

Budgeting for Change

*Four Ways the UK Government
Can Spend Smarter and Deliver Better*

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As a co-founder of the UK Government Digital Service, James played a wide variety of roles in the digital transformation of the UK Government, from hands-on technology lead through to Deputy CTO for Government. He led the work of hiring the initial development team and setting the architectural and practical direction for the first phase of building GOV.UK. Subsequently he put in place management, development and support for a technology team of over 150 and worked to embed agile architectural approaches and support delivery across Government.

James was responsible for cloud, hosting and networking policy, and led on the update of the Government's "Cloud Native" policy. He was also heavily involved in the formation of the National Cyber Security Centre. His work was described by O'Reilly Radar as "the default for how Government should approach their online efforts in the 21st century".

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Manj is currently working with a range of clients including CIPFA and the World Bank, where she is advising on the implementation of International Public Sector Accounting Standards. She is passionate about good public financial management through better financial reporting and firmly believes that, to make the right decisions, Governments need complete information about their finances.

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The Amazon Web Services (AWS) Institute engages global leaders who share an interest in solving some of the world's most pressing challenges using technology. By convening leaders, industry experts, and entrepreneurs for strategic dialogue, the Institute helps turn ideas into action, accelerate innovation, and solve problems at scale. The Institute commissions independent research to support public sector organisations on their digital transformation journeys.

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Executive Summary

“Any successful enterprise understands that ‘being digital’ is not an option; it is a necessity. Government is no exception. In fact, because many people rely on public services, developing effective user-focused digital services is perhaps more important for government than any other organisation. As well as saving time and taxpayers’ money, it improves the relationship between citizen and state.”ⁱ

– Sir Jeremy Heywood, Cabinet Secretary and Head of the Civil Service

An Institute for Fiscal Studies analysis calculates a 3.2% cut of real departmental spending per capita over the next five years, while new costs for Government are surging.ⁱⁱ How can one spend less and achieve more?

Over the past eight years, the UK Government has made strides in digital transformation: the practice of evolving organisations by adopting the culture, processes, and technologies of the internet era, to spend less, achieve more, and innovate faster.

This transformation has paid off. Thanks to the spending controls and service re-design introduced by the Government Digital Service as part of its digital transformation effort, £3.56bn were saved between 2012-15.ⁱⁱⁱ At the same time, 120 new digital and technology leaders joined government,^{iv} broadening its cache of skills. As a result, the UK topped international indices, including the UN e-Government index.^v

Despite this progress, the National Audit Office’s 2017 review of progress on digital transformation^{vi} found that some of the early promises of digital transformation have not been fully realised. The rules and processes that regulate how the government budgets for and spends on digital technology are a barrier to scaling the benefits of government innovation.

As the 2019 spending review approaches,^{vii} this paper identifies recommendations for the UK Government for spending smarter and delivering better citizen services, with the aid of technology:

1. *Her Majesty’s Treasury (HMT) should empower Accounting Officers to reallocate planned capital expenditure for digital technology to operating spend.*
2. *Government should innovate via “safe pilots” for smarter spending.*
3. *The Treasury should launch a “Centre of Excellence for Smarter Spending.”*
4. *The Government Digital Service should update the forecast of savings from digital transformation – and account for the cost of legacy IT systems and contracts.*

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ⁱ "Sprint 18: helping government work better for everyone," *Civil Service Blog*. 26 April, 2018.

<https://civilservice.blog.gov.uk/2018/04/26/sprint-18-helping-Government-work-better-for-everyone/>

ⁱⁱ "Public spending: delaying the squeeze," *Institute Fiscal Studies*. 2017.

https://www.ifs.org.uk/uploads/budgets/budget_autumn2017/Public%20spending_delaying%20the%20squeeze.pdf

ⁱⁱⁱ "How digital and technology transformation saved 1.7bn last year," Government Digital Service Blog. 23 October 2015.

<https://gds.blog.gov.uk/2015/10/23/how-digital-and-technology-transformation-saved-1-7bn-last-year/>

^{iv} "Hire the head and the body will follow," Government Digital Service Blog. 24 July, 2015.

<https://gds.blog.gov.uk/2015/07/24/hire-the-head-and-the-body-will-follow/>

^v "e-Government Survey," *United Nations*. 2016. <https://publicadministration.un.org/egovkb/en-us/reports/un-e-Government-survey-2016>

^{vi} "Digital Transformation in Government," *National Audit Office*. March, 2017.

