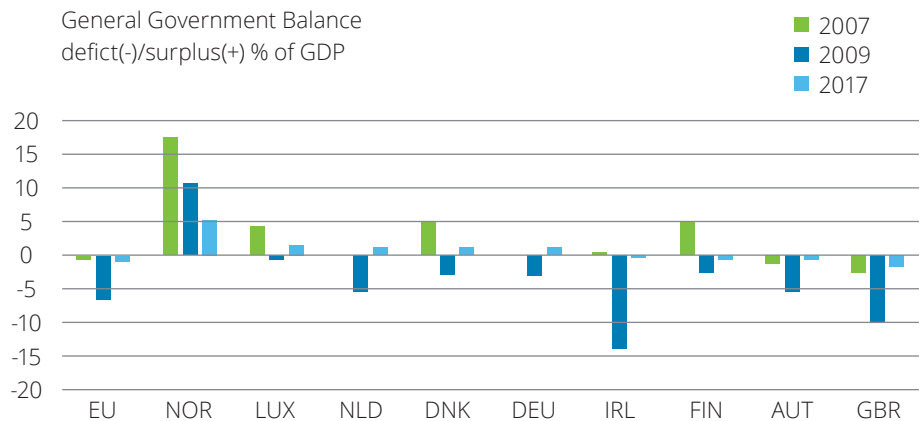
Sources: OECD (2018), General government deficit (indicator). doi: 10.1787/77079edb-en (Accessed on 21 November 2018)

Figure 2. Public sector revenue and expenditure in the EU

EU development of total government expenditure and total government revenue, 2007-2017 (% GDP)

EU-28: total expenditure   EU-28: total revenue
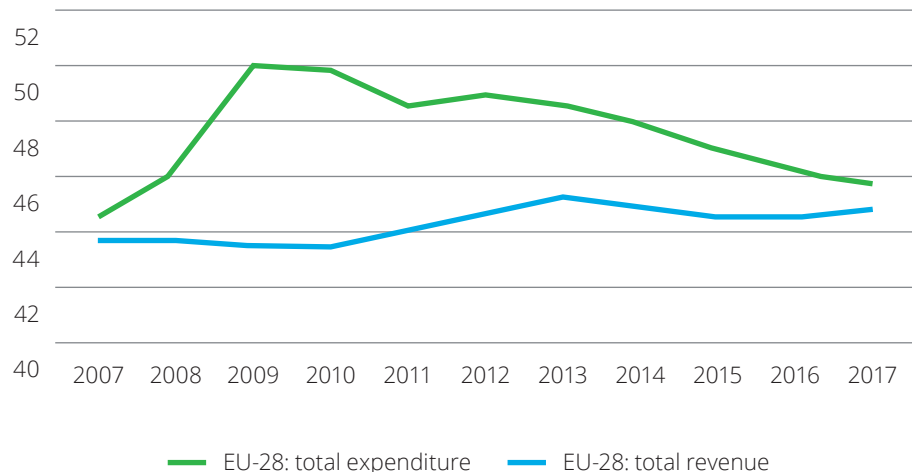
Source: Eurostat (online data code: gov_10a_main), accessed on 21 November 2018

For the most part, across the countries in our survey, government expenditure as a share of GDP has risen slightly over 2007 (pre-recession) (see Appendix for more details) following a sharp spike between 2007 and 2009. This aligns to trends seen within the EU - general government expenditure grew at a relatively slow pace during the period from 2007 to 2017, following a spike (reaching 50% of GDP) in 2009. Government revenue as a share of GDP in the countries surveyed has remained quite steady over the last decade with the exception of Norway and Ireland (see Appendix).

Across the OECD, expenditure on social benefits increased substantially in recent years (an increase 4.1 per cent of total expenditure for the OECD for 2007-2015)[5]. Public pensions and health expenditure make up the largest proportion of spending here[6]. Other areas of government expenditure remained flat or decreased between 2007 and 2015, with the most substantial cuts made in compensation of public sector employees (-1.2 per cent) and capital expenditure (-1.7 per cent). (See Appendix for further information).

However, priority social expenditure has not been not offset entirely by cost cutting and levels of public debt have increased significantly since 2007. The burden of debt to GDP has increased in all countries we surveyed, bar Norway (See Appendix). Across OECD countries, the average level of public debt was 112% of GDP in 2015 (latest available data), up from 73% in 2007[7].

This highlights that, although public balance sheets in Europe are coming under control, shifting expenditure demands and debt servicing requirements will continue to demand prudence from government.
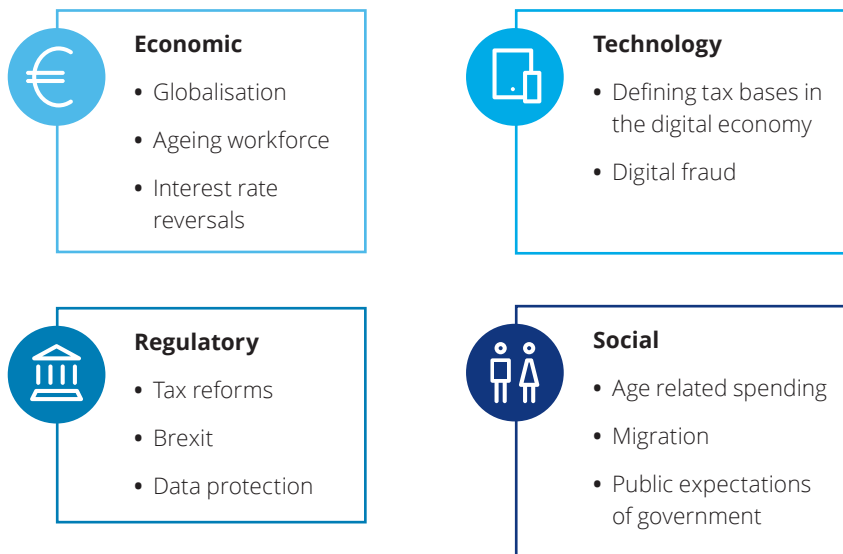
Shifting expenditure demands and debt servicing requirements will continue to demand prudence from government

Debt: GDP ratio OECD countries[7]

2007		2015
73%	➡	112%
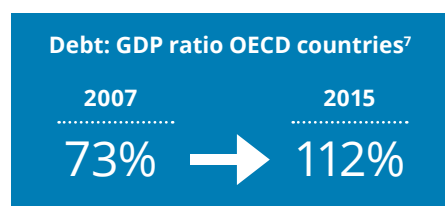
Environmental challenges to public sector financial management

Figure 3. Summary of external challenges to public sector financial management

Economic
- Globalisation
- Ageing workforce
- Interest rate reversals

Technology
- Defining tax bases in the digital economy
- Digital fraud

Regulatory
- Tax reforms
- Brexit
- Data protection

Social
- Age related spending
- Migration
- Public expectations of government

Over the course of our interviews, the following existing and emerging challenges to public financial management were identified:

Economic

Globalisation is driving complexity in the economy. The mobility of investors and multinational corporations, and the increasingly sophisticated patterns of trade in goods and services mean that tax revenues are harder to predict and taxes harder to levy. This increased mobility and sophistication also demands greater responsiveness and flexibility from governments.

