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The Chartered Institute of Management Accountants (CIMA), founded in 1919, is the world's leading and largest professional body of management accountants, with over 218,000 members and students operating in 177 countries, working at the heart of business. CIMA members and students work in industry, commerce, the public sector and not-for-profit organisations. For more information about CIMA, please visit www.cimaglobal.com.

The National Audit Office scrutinises public spending for Parliament and is independent of government. The Comptroller and Auditor General (C&AG), Sir Amyas Morse KCB, is an Officer of the House of Commons and leads the NAO, which employs some 820 employees. The C&AG certifies the accounts of all government departments and many other public sector bodies. He has statutory authority to examine and report to Parliament on whether departments and the bodies they fund have used their resources efficiently, effectively, and with economy. Our studies evaluate the value for money of public spending, nationally and locally. Our recommendations and reports on good practice help government improve public services, and our work led to audited savings of £1.1 billion in 2013.

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Foreword

The last 5 years has seen one of the most significant reductions ever made to public expenditure. At best, the government is only half way towards its objective of restoring budget balance: severe fiscal pressures will continue through the next Parliament. Meanwhile, demand for public services continues to grow and citizen expectations of service quality will only increase.

To meet these challenges, government has introduced new ways of delivering public services, with more focus on user choice, more authority devolved to local levels, and more use of financial incentives, such as payment by results. The government also recognises that its finance capability can do more to help meet these challenges. The Financial Management Review, published in December 2013, set out a vision for the government's finance function, highlighting the need for strengthened leadership, delegating greater responsibility to departments, and developing a better understanding of what we spend and what we get for it.

CIMA and the NAO welcome the recognition in the FMR that lessons can be learned from the way finance capability has evolved to drive sustainable success in the private sector. The private sector understands the importance of a realistic and careful approach to planning, which is focused on understanding long-term cost implications; of keeping things simple and avoiding over-engineering, in project scope and design; of using data and analysis to understand and mitigate financial risk; and of embracing the need to consider radical changes to operating models.

The CIMA-NAO Expert Panel brings together private and public sector perspectives to consider what more the finance function – and its closer integration with the rest of the business – could do, and to provide insights for policymakers, boards and finance teams. We welcome this report, and commend it as a contribution to the debate on the implementation of the government's financial Management Review. We are very grateful to the panel members for giving their valuable time, expertise and insights.

**Sir Amyas Morse KCB, Comptroller
& Auditor General**

Charles Tilley, Chief Executive, CIMA

Executive summary

Fiscal pressure on government departments is set to continue through the next Parliament, with citizen expectations continuing to rise. With the 'more for less' challenge continuing indefinitely and an increasingly complex public sector landscape, a strong and integrated finance function across government is crucial. The 2013 Financial Management Review (FMR) recognised this, highlighting the need to demonstrate value for money in government spending, based on higher standards in financial management and an enhanced role for finance in supporting decision-making. The review also found that there were significant lessons to be learned from the private sector.

In May 2013, the NAO and CIMA convened a panel of finance experts from across the public and private sectors to improve shared understanding around the best use of costing information and techniques. The panel took the opportunity to focus its attention on supporting the implementation of the FMR by identifying ways in which a strong, integrated finance function can help accounting officers, permanent secretaries and boards deliver value and support accountability. This report draws on the combined expertise of the public and private sector members of the panel and the case examples they have provided.

There are many ways in which an effective finance function can help, but the report highlights two essential contributions: understanding costs, and understanding how inputs translate into outcomes. The starting point is with the organisation's current activities and operations, which lays the foundation for the greater challenge of quantifying the costs and value from using alternative delivery models. We provide examples of good practice from the public and private sector (Part Two).

The report then identifies 5 key factors that should enable the finance function to meet these requirements (Part Three):

- 1** The organisation understands its business model.
- 2** Leadership demands, uses and rewards the right management information.
- 3** The finance function has the right structure and skills.
- 4** There is one version of the truth on costs and value.
- 5** There is the right balance of stability and flexibility in the financial framework.

The report concludes with some questions which we believe all senior decision-makers should ask themselves and their organisation in order to support and develop these enablers.

Part One

Overview

The challenges

Government departments have been under considerable fiscal pressure in recent years and this will continue through the next Parliament. At the same time, demands on public services will continue to increase, through demographic changes and changing citizen expectations.¹

In meeting the challenge of delivering more for less, the public sector landscape will continue to become more complex. There will be increasing reliance on third parties and the outsourcing of many key functions, and a need for new skills to manage supply chains and devolved delivery. The effective use of financial information is vital to creating the right incentives for service providers and creating the right levers for effective management of these providers. In particular, when dealing with third parties such as, contractors and partners who will be motivated by the price set.

At the same time, external scrutiny of public spending is likely to intensify. Senior decision-makers – departmental permanent secretaries, chief executives of delivery bodies and their boards – have to provide assurance to parliament and taxpayers on how they have secured value for money. Meeting the challenges

of rising expectations and squeezed resources inevitably means the management of risks; senior decision-makers need to be able to demonstrate why they chose the options they did.

An effective finance function

Making the right decisions, and explaining those decisions, is not just about the provision of better information. It is about the correct use of that information to drive conversations and support decisions at all levels of the business. A strong finance function integrated with the rest of the organisation is critical to achieving that. Among other things, effective financial management enables an organisation to:

- monitor and control planned expenditure;
- identify links between resources, outputs and outcomes to understand and improve value for money;
- manage risk effectively, to support innovation and mitigate service failure; and
- ensure that complex decisions on transforming service delivery are underpinned by robust financial analysis.

¹ For example, changing demographics mean that demand for health and social care for the elderly is increasing at the same time as demand for school places for the young. A recent report by the NAO on capital funding for new school places found that nearly a quarter of a million primary school places still need to be provided by 2014-15 to meet increased need, and that more than one-fifth of all schools were full or over-capacity in May 2012. Comptroller and Auditor General, *Capital funding for new school places*, Session 2012-13, HC 1042, National Audit Office, March 2013.

The government's Financial Management Review

In June 2013, the Chancellor and the Chief Secretary announced that HM Treasury would lead a review on how to strengthen financial management in government. The final report² drew out 3 main findings:

- 1 Greater attention across government is required to understand and demonstrate value for money in government spending.
- 2 In all organisations (or governments) the corporate centre exercises control over subsidiaries (or departments).
- 3 There needs to be more focused and empowered leadership to drive higher standards in financial management. This should also ensure that finance is integral to decision-making at the very highest level across Whitehall.

The review also highlighted that government can learn from the private sector. There are of course significant differences between the private and public sectors in the scale, variety of activities and ultimate objectives. But the private sector has also gone through challenging times, with growing global competition, reductions in consumer spending and difficulties in finding funds for investment. To meet these challenges, many private sector companies have remodelled and strengthened their finance functions.

Government is making progress in implementing the recommendations of the FMR, but no one should underestimate the scale of the challenge. In the public sector the finance function has traditionally focused on basic transactional services, securing resources from the Treasury, and external financial reporting. With notable exceptions, there has been much less focus on understanding what is being delivered

for the money being spent. And too often, senior decision-makers and operational staff fail to understand the financial consequences of their decisions.