<https://www.nao.org.uk/wp-content/uploads/2017/03/Digital-transformation-in-Government.pdf>

^{vii} "Britain plans a departmental spending review next year," *Reuters*. 23 January, 2018. <https://uk.reuters.com/article/uk-britain-politics-spending/britain-plans-a-departmental-spending-review-next-year-idUKKBN1FC28T>

Key Challenges for the UK Government

CURRENT BUDGET RULES CONSTRAIN GOVERNMENT'S ABILITY TO INNOVATE

Traditionally, public institutions have purchased Information Technology (IT) via capital expenditures (capital): a predefined allocation of money over a fixed term – generally, multi-year contracts worth millions of pounds. However, this mechanism clashes with government's need to constantly update IT, now that the pace of innovation makes technology obsolete on a regular basis. When contracts tie government to a specific technology via capital, Accounting Officers (AOs) have little freedom to choose alternatives because they will not get budget assigned until the contract expires.

AOs are under pressure to meet spending limits approved by Parliament¹ – and saving targets. In the UK Government, the AO is personally responsible and accountable for allocated public funds.² The price for missing the predetermined targets for spending control is questioned by the Public Accounts Committee – the Parliamentary spending oversight body – which means reputational damage for departments. Since 2010, AOs have seen their resource budgets (devoted to the daily management, maintenance, improvement, and delivery of government services) squeezed.

In other words:

- Without ongoing investment, technology decays, data integrity declines, and technical personnel who understand the intricacies of the service operation leave. Capital spending does not give government the flexibility to make that investment, and governance structures do not focus on long-term ownership.
- Government is limited in the advantage it can take of newer, more flexible technologies that allow for smarter spend and better delivery through pay-per-use, on-demand cloud services. Government would benefit from flexible, secure, and innovative services. On-demand technology can be efficiently financed via resource spend, since capital-intensive commitments prevent government from adapting its technology spend – and usage – to the needs of the day.

¹ Parliament agrees the spending control totals for each Department in the Estimates Process.

² "Accountability to Parliament for taxpayers' money," House of Commons Committee of Public Accounts. 27 April, 2016. <https://publications.parliament.uk/pa/cm201516/cmselect/cmpubacc/732/732.pdf>

Paradoxically, the current UK budgetary control framework,³ paired with tight administration budgets, may prevent departments from delivering on their objectives. The Institute for Government and CIPFA's Performance Tracker⁴ estimates that the short-term focus of government spending guidelines contributes to a cycle of reactive crisis management that costs the public sector £10 billion yearly.

COMPLEX DECISION-MAKING LEADS TO SLOW, SECOND-BEST CHOICES

The challenge government faces to effectively and efficiently finance transformation is not just a rules problem; it is also a management issue. In a piece on "What a digital organisation looks like"⁵, Janet Hughes, former Programme Director for GOV.UK Verify and of DotEveryone, identifies the issue:

"It is somehow still socially acceptable for leaders to say they don't understand the changes that are being brought into our lives by digital technology, as though it's some kind of niche topic that only specialists need bother themselves with. Digital technology isn't niche — it affects most aspects of our lives, and most aspects of the strategy and operations of most organisations."

There can be distance between those responsible for delivering a project and those who own the decisions on spending and resources. Financial approvals reside with Treasury, which expects timely implementation of detailed business cases. As a consequence, transformation teams can lose the autonomy to experiment and innovate. They feel compelled to focus on shaving revenue spending to comply with spending controls, while committing capital to be able to retain the same budget – or obtain more. Thus, departments end up propping up existing IT contracts discounting the risks from old technology, because resources are only available in the form of capital.

Digital transformation requires management to have a comprehensive understanding of how the financial, operational, technical, and strategic aspects of delivery interact. It is best delivered via a "portfolio governance" approach: a management model where cross-functional teams are aligned on outcomes, but are flexible in how to achieve them.