Europe's workforce is aging. Total labour supply in the EU (workers aged 20 to 64 is forecast to reduce) by 2% between 2016 and 2030 and a further 7.8% between 2030 and 2070. This could have serious implications for government revenues.[8]

Among OECD countries, low interest rates have helped governments manage their exposure to debt. However, the US Federal Reserve and Bank of England recently started to increase interest rates. The European Central Bank may follow suit in the medium term. Tighter monetary policy will lead to higher debt servicing costs for governments, affecting available financial resources.

increase of
1.7% of GDP
in age-related expenditure by governments in the European Economic Area by **2070**[8]

Technology

When talking about technological development, several of our interviewees mentioned challenges associated with tax base erosion and difficulty defining taxable activities. New business models driven by technology, such as shared economy activities, make it difficult to define the taxable base and income and corporate tax declaration requirements. New technologies and business models can also serve to facilitate tax fraud by reducing the visibility of taxable activities. As one finance manager put it, "global digital developments make it easier to commit a criminal offence and erode the taxable base at the same time".

Regulation

The regulatory environment is also creating challenges for the management of public sector revenues and expenditure. Interviewees commented that regulatory issues such as the EU's plans to harmonise tax bases (and other tax reforms), and Brexit-related changes to investment and trade flows, will change tax revenue streams.

Data protection rules were also mentioned by interviewees as a challenge for governments seeking to gain efficiencies through the provision of digital services, or looking to support decision-making via data analytics.

Social change and expectations

Age-related spending is on the rise, and Europe's ageing population will put mounting pressure on government balance sheets. Concerns about population ageing and its impacts were mentioned as external challenges by most of our interviewees. By 2070 the European Commission projects there will be two working-age people for every person aged over 65 years compared to 4 in 2010. This is forecasted to lead to an increase of 1.7 per cent of GDP in age-related expenditure by governments in the European Economic Area (with significant variation across countries).[9]

Migration flows also present a significant challenge for financial management in the public sector. In the long term, it is expected that new migrant populations will improve workforce participation ratios and contribute to public finances. In the short- to medium-term, a number of our interviewees cited the need to manage substantial expenditures on infrastructure improvements and social supports linked to migration.

Higher public expectations around the provision and transparency of public services mean that spending by government is subject to increased scrutiny. One interviewee commented that the ability of new measures to pass the 'tabloid test' is often a major consideration when public servants are weighing up reforms.

"Global digital developments make it easier to commit a criminal offence and erode the taxable base at the same time"

### Internal challenges for the government finance function

In the previous sections we have charted a significant range of environmental factors which will have implications for the government finance function long into the future. Our interviewees have also provided their perspectives on internal challenges to the finance function.

Strategic

• A number of interviewees commented on the need to do more to connect the finance function with the broader public administration, as well as with political leaders. One individual mentioned the need for a "step change in the relationship between finance and the business: government finance has to change the dynamic between the two. It will fail if it isn't able to work in partnership with the business".

• While Europe's economic performance and public finances have improved, moving back to expansionary approaches and measuring value for money is challenging for some. One interviewee commented: "Judging the value of new investments is not our [Ministry's] sweet spot. It's a different proposition to controlling expenditures. It's also easier to reject things when times are bad". A number of interviewees commented that more needs to be done to understand the cost base in the public sector in order to improve value for money assessments.

• Tension between long- and short-term investment priorities. To make finances sustainable in the longer term, a range of 'big ticket' investments will be required, particularly in the field of digitisation.

Public sector organisations that have been subject to substantial budget cuts will have to 'starve' day-to-day expenditure items in order to feed the big ticket investments that will boost longer-term efficiency and productivity. One interviewee also noted that "Due to digitisation, projects will develop at a faster pace. This in turn will create pressure to speed up the return on investment on these projects".

"Judging the value of new investments is not our [Ministry's] sweet spot. It's a different proposition to controlling expenditures"
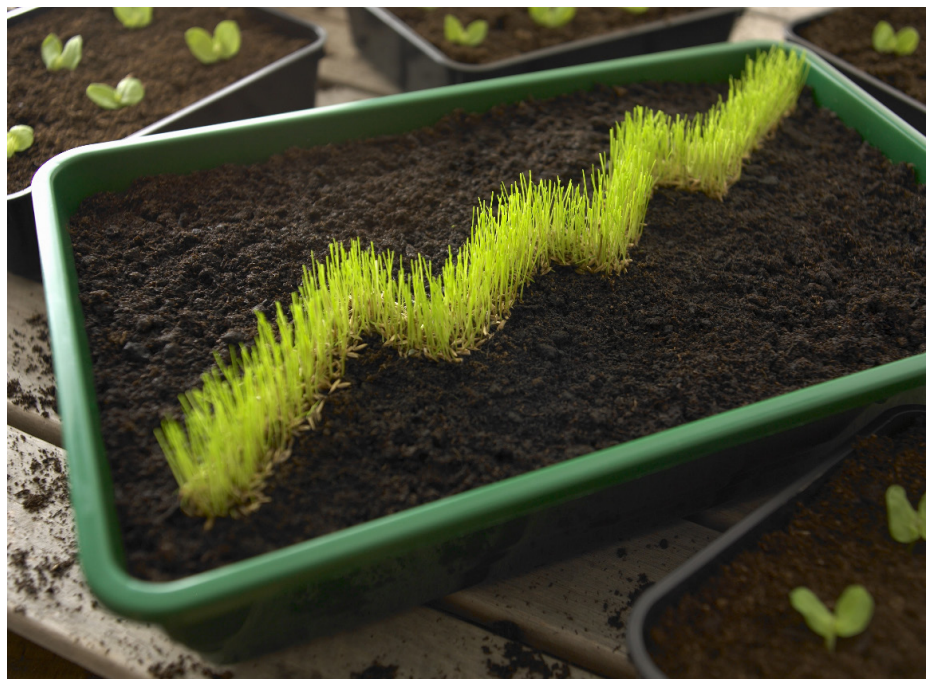
Operational

- Since the onset of the financial crisis, the EU and central government departments have increased scrutiny of government budgets and spending. Finance teams government ministries, agencies and local government must operate under increased financial scrutiny while supporting day-to-day operations and implementing their budgets in the most effective ways possible.