The CIMA-NAO Expert Panel

The National Audit Office and the Chartered Institute of Management Accountants convened a panel of finance and operational experts from across the public and private sectors to support the aims of the FMR. The panel includes experts from 7 major government departments, several public sector delivery agencies, and 6 major private sector companies.³ The panel's initial focus was on the quality and use of cost information, but the panel concluded that costing and cost management should be considered in the wider context of value management in a challenging and uncertain world. This puts the emphasis on considering radical change to how public services are delivered, as well as incremental efficiency improvements of existing delivery models.

This paper

This paper is the output from the panel's 4 meetings. It draws on the discussions in those meetings and short case studies of good practice provided by panel members. It is intended to support accounting officers, permanent secretaries and boards in addressing some of the challenges they face. In particular, it focuses on:

- explaining how a strong finance function, integrated with the rest of the organisation, can help deliver value and support accountability (Part Two); and
- identifying some key enablers of a more effective finance function (Part Three).

² *Review of financial management in government*, HM Treasury, December 2013.

³ The terms of reference and membership of the panel are set out in Appendices Two and Three.

Part Two

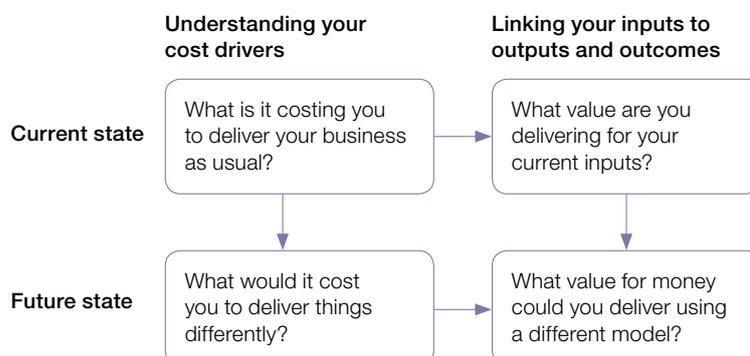
How finance can help

Two of the key things which a finance function should do is to understand what is driving the organisation's costs, and what value the organisation is delivering. At a minimum, this applies to the organisation's current activities. But with the pressures facing the public sector to deliver more for less, finance should also be able to provide robust assessments of costs and value under alternative delivery models. This information and insight can and should be used internally to support effective decision-making, and externally to answer the questions that Parliament and the public expect senior decision-makers to face.

Figure 1 below shows 4 key questions which an effective finance function should be able to answer. In terms of challenge, these questions progress from the basic requirement to understand the costs of what you currently deliver, to being able to estimate the costs of delivering services in a different way, to the harder challenges of understanding and quantifying the value of outputs and outcomes, in current and future states.

Figure 1

Key questions an effective finance function can answer



Understanding cost drivers

Current state

Understanding the costs of existing operations provides you with information on what factors cause your costs to change, what those operations 'should' cost, and where and how you can reduce current costs. For example:

MoJ Prison costs (Case study 1)

MoJ has to reduce its total spending by 34% in real terms between 2010-11 and 2015-16, and prison costs account for around a third of MoJ's expenditure. The Department embarked on a 'Specification, Benchmarking and Costing' programme which resulted in a directory of prison (and probation) services, detailed specifications for each of those services, good practice operating models (including staff grades and activity timings) and hence a detailed understanding of current unit costs, and an understanding of where costs could be reduced through more efficient operations.

The programme is aiming to reduce costs by £175 million by 2015-16, equivalent to a reduction in the average direct cost per prisoner of around 8%. The programme has met the £84 million target for 2013-14.

In the context of capital investment, understanding cost drivers is crucial to keeping project costs under control. Many of the costs incurred will be at risk of change, so understanding what is likely to drive those changes is critical to making informed decisions. For example:

Thameslink

Once delivery of the first phase of the Thameslink project began, Network Rail identified that work at Blackfriars and Farringdon would be more expensive than anticipated. Identification of increased costs at this stage allowed the Department for Transport to make an informed decision about whether to continue with the project in its current form. Network Rail's costing data helped it and its partners to work together to formulate a revised plan which could be delivered within the original budget. One of the main cost drivers was the complexity of track layout.

Savings of £304 million were made by simplifying the track layout at London Bridge and drawing up more detailed plans for the overnight stabling facilities for trains. Network Rail's subsequent development of its plans and cost estimates also led to a £285 million reduction in overall contingency, bringing the forecast cost of the project as a whole within the £3.55 billion budget.

Source: Comptroller and Auditor General, *Progress in the Thameslink programme*, Session 2013-14, HC 227, National Audit Office, June 2013

An effective finance function can also help you understand all the costs you are actually incurring, but may not be currently factoring into your decisions, thereby undermining your financial sustainability. For example:

HEFCE TRAC costing approach (Case study 2)

Around 15 years ago, HEFCE identified universities were consistently not charging the full cost for research. Often universities would bid to win research bids due to the reputation gained not the revenue raised. In order to win bids they were often pricing bids at marginal cost not full cost.

This meant that costs such as the use of assets were not covered and finance was not being raised to replace assets being lost or falling into disrepair. This raised risks to the future sustainability of some universities and the UK research base. It also meant that those providing funding were also losing confidence. Unrealistic bids sometimes led to the university dropping out before the work was completed leaving the funder with no results. Government needed assurance that investments in restoring the degraded infrastructure would be applied appropriately and that research activity would be funded (and priced) to ensure sustainability in the future.

The Higher Education Funding Council for England estimates that the sector attracted over £1 billion of extra public funding for research per year between 2006-07 and 2010-11 due to transparent costing.

Future state

Understanding the cost drivers of your current activities can provide the basis for understanding how costs could be different following changes to your operating model. Understanding your cost drivers allows you to make decisions which lower the costs or improve the return they provide. The following example relates to a relatively straightforward public service:

DVLA switching service channels (Case study 3)

DVLA wanted a greater understanding of the unit costs of processing vehicle licensing transactions by different service delivery channels – for example online versus paper applications.

The Agency undertook costing analysis which showed that the unit cost of processing online applications is about one-fifth of the cost of processing paper applications through local DVLA offices, and less than half the cost of processing paper applications through the Post Office network.

These costing techniques have enabled DVLA to determine that centralising or using intermediaries and electronic channels to deliver the service required will deliver annual savings of £24 million from 2013-14.

For more complex services, such as those provided by hospitals, relatively basic but systematically applied costing techniques can identify the scope for savings. This can improve understanding of what inputs are being used for different activities, and facilitate accurate comparison of unit costs or activities across teams or services. This creates the information base for informed decisions about moving to different delivery models. For example:

NHS patient-level costing (Case study 4)

The current method of calculating tariff prices (used to reimburse health providers under 'payment by results') uses the average cost of services, which means that tariffs cannot effectively promote competition between providers. Patient-level costing is a more granular approach to calculating the cost of patient activity, for example, the cost of minutes an individual patient spends in an operating theatre. This enables greater understanding of the cost of providing patient care to the individual and by different practitioners and teams within hospitals. Patient-level information and costing systems (PLICS), which emphasise 'information' as well as cost, are becoming more widespread, and have been implemented in almost half of all trusts.

Patient-level cost information enables foundation trusts to provide Monitor with more accurate information for setting tariffs, and provide better information for encouraging competition between, and negotiating contracts with, private sector providers. It is also helping clinicians understand the cost consequences of the decisions they make.