³ "Consolidated budgeting guidance 2018 to 2019," *HM Treasury*. 15 February, 2018.
<https://www.gov.uk/government/publications/consolidated-budgeting-guidance-2018-to-2019>

⁴ "Performance Tracker," *Institute for Government*. Autumn 2017.
<https://www.instituteforGovernment.org.uk/publications/performance-tracker-autumn-2017>

⁵ Janet Huges, "What a Digital Organisation Looks Like," *Medium*. 6 June, 2017.
<https://medium.com/doteveryone/what-a-digital-organisation-looks-like-82426a210ab8>

As the authors of the *Boiling Frogs* paper by GCHQ (the Government Communications Headquarters) noted:⁶

“Complex organisations that work across various areas of the Commoditization Scale often need fundamentally different working practices for distinct areas of the scale, and indeed to evolve work across those areas. Attempting to apply a single form of working (e.g. classic Project Management or Emergent Agile Architecture) across all areas, as a single predefined structure simply does not work.”

This model helps those close to service delivery have knowledge of the project and feel empowered to make operational decisions. Meanwhile, managers can guide service teams toward government outcomes.

Today, government does not have the management structures, tools, and culture to manage through a portfolio and can appear to favour large, often complex programmes. It risks incurring unnecessary expenditure and less transformation because spending can be uncoordinated and service teams are more focused on managing the budget than innovating.⁷

LEGACY CONTRACTS EXPOSE GOVERNMENT TO UNFORESEEN COSTS AND CRISIS MANAGEMENT

The absence of a clear view of departments' technology portfolios restrict government's ability to escape complex, established contracts and expose government to unforeseen costs. This is especially challenging in an environment where government has so many, varied priorities.⁸

For several years, the secure messaging systems used in the criminal justice system have been considered outmoded and ripe for replacement with significantly cheaper commodity technologies. Since finance hasn't been available to invest in developing alternatives prior to the end of contracts, the responsible departments have had no option but to renew contracts. Similar challenges exist across the system.

⁶ “Boiling Frogs,” GCHQ. May 19, 2016. https://github.com/gchq/BoilingFrogs/blob/master/GCHQ_Boiling_Frogs.pdf

⁷ In 2012 Cabinet Office introduced Spending controls to provide a whole of government view of all commercial contracts over £10m, planned digital spend over £100K and technology spend over £5m as well as *novel and contentious* spending such as automatic contract extensions, new hosting contracts over 2 years or investments in emerging technologies.

⁸ Recent Institute for Government research identified 1,081 'priorities', In departments' plans – “Too Many Priorities Mean No Priorities,” *Institute for Government*. 1 June, 2018. <https://www.instituteforgovernment.org.uk/blog/too-many-priorities-mean-no-priorities>

The Cabinet Office identified £3.8 billion worth of contracts due to expire between 2017 and 2020, in addition to hundreds of smaller contracts.⁹ The “Ocean Liner” review¹⁰ undertaken by the Cabinet Office in 2016 emphasised the complexity of managing contract exits. The NAO’s 2013 report on “Managing the Risks of Legacy ICT on Public Service Delivery”¹¹ warned about the challenges of measuring the risks of legacy IT contracts.

The flexibility that comes from shorter, more specific contracts would return resources for upgrading technology to on-demand services, modernising operations, investing in human capital, and growing savings. For instance, the successful exit from the 13-year Partners Achieving Change Together (PACT) contract earned the Driver and Vehicle Licensing Agency (DVLA)¹² £70 million – from re-tendering – in addition to £22.5 million per year from initial efficiencies.

Today, legacy contracts emerge when they need imminent renewal, often too late to change course. They cannot be discontinued as easily as switching off a pay-per-use service. Skilled staff are forced to react to crises, rather than deliver services strategically.

LEGACY SYSTEMS AND RULES ARE STRUCTURAL RISKS TO GOVERNMENT

The lack of a portfolio view into government’s technology estate, as well as legacy IT contracts, has translated into a cybersecurity risk for the UK Government. The Government Security Directorate called out government’s inability to establish a clear picture of what systems it owns and what it currently finances as a vulnerability, at the CyberUK Leadership conference, hosted by the National Cyber Security Centre in April 2018.

In taking steps to avert risks, teams must be equipped with dashboards to continually track the health of systems and automate security and compliance procedures – which cloud services make possible. The security risks of a technology choice cannot be fully understood upfront, but adequate and ongoing maintenance can minimise, if not prevent, a compromising situation. In addition to security

⁹ Detailed figures for the number, size and scope of contracts to be expired are hard to obtain--an illustration in itself of the challenges to overcome--but the Complex Transactions Team within the Government Commercial Function indicated that there are IT contracts with a value of £3.8billion ending between 2017-20.