- Having undertaken substantial cuts in the wake of the financial crisis, some interviewees voiced concern about the difficulty of making further savings. One interviewee commented that "the low-hanging fruit of reform has been harvested". Many interviewees saw this as both an opportunity and an imperative to generate further efficiencies. Some noted that this must not come at the price of lower standards in public services. While early wins have been made in areas such as shared services, a number of interviewees believe the next wave of efficiencies will need to come via digitisation.

- Numerous interviewees noted that while it presents immense opportunity to improve operational performance, leveraging digital technology presents substantial challenges – for example, ensuring that investment in digital infrastructure offers high interoperability and an ability to accommodate further disruptive solutions in the future.

People

- New challenges and priorities for public sector finance functions mean that governments need to recruit and develop a workforce with the required skills and capabilities to respond.

- Interviewees pointed to skills gaps within the government finance function in relation to tax law, data analytics and digital skills.

- Openness to change was also identified as a challenge, as governments look towards the next stage of transformation.

One interviewee commented that "the low-hanging fruit of reform has been harvested"

Conclusions

It is clear that governments will need to adopt a range of innovative approaches to tackle the environmental and internal challenges outlined in this section.

Governments are continuously adapting fiscal policy to external challenges, whether through tax base changes to respond to increasingly uncertain corporate tax flows or, on the expenditure side, through pensions reform. For example, within the EU, pensionable retirement ages have been raised by an average of two years over a 15-year period[10].

At the operational level, financial managers must put in place the capabilities, systems and structures to support and inform policy decisions made by government.

The next section sheds some light on how government finance leaders are adopting to this changing policy environment.

Improving the impact of the Finance Function

Priorities for public sector financial management

In the course of our interviews, a number of priorities to inform policy and support effective financial management across government were identified:

Improving decision support

There is recognition that greater insight is needed into the cost-effectiveness of government spending.

A number of national governments are trying to become more systematic in their evaluation of new investments and the rationale for cost reduction measures. One interviewee stated that: "Now, more than ever, our focus is on delivering quality over quantity. And quality suffers at the hand of 'unintelligent' cost reduction".

Another told us: "Our top priority is improved data analysis. Although this will not improve efficiency directly, it will illuminate tasks and areas that can become more streamlined. With improved use of data analysis, there will also be an improved basis for comparison, creating an opportunity for learning."

Connecting the finance function with the rest of government business was also mentioned by a few interviewees as an important priority to drive effective decision-making.

Balancing financial oversight with operational autonomy

Over the last decade European governments have focused on maintaining strong sovereign credit ratings to support their financing needs. The countries we surveyed have been successful in this regard: they have investment-grade sovereign credit ratings of A or above. Much of this has been achieved through strict oversight of spending, both in Europe's capitals and by the EU.

However, it is acknowledged that this strict oversight can stifle operational effectiveness. Interviewees commented on tensions between central oversight of funding and borrowing, and efforts to generate greater efficiency through devolved public sector management.

One interviewee stated: "We want to devolve responsibility to budget holders but we don't give them genuine flexibility. We need to give budget holders full accountability with responsibility if we are to devolve successfully".

Generating further efficiency in the finance function

In response to the financial crisis, governments have sought a variety of means to generate greater efficiency. For budgetary reasons already highlighted, such as the burden of population ageing, public finance managers recognise that the pressure is still on to generate further efficiencies.

In all the organisations covered by our survey, efficiency gains in public sector administration have been made through a series of rationalisations and consolidation. Much of the reform has been in the area of operating model and process redesign, for example via the implementation of shared service models, the development of specialist finance capabilities, and procurement reforms. It is recognised, however, that more can be done.

All our interviewees saw digitisation, particularly via automation, as offering important opportunities in this regard. One individual noted that "The big question is, 'What are the most important measures for improving efficiency?' I believe it is to keep up with technological development."

We need to give budget holders full accountability with responsibility if we are to devolve successfully

Measures to boost performance in the finance function

Improving decision support
Finance professionals in government are continuously seeking to use their expertise and knowledge to shape and inform political and administrative choices. Popular measures here are as follows:

01. Analytics for decision support
Governments are seeking to improve their decision support and approaches to long-term planning. Having effective planning, forecasting and modelling tools and capabilities will greatly help. Solutions in use across a variety of industry sectors range from off-the-shelf analytical and forecasting tools to complex predictive modelling algorithms developed by data scientists. When matched with the right analytical skills these tools can bring real insight to public sector organisations.

The countries in our survey are at differing levels of attainment, but better use of data and analytics tools is an aspiration for all of them.

Data management and the use of business intelligence and analytics tools can improve responsiveness to external events, which is of increasing importance given the rapid pace of social and economic change.

A lack of a uniform approach to gathering and classifying data can serve as a significant barrier to success in the field of analytics. However, moving towards uniform taxonomies, such as Standard Business Reporting (SBR), can prove helpful.

Case Study 1 highlights initiatives currently under way in Finland to improve data use in the finance function.

02. Improving investment evaluation
When approaching strategic planning, governments are seeking to become more systematic in their evaluation of the value-added of investments and rationale for cost-reduction – prioritising budget allocations based on organisational/programme efficiency and effectiveness.

Improving investment assessments was mentioned in a number of cases. While many administrations across Europe have conducted spending reviews periodically, some governments are moving to a more systematic, sustained approached. For example, Norway's Ministry of Finance has adopted a new investment assessment framework for all investment proposals (see Case Study 2). In addition the Netherlands has launched a new policy evaluation programme called "Insight into Quality"[11]. This programme aims to reinforce accountability in public spending by capturing the efficiency and effectiveness of line Ministry policy measures.

03. Increased budget transparency
Reformed accounting processes are providing a more accurate and timely view of the state of public finances.

Accrual accounting has been introduced to a varying extent in recent years by public sector administrations across Europe. In general, there has been a shift towards the use of accrual accounting in the public sector (see Figure 6) as it is seen as a more reliable way to reflect the financial performance of an entity during a given period of time.