There are opportunities to combine sophisticated analytical techniques with basic financial data to forecast future costs (or income) more effectively. Analysts can work with finance specialists to quantify some of the contextual factors, external to the business, which drive future costs and revenues, which in turn gives a more sophisticated understanding of risk and uncertainty. For example:

Your finance function, working with operational and analyst colleagues, can identify the relationships between inputs and outputs. This promotes good resource allocation by enabling resources to be provided to those activities where they will have the most positive impact. For example:

BIS forecast of student loan book (Case study 5)

Fundamental changes to the scale and funding of higher education created big challenges for BIS's finance function, in terms of projecting future student loan payments and balance sheet risk, given the inherent uncertainties around those future cash flows. BIS have brought together detailed, high frequency management information (UCAS applications, individual graduate earnings profiles); contextual data (birth rates, migration patterns); and sophisticated modelling (e.g. Monte Carlo simulation).

These improvements have led to a much more sophisticated understanding of the drivers of future loan repayments and more informed decisions on cash management, better forecasts of student loan outlays and hence more accurate valuations on the balance sheet, and enhanced internal and external assurance.

Linking inputs to outputs and outcomes

Current state

Understanding the links between inputs, outputs and outcomes enables organisations to identify which parts of existing processes could be eliminated, rationalised, or streamlined. But this basic understanding is often lacking. In its report on cost reduction in central government, the Committee of Public Accounts concluded that most departments' inability to link costs to outputs was "a serious impediment to making sustainable cost reductions that minimise the impact on front-line services."⁴

Shell retail – marketing costs (Case study 6)

In an increasingly competitive market, Shell's Retail business must ensure that it generates optimal returns from every dollar invested, particularly with respect to marketing costs which lie at the heart of any retail business. A focus on outcomes and returns, rather than viewing marketing spend as a 'cost', is critical for success. The Shell Retail business carefully considers multiple market and customer segment needs to ensure that it addresses and takes advantage of existing and emerging trends in terms of customer needs. The ability to track projects that best leverage these trends is critical to business success. Test sites are identified to run projects in selected markets. The results are compared to control sites with comparable external factors, to determine statistically significant performance which includes detailed fuel and convenience store results that help to further refine the projects.

Improved project return analysis ultimately allows Shell to better meet customer needs and increase customer loyalty. As markets continue to improve collaborate and share best practice, the business is able to ensure that superior projects are extended to other markets which lead to improved returns for shareholders.

4 Committee of Public Accounts, *Cost reduction in central government: summary of progress*, Eightieth Report of Session 2010–2012, April 2012.

DWP Productivity Metrics (Case study 7)

In 2012-13, DWP paid out £166 billion across a number of different benefits. Using a single 'Activity Based Management' system, the Department has developed a consistent way of measuring the volume of around 80% of its outputs (such as the number of income support claims and numbers of children benefiting from child maintenance payments). Inputs are also measured on a consistent basis and attributed to activities (based on the direct costs of the activity plus allocated overheads and capital costs).

This enables DWP to demonstrate a 3% growth in aggregate productivity in 2012-13, and 15% in total since 2010, building on increases of 14% and 26% in the SR2004 and SR2007 periods respectively. The Department can also compare productivity between activities and business units, to identify areas for further cost savings and process improvement.

A key driver of the value delivered to service users may be reducing their transactions costs in using the service. More generally, by understanding the full costs of your current services – including those passed on to other parts of the public sector, to the private and third sector and to service users – you could identify changes or investments which improve the service to customers. For example:

HMRC cost to customers of call

The NAO 2012 report on customer call costs in HM Revenue & Customs demonstrates how the consideration of customer costs can help. People incur costs while waiting for government call centres to answer their calls. These costs include both the direct costs of the phone call and the indirect costs of their time. In 2011, HM Revenue & Customs set itself a target of answering 75% of calls in 2012-13, and 90% of calls in 2014-15. The Department recognised the potential benefits to services of increased investment.

In response to the NAO report and its improved understanding of the full costs, it revised its targets and aimed to achieve the 90% goal by March 2013. HM Revenue & Customs expects this to cost it £15 million more, but customer costs should fall from £44 million to £18 million, creating a net benefit of £11 million.

Source: Comptroller and Auditor General, *HM Revenue & Customs: Customer service performance*, Session 2012-13, HC 795, National Audit Office, December 2012

Future state

Understanding and quantifying the combination of costs and value that might result from making radical changes to the delivery model is very challenging. We have identified some examples from the public sector which indicate how this sort of information can be created and used.

An Improved Ambulance Response Model

A recent NAO report on the NHS Ambulance Service in England presented some simple analysis of the financial implications of ambulance services and the wider NHS changing their response to emergency calls. Data was used on the current and forecast responses of all NHS ambulance trusts to estimate the savings of 3 potential improvements: treating more emergency calls over the phone; at the scene of the accident; and taking a greater share of cases to destinations most appropriate to the patient's condition.

By understanding the variations in performance and unit costs between different ambulance trusts and different response models it was possible to estimate a range of indicative savings from £100 million a year, based on very conservative predictions of service improvement, up to £280 million a year on the assumption that service improvements meet the highest aspirations of ambulance trusts.

Source: Comptroller and Auditor General, *Department of Health: Transforming NHS ambulance services*, Session 2010-2012, HC 1086, National Audit Office, June 2011

New ways to help troubled families in Leicestershire

Leicestershire Together, a partnership made up of the county's major public service budget holders such as local councils, the police and the health service, developed an ambitious new approach to improving the lives of troubled families. This aims to join up services and provide more tailored support based on interventions with a proven track record. Using on robust evaluation of the impact of these interventions, the partnership were able to agree estimates of financial savings that would accrue to the police, DWP and the county council from reductions in crime, antisocial behaviour, worklessness and educational difficulties.

By quantifying the expected financial savings to a range of public sector bodies, the partnership were able to make a strong case for, and then secure, budgetary contributions to part-fund the new approach.

Source: A Community Budget for Supporting Leicestershire's Troubled Families, Leicestershire Together, March 2012

Part Three

Enablers of an effective finance function

The finance function has a critical role to play in supporting success, and as a result the question of what constitutes an effective finance function has been the subject of much debate. CIMA, when developing their Global Management Accounting Principles®, identified **communication, information, value** and **stewardship** as the 4 overarching principles which, when applied to the management of organisational performance and the practices of the management accounting function, help organisations to make better decisions, to respond appropriately to the risks they face and to protect the value they generate.

Following those principles, the CIMA-NAO Expert Panel has identified 5 enablers that can help an organisation strengthen its finance function and help it work more effectively with the rest of the organisation. These are not intended to be a complete list of enablers, and not all will be equally relevant to all public sector organisations but we believe they provide a useful prompt for senior decision-makers and their finance colleagues to consider. We conclude the report with a checklist of questions which we think all senior decision-makers should ask themselves and their organisation.

The 5 enablers are:

- 1 Understand your business model.
- 2 Leadership demands, uses and rewards the right management information.
- 3 The right structure and skills for finance.

- 4 Get to one version of the truth.
- 5 The right balance of stability and flexibility in the financial framework.