In contrast to traditional cash accounting, which records cash payments and receipts as they enter or leave the government accounts, the accrual approach records revenues and expenses when they are incurred, regardless of when cash is exchanged. Accrual techniques also provide an opportunity to create more transparent inventories of public assets (including land, property and natural resources) and liabilities (including employee benefits, such as pensions) on the public balance sheet.

As the Eurozone crisis made clear, an economy's susceptibility to economic and financial shocks is linked to the total stock of liabilities and assets held by the public and private sector. Via accrual accounting practices, governments can improve their understanding of the strengths and vulnerabilities of public finances, as well as systemic dependencies.

The European Commission has sought to make accrual accounting mandatory but there has been a mixed response from national governments. One reason is the considerable cost associated with switching from one accounting system to another.

The countries in our survey are at differing levels of attainment, but better use of data and analytics tools is an aspiration for all of them.

Figure 4. Accounting basis for annual public financial reports in OECD countries, 2015
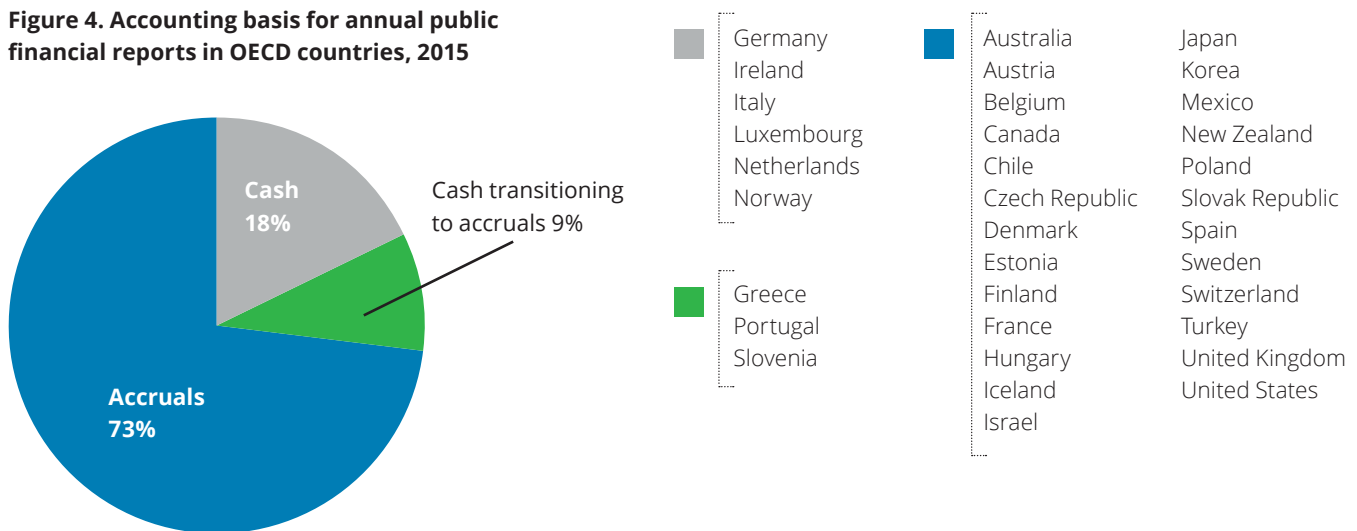
Source: OECD (2016), Accruals Survey, OECD, Paris

Case Study 1:
Data for planning and productivity in Finland

Advanced analytics to maximise efficiency and effectiveness in both financial and HR planning are being explored in depth by Finland's Shared Services Centre for Finance and HR, Palkeet. Palkeet operates as an internal public administration service provider providing high-quality and cost-efficient support and services to nearly all central government agencies and departments.

Palkeet's management is creating an Analytics Centre of Expertise to serve its customers. From a finance function perspective, an initial focus was to pilot services around the analysis of the efficiency of the agency (with predictive components) and analysis of real estate costs and usage.

To analyse the efficiency of the agency, its final deliverables (output) and costs over a two year period were analysed. Based on that analysis, a predictive model of the agency's future efficiency (including output and costs) has been developed. In the real-estate pilot, office space utilisation rates and related real-estate costs were analysed. Utilisation rates were measured by monitoring network usage (how many users have logged into the network in the office).

These predictive tools can be used on a rolling basis, populated with the most up-to-date data. The real-estate tool can be used when planning and staffing new offices, while the efficiency tool can be used to support productivity development.

> ### Case Study 2:
> ### Norway's holistic approach to assessing investment
>
> In an effort to improve the efficiency and effectiveness of measures by the government, such as reforms, rule amendments and investments, Norway's Ministry of Local Government and Modernisation has adopted an updated procedure for the assessment of investments.[12] This is seen as a driver for improved decision-making across government in Norway.
>
> The procedure is intended to foster an understanding of investments from the following perspectives. Which social problem must be solved? What alternative measures could solve the problem and achieved the required outcome? What are the expected positive and negative effects of each alternative option, and who would be affected by them? This approach is intended to facilitate systematic comparisons of alternative investment options.
>
> The sophistication of the assessment varies with the size of the investment. For larger investments, a socio-economic impact analysis is required.
>
> The assessment also provides direction on consultation processes to ensure adequate stakeholder engagement. Obtaining views from the authorities affected by an investment is intended to bring quality and rigour to the assessment.

Balancing financial oversight with operational autonomy

Finance teams are seeking to balance budget oversight with the need for operational flexibility and responsiveness.

01. Performance-based budgeting for strategic alignment

The move to performance-based budgeting was mentioned in some countries as an important priority measure which helps resolve some of the tension between delegated operational responsibility and central oversight of spending.

Performance-based budgets link government spending to a desired set of outputs and outcomes. This differs from traditional line-item budgets, which focus on operational expenditure items such as spending on salaries, utilities and equipment. Performance-based budgets open up the possibility of devolving responsibility for budget management to different layers or parts of government, while retaining in central government a focus on operational and strategic alignment of spending with policy priorities.

Austria (see Case Study 3) and the UK have already partially adopted performance-based budgeting, and a number of interviewees indicated that implementing performance-based budgeting will be a priority in the future.

02. Blockchain for audit

Particularly innovative approaches, such as the use of blockchain, to improve budgetary oversight and management, are being explored in the Netherlands (see Case Study 4). Based on our conversations with interviewees, a number of governments in other countries are likely to follow suit in the future.

The benefits of blockchain technology - security, transparency, efficiency and speed - are readily applicable to public sector organisations. With the addition of unchangeable record to a distributed ledger, audits can be conducted and viewed in real time.

Case Study 3:
Performance-based budgeting in Austria

The Austrian Federal Budget Reform was a comprehensive set of reforms implemented in two stages (2009 and 2013) which introduced new principles to budgeting: outcome orientation; efficiency; transparency; and true and fair view. Performance-based budgeting, introduced in 2013, has been used to boost administrative operational performance (for example, through measures to promote gender equality in administration) and public policy initiatives (such as improving apprenticeship training for young people).

The following steps are used to define the budget's desired outputs and outcomes:

- identifying current performance of the target outcome area (for example, percentage make-up by gender of the public sector workforce)

- identification of problems

- definition of objectives (outcome statements)

- actions to be taken (output statements).

Evaluation and reporting (for example, in the Austrian Annual Federal Performance Report) are further elements in the process.*

Our interviewee highlighted the following benefits from performance-related budgeting:

- facilitation of priority setting at a political level and subsequently in the public administration

- greater accountability for performance of government ministries and other budget-managing bodies

- improved transparency of public administration performance, for the public and the Parliament

- establishing the budget as a strategic policy instrument.

* https://www.parlament.gv.at/ZUSD/BUDGET/Introducing_Performance_Budgeting_in_Austria_xHelmut_Bergerx.pdf

Case Study 4:
Blockchain for budget management in the Netherlands

Since 2016, the Dutch Government has undertaken numerous pilots relating to the application of blockchain in the public sector.*

One pilot of particular relevance to the finance function is the Dutch Court of Audit's examination of how blockchain can improve budgetary oversight. The Court of Audit audits approximately €240 billion of expenditure by the central government annually. It checks whether administration is being carried out properly and if policy is being executed as was intended. In order to fulfil its role, the Court receives data packages from all central government organisations each year. In 2016 a pilot was undertaken to test the impacts of Blockchain-based central government financial administration on the Court's work. It took the administration of a state employee benefits scheme as a case study. Initial findings suggested that the Court's role could change significantly, with the possibility of real-time access to data providing the chance to intervene in cases of non-compliance at an early stage.

* https://www.blockchainpilots.nl/home-eng

Denmark implements RPA across the public sector at all levels (see Case Study 5) and Norway's Agency for Financial Management has automated ten processes involving the delivery of accounting services. In the Netherlands, the Tax Administration and the Social Insurance Bank have also made good progress with automation of financial operations.

03. Cognitive computing
Cognitive computing is extending the reach of RPA. Developers in both the private and public sectors are increasingly incorporating cognitive technologies, including machine learning and speech recognition, into RPA solutions. As one interviewee in central government put it, to automate perceptual and judgment-based tasks once reserved for humans,[13] the roll-out of cognitive computing "will follow much of the same arc as RPA".

Generating further efficiency in the finance function
Efficiency gains in public sector administration have been made through a series of rationalisations and consolidation. At an organisational level, much of the reform has been in the area of the operating model and process redesign. It is recognised, however, that more can be done, in particular through exploitation of digital technologies.

01. Ongoing efficiency reviews
Governments continue to seek to improve in the more 'traditional' areas of shared services and procurement reforms. For example, Norway's Government undertakes annual efficiency reviews of its municipalities and the UK Government sponsored a broad public sector efficiency review in 2017[12].

02. Robotic process automation (RPA)
Robotic process automation (RPA) is increasingly popular within government finance functions in Europe. RPA offers a wide range of potential benefits, not least through cost reduction. However, the benefit of RPA is not just about cost-cutting: benefits can be obtained from better service quality, for example through lower error rates, a reduction in turnaround times, increasing the scalability of operations, and improving compliance.

Examples of the automation of government financial activities were mentioned by interviewees in Ireland, Norway, Finland, the Netherlands and Denmark. Additionally, interviewees in a number of other countries, such as the UK, said there were plans to roll out RPA in coming years.

Examples of cognitive computing were mentioned by interviewees in Denmark, where it is being implemented in certain organisations, particularly those interacting directly with members of the public for example, in processing complaints. In Norway, where AI-driven chatbots are being used to provide service support. A number of other interviewees mentioned cognitive computing as a field currently under exploration for finance-related tasks.

04. Cloud computing

Cloud technology was also mentioned by interviewees as a way to gain further efficiencies and improve service quality. The cloud, particularly when coupled with the use of software as a service, offers flexibility and other benefits through rapid scalability, on-demand availability, and greater control over operating expenditures on IT services.

The level of comfort with cloud solutions, as expressed by our interviewees, varies between countries, and there are concerns about regulatory and security issues.

The ability to host data on a private cloud can mitigate certain regulatory and security risks, given that the data will remain under the control of the public administration. A private cloud model can be found in Luxembourg. Project 'govCloud' is a privately-owned cloud architecture that is managed by the State's Information Technologies Centre for the benefit of Luxembourg's public services. It provides the government with access to a range of solutions for public services (for example, big data and machine learning).[14]

05. Technology to support and monitor transactions

Most interviewees mentioned the importance of removing barriers to transactions with business and members of the public. A range of digital solutions are being deployed to facilitate compliance with tax regulations, reduce fraud, and support transactions with government in a cost-effective way.

Self-service portals are important in this regard. Luxembourg, for example, has developed a secure interactive 'MyGuichet' platform for both professionals (for example, to obtain business permits, or undertake tax filing) and private individuals (for example, to make income tax declarations, or process financial aid for students). In Denmark, e-invoicing and e-filing is now mandatory for any company seeking to do business with a public entity. Austria has introduced a digital cash register for its business Cash Register and Receipt Issuing Obligation, FinanzOnline (FON), providing clear revenue reporting for businesses and simplifying coordination between businesses and the Austrian Financial Administration.[15] Germany is moving towards mandatory implementation of eGovernment services at Federal and State level, including electronic payments, electronic access to documents, electronic file management and the provision of extensive online information to improve transactions with Government.[16]

Ireland (see Case Study 6) and Austria are using analytics solutions to detect VAT fraud and monitor the movement of excisable goods.

A range of digital solutions are being deployed to facilitate compliance with tax regulations and reduce fraud, and support transactions with government in a cost-effective way

Case Study 5:
Robotic Process Automation in Denmark

There has been widespread adoption of robotics by the public administration in Denmark. Organisations that use RPA include the Danish Tax Administration, the Public Benefits Administration and the Danish Railway Service. The main focus so far has been on automating centralised Human Resources (HR) and financial processes. However, a lot of work is also being undertaken to introduce robotics into core processes such as case management, public services, control and inspection, and handling of complaints from the public.
One recent success story is Denmark's Agency for Government Administration. A core remit of the Agency is to uncover common solutions for further efficiency gains across the entire Federal Government in Denmark.