Enabler 1: Understand your business model

A clear understanding and articulation of the organisation's business or delivery model – the chosen system of inputs, processes or activities, outputs and outcomes that aims to create value over the short, medium and long term – allows the accounting officer and board to:

- Understand the end-to-end relationships between inputs, activities, outputs and outcomes.
- Identify key resources and relationships.
- Define priorities, value drivers and desired outcomes.
- Provide assurance on how the organisation's resources are used to deliver value.
- Recognise and address the risks, threats and opportunities within the external environment.
- Identify processes and activities which are weak, redundant or underperforming.
- Reinforce the importance of learning and continuous improvement.
- Ground strategic debate to meet the reality of the organisation.

A robust and resilient business model identifies how value is created, delivered, distributed and retained. For example:

BIS Strategic Review

Dalton Phillips, a BIS non-executive board member, conducted a review into the BIS Admin savings programme (to achieve a target of 50% in savings over the period 2010–2015) and identified what further steps could be taken to generate additional savings. In response to Dalton's findings and recommendations, the BIS Strategic Review was launched in April 2013. It went beyond questions of efficiency and savings, instead developing a vision for how BIS could be by 2020, and more crucially how the relationship between the core Department and Partner Organisations needs to change. The review clarified the BIS delivery model as a family of 46 partners which could be categorised into 5 groups: professional advice to ministers (6 small/micro); support to employers (4 large/medium, 1 dormant); tribunal services (5 small/micro); regulation of markets (5 medium/large, 1 micro); funding of education and research (13 large/medium); and near commercial services (11 large/medium).

BIS can meet the lower end (£60 million) of the potential additional savings identified by Dalton Philips through extending our use of high quality, low cost shared services. To go beyond this BIS would need to make more transformative changes to services and the landscape in which they are delivered.

A better understanding of the business or delivery model and the context in which it operates can be facilitated through an effective internal and external reporting process which seeks to answer the following questions:

- What are the impacts of key external factors upon the organisation?
- How do we create value for our stakeholders?
- What are our desired outcomes?
- What do we rely upon in terms of inputs?

Integrated reporting is an emerging approach to corporate reporting in which organisations demonstrate the links between their strategy, governance and financial performance and their social, environmental and economic context. In addition to the external reporting benefits, this promotes an 'integrated thinking' approach within the organisation, enabling better understanding of the business model and the ways in which organisational resources and relationships can be articulated to create short-, medium- and long-term value.⁵

Enabler 2: Leadership demands, uses and rewards the right management information

A 2012 report by CIMA, Deloitte and the Institute for Government⁶ found that there was little demand within Whitehall for management information to support decision-making, and that the focus of the civil service remained upon formulating and implementing policy changes rather than on continuous improvement in its existing business. To combat this, demand for good financial and performance information must be created at the most senior levels. This means accounting officers and boards must demand the management information necessary to support the decisions they are making. Incentives need to be in place to reward the provision of this information, even if the proposals underpinned by that information are turned down. It is important that management/financial information is not seen as a barrier to approval but a facilitator.

Case study 4, on patient-level costing in hospitals, shows the importance of leadership engaging with the cost information provided (see Appendix One).

⁵ *Tomorrow's Business Success* report, Available at: www.cimaglobal.com/Documents/Thought_leadership_docs/reporting/Tomorrows-Business-Success-Integrated-Reporting-guide.pdf

⁶ *Improving decision making in Whitehall: effective use of management information*, 2012.

Enabler 3: The right structure and skills for finance

Several private sector members of the expert panel emphasised the journey their businesses have been on to understand how best to organise and equip their finance functions. Finance can provide a range of services to the business, including: basic transactions; external reporting; planning and forecasting; performance reporting, specialist expertise (eg in treasury and tax management); and bespoke business/service line analysis and insight. Some of these functions can and should be standardised and automated, to reduce costs and improve quality and consistency. Other functions require strong analytical and interpersonal skills, which may not have been emphasised and developed traditionally. Re-orienting finance so that it best meets the various needs of the business requires a clear-eyed assessment of the finance functions required, an understanding of the potential for higher value-added support through analysis and relationship-building, and a skills strategy to develop finance talent throughout the organisation. For example:

Marks & Spencer: Finance Business Partnering (Case study 8)

Over the last decade, M&S has faced a number of pressures on its cost base with increases being driven from underlying cost price inflation, at the same time as investing in stores and infrastructure.

Consequently it has been necessary to develop a finance function that has the right skills, capability and structure to respond to these challenges, is able to work alongside the commercial teams to deliver strong cost control, and positioned to drive business performance.

M&S Finance has redefined its operating model, identifying the 3 key functions of Business Partnering, Technical Expertise, and Shared Services. The embedded business partnering functions ensure dedicated support to commercial colleagues to drive improved business decisions, and there has been increased focus on finance delivering insight and analysis to drive business performance.

Rolls-Royce: Finance Service Delivery model (Case study 9)

The business came to understand that their finance professionals were getting 'stuck in the swamp', constantly dragged back into answering basic questions and validating the numbers. This was crowding out the value-adding activities that finance could be focusing on. The finance strategy has been to standardise, simplify and automate as much as possible, enabling staff to move around but become effective quickly, and to free up more finance resource for the higher value adding activity. Finance has been restructured into 4 complementary functions: finance service centres; business support centres; centres of excellence; and business partners.

These changes, taking significant investment over 10 years, have driven significant efficiency improvements, while also enhancing trust in finance across the business and more effective partnering between finance and operational divisions.

Enabler 4: Get to one version of the truth

Your organisation should have confidence in its management information, to enable the right sorts of conversations, rather than arguments about the underlying data. This does not mean one unified approach across central government, let alone the wider public sector, given the scale and variety of activities that it encompasses. Even at the organisational level, one version of the truth doesn't necessarily mean a single electronic reporting system. What it does mean is:

- Standards defined, and applied where they add value.
- Integration of technology infrastructure – ensuring your business systems talk to each other.

The need to balance speed, accuracy and cost means you sometimes need to accept less than perfect information but it is important to have a stable approach to gathering financial information in the business so that everyone knows where they stand, eg enabling organisations to build more effective relationships with suppliers – not making things too specific and onerous.

There also needs to be flexibility in the approach chosen so that each part of the organisation, or partners, can gather the information needed in a way that works for them. There should be little information that you are gathering that you would not expect partner organisations to gather themselves.

For example, Case study 7, on DWP productivity metrics, shows how flexibility is needed in approach but it's important to arrive at clear measures applicable across the business and consistent over time.

Enabler 5: The right balance of stability and flexibility in the financial framework

HM Treasury needs to maintain control over public expenditure, to help meet government objectives for fiscal sustainability and economic growth. However, the requirement to meet annual budgets can undermine longer-term certainty over funding. This can mean large value contracts with suppliers, particularly in infrastructure, are shorter term and more expensive than necessary. Uncertainty for suppliers might mean they experience higher turnover of staff, reducing the incentive for them to invest in training and apprenticeships. Lack of budget flexibility can also create the perverse incentive to spend the full funding allocation within year, perhaps on lower value or immature projects.