The Agency first put robots into full-time service in April 2017 to automate a range of financial accounting processes. This followed a two-year preparation period during which a proof of concept and a pilot test demonstrated the ability to generate improvements in service quality through RPA. The key benefit so far has been faster processing of tasks – five to six times faster than the previous manual systems - with investment breaking even after one year .
The Danish Government has pledged to develop a State Robotics Centre in the near future. This Centre will support a range of automation initiatives by the Finance Ministry and the Agency for Government Administration, IT, Digitisation and Modernisation.

Case Study 6:
Analytics to combat VAT fraud in Ireland

As part of the push to tackle the shadow economy, government revenue agencies need to target VAT fraud and non-compliance. Traditional risk assessment systems only looked at individual VAT returns and taxpayers. However, often VAT fraud can only be detected by evaluating networks (i.e. carousel fraud) rather than individuals.
Since January 2014, Social Network Analysis is being actively used as a means of identifying VAT fraud by the Irish Revenue Commissioners. The analytics solution developed allows investigators visualise the social graph of related customers (individuals and businesses), together with the links between those customers. Furthermore, a risk-scoring system that scores not just individual customers, but also entire networks of customers, helps prioritise which customers to investigate.

Considerable benefits have been realised around the reduction of the time required to investigate suspected networks. The goal of enabling case workers to explore the relationships between customers more quickly and to gain insights has been delivered. This in turn has allowed the organisation to target non-compliant customers.
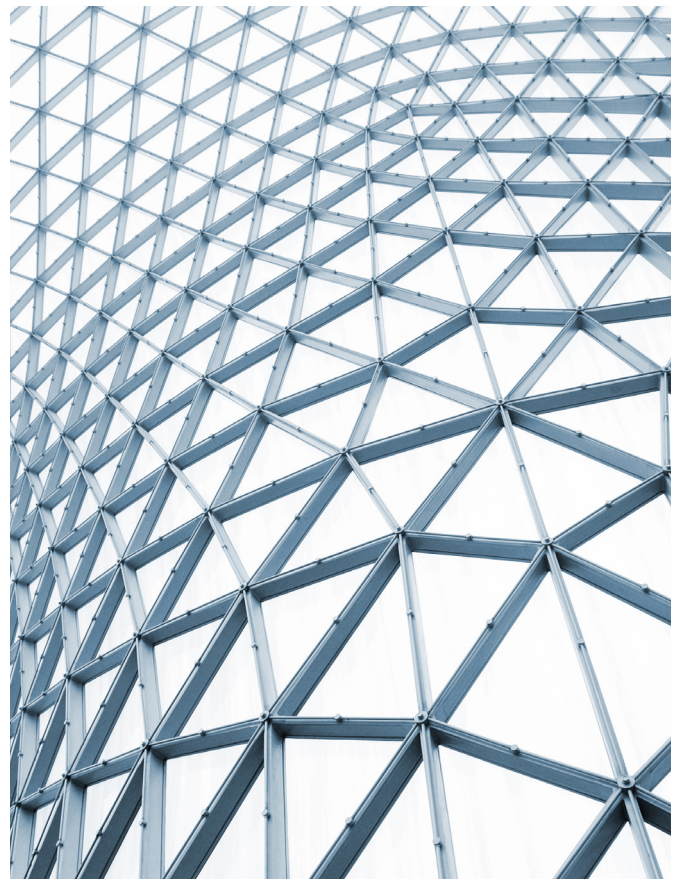
Conclusion

Our interviews and interactions with multiple finance managers across governments in many countries have demonstrated the challenges they face and their ambitions to address these challenges. Substantial reforms have been spearheaded by government finance teams since 2009 and more will follow.

A range of initiatives are under way to improve decision support, to balance financial oversight with operational autonomy, and to support efficiency in the finance function. Government finance teams are reforming accounting and budgeting practices and are moving towards using a wide range of emerging technologies to record, analyse, and transact government business.

Through interviews undertaken for this report and Deloitte's wider experience, we have identified three key enablers to allow performance improvements in the finance function.

Routine horizon scanning can help teams anticipate digital challenges and opportunities arising from new technologies

Enabler 1: People

One of the biggest challenges facing governments the world over is people and talent – replacing retirees and addressing years of under-recruitment, and at the same time acquiring a whole new set of skills and capabilities. Finance teams in the public sector need professionals with a range of strategic and technical abilities to support the effective implementation of ambitious programmes for change.

Connecting the finance function with the rest of government business is important, and developing the concept of business partnering is a means of doing this. Business partners are finance professionals who work with policy-makers and operational parts of government to support and inform management decision-making. Such structures will allow finance professionals to help policy-makers manage performance, plan the business, provide insights and drive decisions. Along with the appropriate structures to support business partnering, strategic skills and capabilities are required in areas across planning, budget forecasting, data analytics and financial reporting, combined with knowledge on topics as diverse as regulation, taxation and international business. In addition, finance partners require strong interpersonal, negotiating and influencing skills, and a good understanding of the business area they support.

Professionals at the operational end of finance will need to understand how to optimise processes using digital technology and to understand how finance operating models can evolve across policy areas, business partnering and shared services, outsourcing and hybrid models.

Unlocking this potential will of course require investment – the value of channelling resources into training and recruitment cannot be underestimated.

Finally, embedding a culture of adaptability and innovation is vital to supporting transformation within a rapidly evolving environment. Embracing practical, yet novel, approaches to service delivery, such as through design-thinking, can help foster a more positive and creative view on change within organisations.

Enabler 2: Digital

Digital tools highlighted in this report, such as RPA, cognitive computing and analytics, are allowing finance managers to move from routine manual processing tasks, and affording them more time to interpret, analyse and add value from a strategic perspective.

As digital technologies are evolving rapidly, finance managers need to make continuous efforts to identify and assess potential technologies, in order to boost internal capabilities within the function, as well as to respond to external challenges, such as tax fraud. Embedding routine digital foresight activities, such as horizon scanning, into finance function activities can help teams anticipate digital challenges and opportunities arising for new technologies.

In turn, responding to the pace of disruptive change requires investment in IT systems and solutions which afford flexibility. For example, core systems which can support cloud technologies and software as a service can provide for more responsive, low-risk, low-cost investments in the long run.

Enabler 3:
The Business Case

We have already mentioned that government finance teams are becoming more analytical in their investment decisions. As with any change initiative, securing buy-in and sponsorship from the highest levels in government is crucial. Strong leadership is needed to promote a clear vision and culture of innovation, highlighting the benefits of change initiatives and instilling confidence in those undertaking change and those impacted by it.

Business cases to support change in the finance function need to reflect the level of external disruption and the pace of technological change. Budget holders expect increasing rapid return on investment. Short pilots and proofs of concepts which highlight tangible benefits upfront can help secure their buy-in.

Finally, over the course of our interviews we noted that few interviewees were tracking benefits. However, where this was done, it was viewed as highly beneficial. Benefits tracking should be applied in the widest sense. For example, the return on investment for robotic processing does not need to be about cost-cutting. It should relate to the broader organisational agenda – for example, removing employees from tedious tasks, making task planning more flexible, and achieving performance and quality improvements. Identifying and quantifying such measures and tracking their outcome will help maintain the momentum required for any performance improvement initiative.

Appendix

Government revenue, expenditure and debt

In the countries surveyed, government expenditure as a share of GDP spiked following the onset of the financial crisis but, since then, a combination of austerity and recovering growth has brought the level down, in some cases to 2007 levels. In the case of Ireland, a dramatic drop in expenditure relative to GDP, can be explained largely by very substantial GDP growth in recent years.

Figure 5: Total Government Expenditure % of GDP

Source: Eurostat (online data code: gov_10a_main), accessed on 21 November 2018
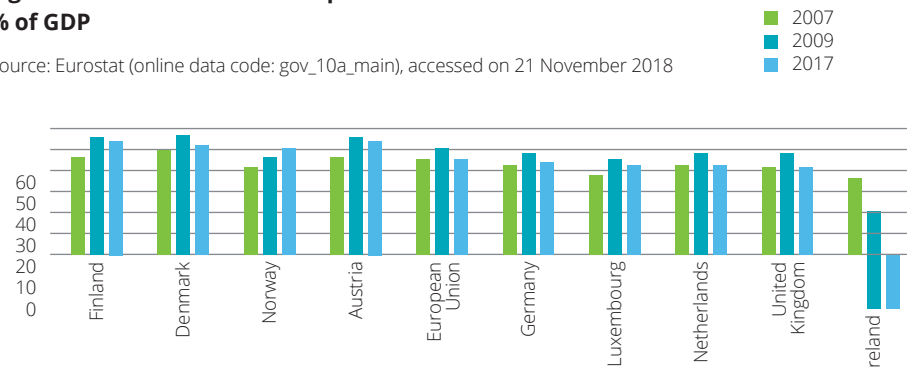
Government revenue as a share of GDP has remained quite steady over the last decade. Ireland, with very strong GDP growth in recent years, is again the outlier here.

Figure 6: Total Government Revenue % of GDP

Source: Eurostat (online data code: gov_10a_main), accessed on 21 November 2018
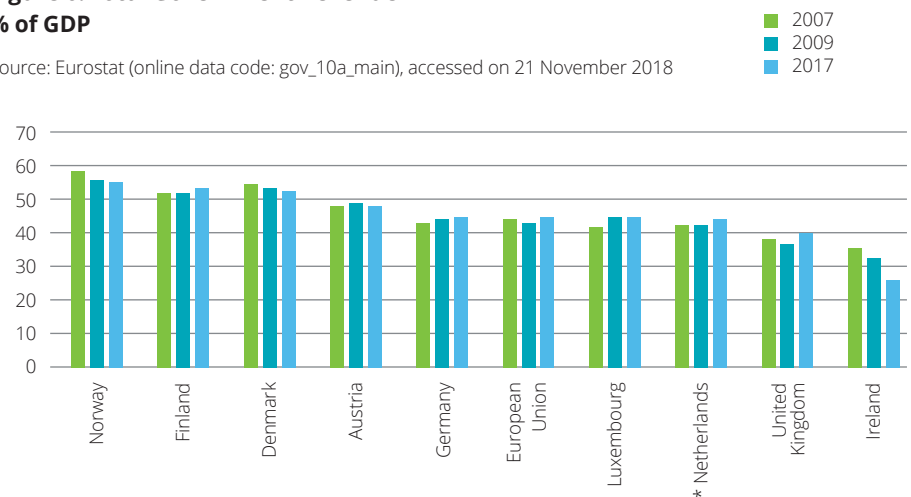
* 2017 data for the Netherlands is provisional as of 21 November 2018

Figure 7: OECD average structure of general government expenditures by economic transaction % of total expenditure