Of course, the principle that Parliament cannot bind its successors is paramount, which means that Parliament must always retain the right to overturn or revise long-term funding arrangements. But equally, Parliament can choose not to use this right, in order to reap the value-for-money gains which can result from long-term-funding stability. For example:

Highways Agency: Funding Certainty (Case study 10)

Analysis by the Department for Transport concluded that the institutional framework for the management of the strategic road network by the Highways Agency creates cost-inefficiencies for the taxpayer and does not deliver the best outcome for road users. One key reason is that uncertainty in investment planning and funding creates inefficiency in a variety of ways: by preventing it from striking long-term agreements with suppliers that could offer better value for money; by increasing the risk of project cancellation leading to an increase price quoted by suppliers; and by requiring the organisation to sometimes delay or cancel programmes (which can lead to abortive design and procurement).

Supported by stable, locked-in funding that will eliminate the uncertain 'stop-start' processes of the past, the new company and its suppliers will have the confidence to recruit skilled workers on longer-term contracts that will save the taxpayer money. The government estimates that changes to the Highways Agency will save the taxpayer at least £2.6 billion over the next 10 years and will make the new company more accountable to Parliament and road users.

To conclude, we offer a checklist of questions which we believe all senior decision-makers should ask themselves and their organisations, to understand where more can be done to deliver value and support accountability.

Checklist of questions

Enabler	Key questions
1 Understand your business model	What are our desired outcomes and how do we create value for our stakeholders? What are the impacts of key external factors upon the organisation? How do we articulate our existing business model? What does our business model tell us about how our inputs translate into the outcomes achieved? What incentives and metrics really drive performance? Have we articulated and considered radically different business models?
2 Leadership demands, uses and rewards the right management information	What information on inputs, activities, outputs and outcomes do we need to provide transparency and support decision-making? Is it clear who is responsible for producing that information? How is the board using this information? How are we communicating to the rest of the business how that information is being used? Do we have relevant KPIs for all components of the business model? How could we visibly reward the production and use of management information? Does our management information support decision-making?
3 The right structure and skills for finance	Do we know what finance capabilities we currently have and a plan for developing them? Are we clear what skills the different finance capabilities require? Are we clear about the different services our finance function is providing or could be providing? Does the operating model enable each service to be delivered as effectively as possible? Have we got enough 'pull' from the rest of the organisation?
4 Get to one version of the truth	Is our management information presented in plain language? Is our management information adaptable to organisational change? Are we clear about what management information needs to be standardised and why? Do we understand why the current systems are not delivering the consistency/quality/timeliness of Management Information that we need?
5 The right balance of stability and flexibility in the financial framework	How could more certainty over funding help us improve efficiency? Do we understand the barriers to getting more certainty of funding? What can we do to build the case for getting more certainty of funding?

Appendix One

Case studies

1 Ministry of Justice – prison costs

Context

MoJ spending is expected to fall to just over £6 billion by 2015-16, representing a reduction of over £3 billion or 34% in real terms since 2010-11. So far, MoJ has reduced net spending by £1.7 billion or 19% in real terms in 2013-14 compared to 2010-11. In 2012-13, overall resource expenditure on prisons was around 36% of the total MoJ resource budget. This budget is used to manage a prison population of 85,410 (June 2014) with diverse requirements (adult, youth, female, remand, security category etc).

Issues

To improve efficiency, MoJ has focused on the 3 key recommendations from the Carter Review of the prisons system (2007):

- Government should market test a proportion of public sector prisons.
- Financial controls need to be improved... to allow a better understanding of the cost... of activities within the prison system.
- Development of a strategy for modernising the penal estate... and the building out of inefficiencies.

Solution

In parallel to a programme of market testing, National Offender Management Service (NOMS) developed a 'Specification, Benchmarking and Costing (SBC)' programme which delivered:

- A directory of prison (and probation) services.
- Service specifications.
- Good practice operating models including staff grades and activity timings.
- Cost models producing an indicative efficient cost based on operating models.

The service specifications enable competition and commissioning of services based on minimum outputs and outcomes which ensure safety and decency; promote innovation by not mandating an operating model; and provide common definitions for benchmarking and costing actual delivery.

Using this costing analysis, the Prison Unit Cost Programme (PUCP) announced in November 2012 aims to reduce costs by £175 million by 2015-16 and to reduce the average direct cost per place by £2,200 per year.

Outcome

The use of this additional cost data has resulted in a significant reduction in running costs, with the £84 million target reduction in 2013-14 fully met.

2 Higher Education Funding Council for England – Transparent Approach to Costing

Context

HEFCE distributes public money for higher education to universities and colleges in England. They also have responsibility for monitoring the financial sustainability of the sector.

Issues

Around 15 years ago, HEFCE identified universities were consistently not charging the full cost for research. Often universities would bid to win research bids due to the reputation gained not the revenue raised. In order to win bids they were often pricing bids at margin cost not full cost.

This meant that costs such as the use of assets were not covered and finance was not being raised to replace assets being lost or falling into disrepair. This raised risks to the future sustainability of some universities and the likelihood that HEFCE and the UK research base. It also meant that those providing funding were also losing confidence. Unrealistic bids sometimes led to the university dropping out before the work was completed leaving the funder with no results. Government needed to be assured that investments to restore a degraded infrastructure would be appropriately applied and that research activity would be funded (and priced) sustainably in the future.

Solution

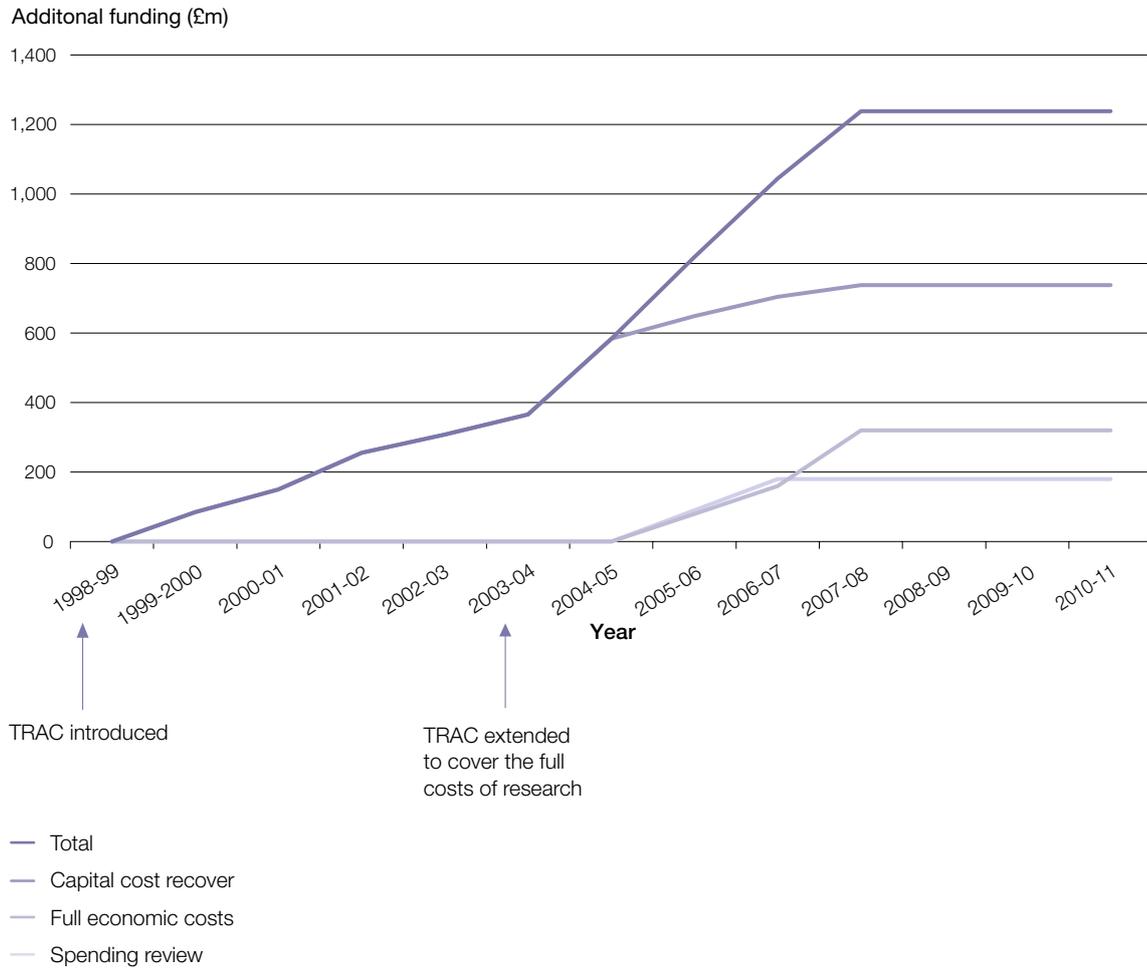
The Higher Education Funding Council for England put in place a system that would make it clearer to universities and to those providing the funding what the full cost of research really was. HEFCE oversaw the development of standardised activity-based costing method called the transparent approach to costing (TRAC). The transparent approach to costing provides comparable information on institutions' full costs of research and teaching. It also ensures that the full cost of a research is made available when universities bid to those funding research by including an appropriate share of support (overhead) costs on research.