Source: OECD Government at a Glance 2017
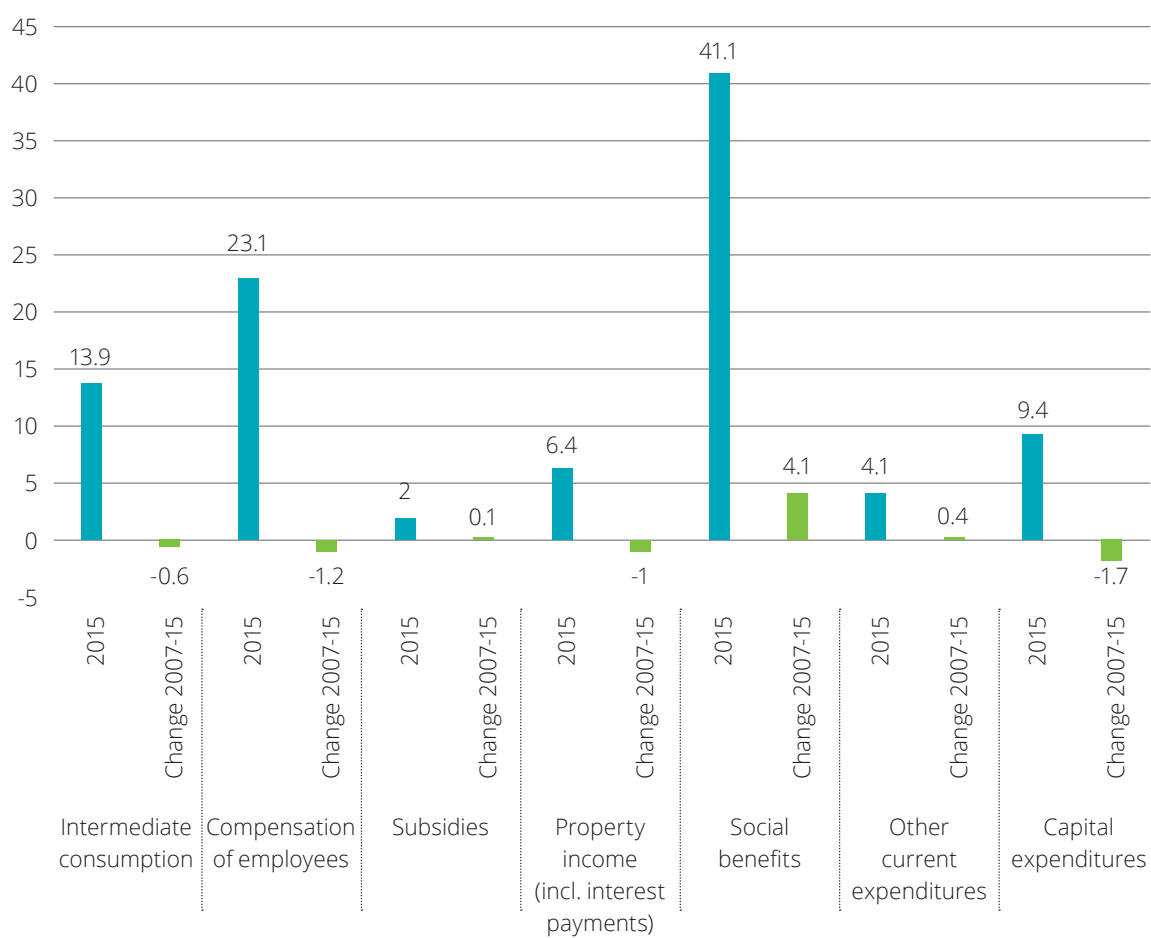
Figure 8: Surveyed countries structure of general government expenditures by economic transaction % of total expenditure

Source: OECD Government at a Glance 2017

	Intermediate consumption		Compensation of employees		Subsidies		Property income (incl. interest payments)		Social benefits		Other current expenditures		Capital expenditures	
	2015	Change 2007-15	2015	Change 2007-15	2015	Change 2007-15	2015	Change 2007-15	2015	Change 2007-15	2015	Change 2007-15	2015	Change 2007-15
Austria	12.6	0.3	20.9	-0.4	2.6	-0.5	4.6	-1.8	45	2.8	6.1	0.4	8.3	-0.8
Denmark	16.5	0.4	29.3	-1.6	3.7	-0.1	2.9	-0.4	33.9	0.9	5.9	-0.7	7.8	1.6
Finland	19	0.1	24.3	-2.5	2.4	-0.3	2.1	-1	39.8	4.3	4.9	-0.2	7.6	-0.4
Germany	10.5	1.5	17.1	0	2.1	-0.2	3.5	-2.7	54.2	0.1	5.7	1.7	6.9	-0.5
Ireland	12.2	-1.6	25	-3.1	2.4	-0.2	9	6.3	37.4	4.6	3.4	-1	10.5	-5
Luxembourg	8.9	0.5	21	-0.3	3.3	0.1	0.8	0	47.7	0.4	7.5	1.3	10.8	-2
Netherlands	13.6	-1	19.5	-0.7	2.6	-0.4	2.8	-1.9	48.5	4.9	4.3	-0.4	8.7	-0.5
Norway	13.5	0.2	30.4	1.3	4.1	0	1.3	-4.9	34.9	1.7	5.6	0.7	10.2	1
United Kingdom	20.4	0.5	21.8	-3.2	1.5	0	5.5	0.2	38	3.6	4.9	-1.2	8.1	0
OECD	13.9	-0.6	23.1	-1.2	2	0.1	6.4	-1	41.1	4.1	4.1	0.4	9.4	-1.7

Figure 9: Change in Government Debt as a % of GDP Survey Countries

Source: OECD (2018), General government debt (indicator). doi: 10.1787/a0528cc2-en (Accessed on 21 November 2018)
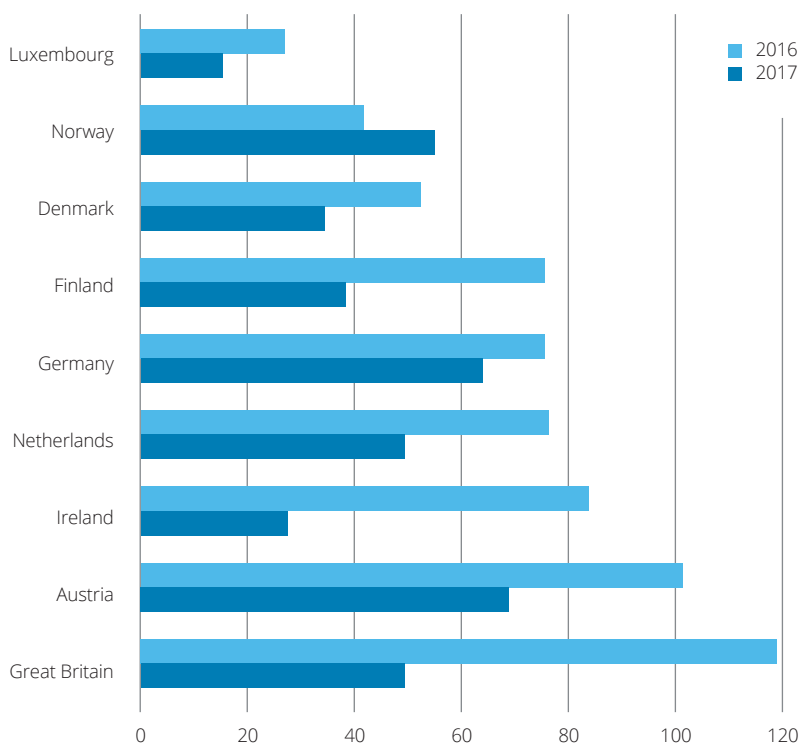
Note on classification of government debt

The data in the above graphs are based on the OECD's measure of general government debt. This is the sum of the following liability categories: currency and deposits; securities other than shares, except for financial derivatives; loans; insurance technical reserves; and other accounts payable.[17]

Debt levels shown here will differ from the EU measure of general government debt under its excessive deficit procedure (EDP), whereby general government debt is defined as "the total consolidated gross debt at face value in the following categories of government liabilities (defined in ESA 2010): currency and deposits, debt securities and loans".[18]

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