Outcome

Research funders are able to benchmark bids more effectively, and can have confidence that bids are realistic.

The Higher Education Funding Council for England estimates that the sector attracted over £1 billion of extra public funding for research per year between 2006-07 and 2010-11 due to transparent costing. This is because to more of the cost of research is being covered and has enabled better informed pricing across universities' research portfolios.

Figure A
Increased funding to research



3 Driver & Vehicle Licencing Agency (DVLA) – Costing Service channels

Context

DVLA's main activities are:

- 1 maintaining over 44 million driver records and over 36 million current licensed vehicle records; and
- 2 collecting nearly £6 billion a year in vehicle excise duty. In doing this, the Agency handles around 200 million interactions with customers and processes 120 million transactions.

Outcome

These costing techniques have enabled DVLA to determine that centralising or using intermediaries and electronic channels to deliver services provided will enable annual savings of £24 million from 2013-14. By understanding the costs associated with providing services through different channels, the Agency can make an informed judgement on where efficiencies can be made without affecting the quality of services provided.

Issues

DVLA wanted a greater understanding of the unit costs of processing vehicle licensing transactions by different service delivery channels – for example online versus paper applications.

Solution

The Agency undertook costing analysis which showed that the unit cost of processing online applications is about one-fifth of the cost of processing paper applications through local DVLA offices, and less than half the cost of processing paper applications through the Post Office network. To conduct the analysis, the agency produces unit cost figures for each of its major transaction types such as vehicle licensing. For each transaction type, the Agency calculates unit costs by the different channels customers use to access the service.

4 NHS patient-level costing

Context

Monitor, in conjunction with NHS England, starting in 2014-15, will be responsible for setting the tariff prices, used in reimbursing health providers in the 'payment-by-results' scheme.

Issues

The current method of calculating tariffs relies on the average cost of services as reported by providers. This method has well documented limitations as it relies to data that are either of poor quality or incomplete for this purpose. As a result, tariffs are likely to be set at levels that do not promote effective competition between providers. This could result in either inefficiencies or service reductions

Solution

To address this problem Monitor is seeking to develop a new approach of determining tariff prices. At the heart of this approach is the use of patient-level costing and Information systems (PLICS). Using patient-level data rather than average reported costs when setting tariffs aims to help better decision-making on the part of Monitor and the NHS. At the same

time, this approach also presents significant challenges (**Figure B**). In addition, Monitor has encouraged hospitals and other providers to introduce Service Line Management (SLM), where specialist clinical areas are identified and managed as distinct operational units. SLM is expected to allow trusts to obtain a clear picture of the performance (operational and financial) of each service line.

Outcome

While the foundation trusts using PLICS have not been able, yet, to quantify the improvements in care quality and efficiency, they have indicated that PLICS has allowed them to reap some of the benefits cited in Figure B. Similarly, the trusts that we spoke to consider that service line reporting has been a good approach to introduce and have seen the benefits, although they have yet, found it difficult to quantify the impact.

Figure B

PLICS: Benefits and challenges

Benefits

Trusts can provide more accurate and robust cost information to support negotiations.

Increased incentives for clinicians to adopt more cost-effective ways to deliver services.

Trusts will be able to provide more accurate average costs for Monitor to calculate tariff prices.

Challenges

Standardise providers' cost reports.

Ensure that data collection does not place an unreasonably high burden on clinicians.

Assist mental health, ambulance and community care providers in setting up PLICS.

5 BIS: Understanding volatility

Context

The number of higher education (HE) and further education (FE) students has increased from around 200,000 in 1963 to over 1.8 million in 2013. The structure of HE and FE finance has changed dramatically in recent years, and BIS budgets are increasingly demand-driven (eg student support maintenance grants and maintenance and fee loans).

Issues

BIS’s financial management capability has needed to develop, to understand the sector and the volatility of outlays, and inform decision-making to ensure fairness and sustainability.

Solution

BIS have invested in:

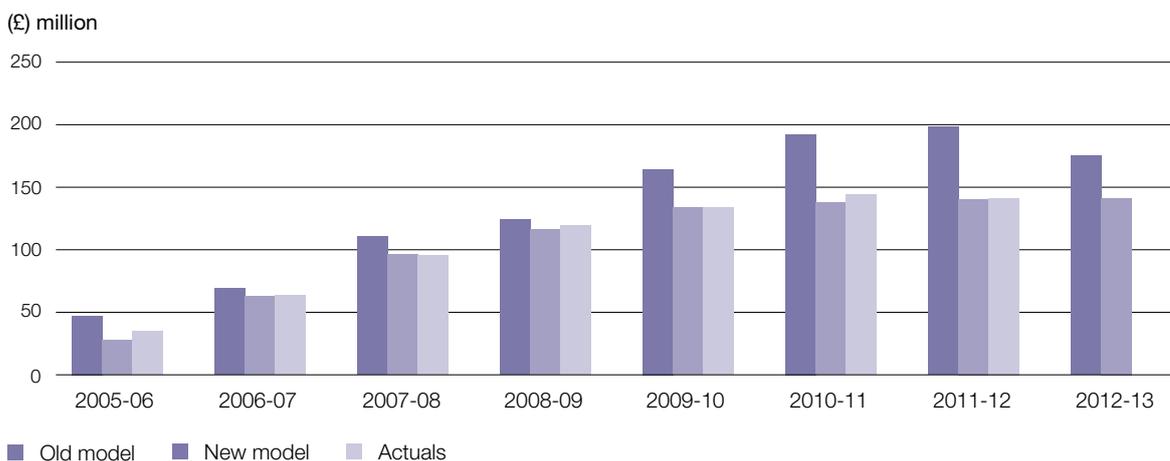
- Management information (UCAS updates on applications, HEIFES/HESES surveys, A level grading changes) and contextual data (birth rates, disadvantaged backgrounds, EU movements) to understand baselines and future demands.

- Using more up-to-date information (monthly student loan company updates on loan payments) to enable quicker, more informed decisions, eg for cash management and policy options.
- Risk-based approaches to budgeting: Monte Carlo simulation techniques to give 98% certainty range of expected outlays.
- Continuous modelling development, using emerging repayment histories and earnings histories, and new evidence on student behaviour, to refine projected earnings and repayment paths.
- Bringing skills from across the business together. They have drawn on the expertise of economists, statisticians, analysts and its finance function to improve understanding.

Outcome

These analytical improvements have led to better forecasts of student loan outlays, more accurate valuations on the balance sheet and enhanced internal and external assurance.

Figure C
2005 SRDD – Obligatory repayments



6 Shell Retail – Marketing costs and returns

Context

Shell retail has a network of more than 43,000 retail sites in over 70 countries worldwide serving customers with quality fuels and differentiated services. In an increasingly competitive market, Shell's retail business must ensure that it generates optimal returns from every dollar invested, particularly with respect to marketing costs which lie at the heart of any retail business. The challenge is to ensure that the allocation of marketing costs and underlying marketing activities on a global basis are optimal in terms of the incremental returns they generate. It is the focus on outcomes and returns, rather than viewing marketing spend as a 'cost', which is critical for success.

Solution

The Shell retail business carefully considers multiple market and customer segment needs to ensure that it addresses and takes advantage of existing and emerging trends in terms of customer needs. The ability to track projects that best leverage these trends is critical to business success. By utilising increasingly sophisticated returns analysis and data driven analytics, the business is able to allocate spend in the most

optimal method, to ensure that the level of investment optimises profits and maximises returns. Test sites are identified to run projects in selected markets. The results are compared to control sites with comparable external factors, to determine statistically significant performance which includes detailed fuel and convenience store results that help to further refine the projects. These results help to determine which projects should be further developed in other markets to build on successful marketing campaigns.

Outcome

As Shell Retail works to continually improve project return analysis, return profiles and profits climb. Improved project return analysis ultimately allows Shell to better meet customer needs to increase customer count and loyalty to better utilise its broad network of sites. As retail continues to improve and share best practices, the business is able to ensure that superior marketing campaigns are utilised in multiple markets which leads to improved returns for shareholders. The focus on outcomes and returns, rather than traditionally seeing marketing spend as a 'cost', is the key to successful and sustainable improvements in profitability.

7 DWP – Costing to assess Departmental performance

Context

Department for Work & Pensions (DWP) is responsible for paying benefits to those entitled to receive them, including the unemployed, pensioners, disabled people and their carers and for helping people without jobs to get back to work. In 2012-13, it paid £166 billion in benefits.

Issues

The coalition government's deficit reduction programme requires significant cost reduction, and DWP has reduced its administrative expenditure. The Department wanted to understand what was happening to its services in response to those cuts and a range of initiatives to improve operational efficiency.

Solution

By developing a Department-wide approach to costing activities on a consistent basis, the Department exercises more informed decision-making. The Department developed a costing metric for the whole output of the organisation, covering 80% of its outputs directly, using a single core system – Activity Based Management – to generate Management Information on productivity for most of its core services. Inputs are attributed to activities based on the direct costs of the activity plus allocated overheads and capital costs.

Outcome

The original focus of Activity Based Management was to provide local office managers with 'live' information on staff utilisation, for example, the number of new claims per person per day. The use of the system has now been extended to provide the aggregated figure by business area for the monthly executive team performance pack and the aggregated DWP productivity measure. ABM enables productivity and unit cost measurement at various levels of aggregation, enabling the Department to probe performance in more detail.

The Department has used its productivity metric to understand its position as part of the 2010 Spending Review. By fixing its outputs at current and expected levels it undertook scenario planning to forecast the productivity gains it would need to achieve based on expected levels of cuts to maintain service delivery. With knowledge of what the business needs to achieve, costing analysis can help the business evaluate the best way in which to deliver.

8 Marks & Spencer – Finance Business Partnering

Context

Marks & Spencer trades in an increasingly competitive retail environment. It is therefore more important than ever for the finance function to play a bigger role in driving business performance.

Issues

Over the last decade, M&S has faced a number of pressures on its cost base with increases being driven from underlying cost price inflation at the same time as investing in stores and infrastructure.

Consequently it has been necessary to develop a finance function that has the right skills, capability and structure to respond to these challenges, is able to work alongside the commercial teams to deliver strong cost control, and is positioned to drive business performance.

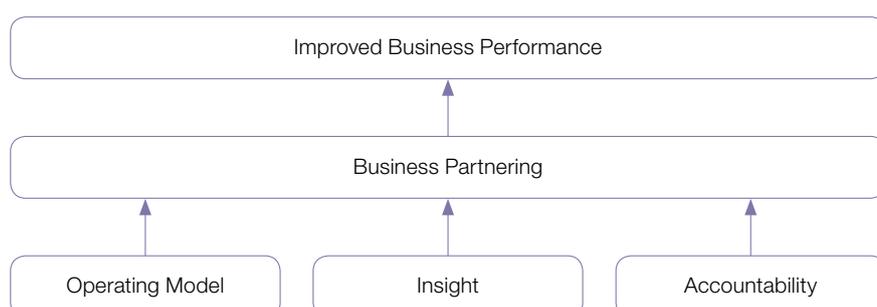
Solution

Responding to these challenges, M&S Finance has delivered 3 key changes resulting in stronger finance business partnering and improved performance.

- 1 Operating model – M&S Finance has redefined its operating model, identifying the 3 key functions of Business Partnering, Technical Expertise, and Shared Services. The embedded business partnering functions ensure dedicated support to commercial colleagues to drive improved business decisions.
- 2 Insight – There has been increased focus on delivering improved insight and analysis to drive business performance including regular planning and reporting of Operating Profit by Business Unit and Selling Channel.
- 3 Accountability – The above changes and improved profitability insight have in turn driven greater business ownership of performance. The Business Unit and Selling Channel Directors now have greater accountability for profits further down the P&L. This has enabled the Business Unit Directors to be targeted to deliver improved operating costs, as well as sales and gross profit (which for the Business Units have historically been the primary performance measures). Consequently they are therefore more closely involved in driving cost efficiencies and the management of the cost base across the company.

Figure D

M&S approach to improved business performance



Outcome

The above changes set out in Figure D have enabled the Marks & Spencer finance team to demonstrate the additional insight they bring to support decision-making.

By being a trusted partner, finance ensures it has a seat at the table, is involved throughout the decision-making cycle and is able to influence better decision-making for the M&S business.

9 Rolls-Royce – Finance Service Delivery Model

Context

Global provider of complex, integrated power systems and services to the aerospace and marine/industrial power systems markets, with 2013 revenues in excess of £15 billion.

Issue

The business came to understand that their finance professionals were getting ‘stuck in the swamp’, constantly dragged back into answering basic questions and validating the numbers. This was crowding out the value-adding activities that finance could be focusing on.

Solution

The finance strategy has been to standardise, simplify and automate as much as possible, enabling staff to move around but become effective quickly, and to free up more finance resource for the higher value adding activity. Finance has been restructured into 4 complementary functions:

Figure E

Rolls-Royce finance functions

Function	Approximate share of finance resource (%)	Responsibilities
Finance service centres	30	Cash disbursements Revenue cycle Accounting and external reporting
Business support centres	40	Planning and forecasting Business performance reporting Business analysis
Centres of excellence	10	Tax management Treasury management M&A Compliance management Government accounting
Business partners	20	Performance analysis Benchmarking Strategy Leading improvement change Networking/knowledge

This change has taken significant investment over 10 years. The key lessons are:

- 1** success has depended on focus on consolidation, standardisation and automation in unison;
- 2** recognition that trust in the model is critical, can only be earned over time, and is fragile;
- 3** once trust is earned, demand management becomes the key challenge; and
- 4** business partners must get out and stay out of the 'swamp'.

10 Highways Agency – Funding Certainty

Context

The strategic road network (SRN) is the network of motorways and trunk roads consisting of around 2% of England's roads but carrying around a third of its traffic. The Highways Agency (HA) is the executive agency of the Department for Transport (DfT) responsible for the maintenance, operation and enhancement of the SRN on behalf of the Secretary of State.

The government announced in April 2014 that by the end of the Parliament the HA will be transformed into a government-owned company tasked with managing and operating England's motorway and strategic A-road network. The government has committed more than £24 billion to upgrade England's strategic road network between 2010 and 2021 – part of a £56 billion investment in the country's transport infrastructure designed to help get the economy moving.

Issues

Analysis by the Department for Transport concluded that the institutional framework for the management of the strategic road network by the Highways Agency creates cost-inefficiencies for the taxpayer and does not deliver the best outcome for road users. Reasons include a lack of long-term certainty on investment in the network, a working culture dominated by the processes of wider government and no continuous external pressure for efficiency.

Uncertainty in investment planning and funding creates inefficiency in a variety of ways: by preventing it from striking long-term agreements with suppliers that could offer better value for money; by increasing the risk of project cancellation leading to an increased price quoted by suppliers; and by requiring the organisation to sometimes delay or cancel programmes (which can lead to abortive design and procurement work).

Solution

To improve funding certainty, the government will introduce a Road Investment Strategy, including a Statement of Funds Available, setting out and guaranteeing the amount that can be spent by the company; a funding and investment plan, setting out how this funding is allocated to deliver the government's expectations; and a performance specification for the SRN and the company, setting out specific expectations for future delivery, including metrics and key performance indicators. In addition, the new company will be given flexibility to manage its finances between years. It will have the ability to move up to 10% of its capital budget between years to ensure that the capital spending profile is efficient.

Outcome

Supported by stable, locked-in funding that will eliminate the uncertain 'stop-start' processes of the past, the new company and its suppliers will have the confidence to recruit skilled workers on longer-term contracts that will save the taxpayer money. The government estimates that changes to the Highways Agency will save the taxpayer at least £2.6 billion over the next 10 years and will make the new company more accountable to Parliament and road users.

Appendix Two

Panel members

Doug Alexander, Shell

David Allen, BIS

Mark Babington, NAO

Robin Bellis-Jones, Bellis-Jones Hill

Stuart Chaplin, Shell

Stephen Dauncey, Highways Agency

Richard Douglas, Department of Health/
Government Finance Profession

Colin Evans, Ministry of Defence

Paul Friston, Marks & Spencer

Christopher Hix, Department of Energy
& Climate Change

Justin Holliday, HM Revenue & Customs

John Horner, Rolls-Royce

Nick Jackson, Ofsted (formerly Ministry
of Justice)

Julian Kelly, HM Treasury

Dave Mack, Ford

Jez Maiden, National Express

Sharon McCue, Northern Ireland Ambulance
Service Health & Social Care Trust

Sarah Middleton, Ministry of Defence

Howard Orme, BIS

John Porteous, Department for Work
& Pensions

Mark Robinson, Johnson & Johnson

Steve Swientozielskyj, CIMA

Noel Tagoe, CIMA

John Thorpe, NAO

Charles Tilley, CIMA

Michael Whitehouse, NAO

With support from

Sophie Cooper, Executive Assistant, NAO

George Crockford, Audit Manager, NAO

Michael Kell, Director and Chief Economist, NAO

Rebecca McCaffry, Head of Public Sector
Research, CIMA

Peter Spence, Head of Performance
Management Research, CIMA

Appendix Three

Panel terms of reference

Purpose

- 1 The panel's aims are:
 - To improve shared understanding across public and private sectors of what constitutes effective use of costing, and what the key barriers and enablers are.
 - To support and challenge the NAO's work costing in the public sector, and in particular to advise on NAO recommendations to central government.
 - To enable sharing of current and developing best practice and to inform CIMA's research in this area.

Membership

- 2 Membership of the panel will be by invitation to senior public sector officials and senior finance professionals from the private sector. Invitation will be jointly agreed by NAO and CIMA.
- 3 The panel will comprise a maximum of 20 members, but the individual membership may change during the lifetime of the panel.

Chair and secretariat

- 4 The meeting will be chaired by a director from the National Audit Office. The secretariat will be provided jointly by the NAO and CIMA.

Operations

- 5 The panel will meet around 4 times each year and following the first meeting the agenda will be decided by the panel in consultation with the project sponsors.
- 6 The agenda for the meeting, a short summary of any previous meeting and any supporting papers for panel members will be circulated at least one week in advance of any meeting.
- 7 Meetings will be held in central London.
- 8 Panel members will be able to interact between panel meetings via a secure forum.

Reporting

- 9** The panel's discussions will be subject to the Chatham House rule:

"When a meeting, or part thereof, is held under the Chatham House Rule, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed."
- 10** The existence of the panel, its membership and terms of reference may be published by the NAO and by CIMA.
- 11** The publication of summary material resulting from the panel's discussions will be cleared by the panel before publication.
- 12** The panel will produce an output from the panel meetings. These outputs will share the findings of the panel and support further improvements in costing.

Glossary

Activity Based Management

Actions, based on activity driver analysis, that increase efficiency, lower costs and/or improve asset utilisation. Activity drivers are the transactions which drive activity, such as Income Support claims.

CIMA

Chartered Institute of Management Accountants.

Cost drivers

Factors that cause a change in the cost of an activity, such as the number of client calls answered, hours spent on servicing an account or the number of sales personnel in a department.

ERP

Enterprise resource planning systems are accounting-oriented information systems which aid in identifying and planning the enterprise-wide resources needed to resource, enable, account for and deliver outcomes.

FMR

Financial Management Review.

Full cost

Total cost of producing a product or service, including direct costs and overheads.

Marginal cost

Part of the cost of one unit of product or service that would be avoided if the unit were not produced, or that would increase if one extra unit were produced.

Monte Carlo simulation

A problem solving technique used to approximate the probability of certain outcomes by running multiple trial runs, called simulations, using random variables.

NAO

National Audit Office.

TRAC

'Transparent Approach to Costing', as used by the Higher Education Funding Council for England.

Transaction costs

The costs associated with making a transaction and acting under its terms.