¹⁰ “Exiting Major IT Contracts,” UK Cabinet Office. 9 November, 2017.

<https://www.gov.uk/Government/publications/exiting-major-it-contracts>

¹¹ “Managing the risks of legacy ICT to public service delivery,” *National Audit Office*. September 11, 2013.

<https://www.nao.org.uk/report/managing-risks-legacy-ict-public-service-delivery-2/>

¹²https://assets.publishing.service.gov.uk/Government/uploads/system/uploads/attachment_data/file/658162/6.3634_CCS_GCF_Gov_Shared_Learning_Exiting_Major_IT_Contracts_FINAL_081117.pdf

benefits of keeping technology up to date is the priority of clear ownership. Cloud providers can help establish ownership with a “Shared Responsibility” model.

“Shared Responsibility”

Most cloud providers use the term “shared responsibility” to help customers understand that neither party is solely responsible for the security of a product built on the cloud.

As Amazon Web Services (AWS) puts it, “AWS is responsible for protecting the infrastructure that runs all of the services offered in the AWS Cloud,” while “customer responsibility will be determined by the AWS Cloud services that a customer selects.”

The model helps teams understand what they can expect of their providers, and what they themselves need to take care of.

Reforms to security policy over the past few years have removed rules that obstruct updating systems in favour of embracing more effective risk management and the opportunities cloud offers. However, the finances are often not in place to support those practices. In the case of WannaCry, many of the organisations affected were constrained by the cost of upgrading Windows, and by complex dependencies with other unmaintained pieces of software that were out of date. The Public Accounts Committee report¹³ published in March 2018 highlighted that “neither the Department [of Health] nor its arm’s-length bodies have estimated the financial impact of the WannaCry attack on the National Health Service,” noting that “without an understanding of the costs of WannaCry, national and local organisations cannot target investment in cyber security.”

¹³ “Cyber-attack on the NHS,” *House of Commons Committee of Public Accounts*. 18 April, 2018. <https://publications.parliament.uk/pa/cm201719/cmselect/cmpubacc/787/787.pdf>

Four Ways the UK Government Can Spend Smarter

The 2019 Spending Review provides the UK Government with an opportunity to introduce better ways of financing digital transformation, removing one of the main barriers for government to adopt the best technology to spend less, deliver services more effectively, operate safer, and innovate faster. The following recommendations intend to help the government realise that vision.

1. Her Majesty's Treasury (HMT) should empower Accounting Officers to reallocate planned capital expenditure for digital technology to operating spend.

Current budgetary controls only allow AOs to move from revenue to capital. The opposite should also be possible: AOs should be able to move budgets from capital to revenue within the total spending allocation when they can justify that a decision delivers long-term savings, rather than compliance with rules.

If AOs can demonstrate that a pay-per-use, subscription-based cloud service can deliver more effectively and efficiently over time, compared to the purchase of hardware or the development of custom software, then they – and their teams – should be granted the required operational resources. Government should develop mechanisms to assess teams on their capacity to deliver savings and results over time, rather than on short-term cost-savings. More revenue can help government deliver significantly more value.

2. Government should innovate via “safe pilots” for smarter spending.

Government should innovate via “safe pilots” for smarter spending. Developed and delivered jointly by HMT and NAO, teams responsible for specific government services, these experiments would help identify ways to innovate with technology during the lifespan of existing contracts, optimising operations and maximising value. The portfolio of pilots should include a template for how to invest in an existing technology so that it is maintained over time and is more secure. It should introduce new services funded in an agile way via revenue, to compare performance vis-à-vis traditional capital-intensive, fixed-term programmes. These instruments can provide government with data to make optimal decisions, as it manages contract exits and invests in new technologies.

The formal announcement in May 2018 of a revamp of spend controls for IT – which will be assessed against the Technology Code of Practice to test for modernisation – is welcome news.

The public sector, like any other sector, cannot eliminate risk. It must manage it effectively. While remaining mindful that public money should be attentively administered, public institutions should create space for experimentation: learning must be seen as an investment in innovation to optimise the use of public resources, at least via designated pilots.

3. The Treasury should launch a “Centre of Excellence for Smarter Spending”.

This Centre of Excellence (CoE) would consist of a cross-functional team of Treasury officials, auditors, developers, and programme managers tasked with developing and delivering a strategy for smarter spending enabled by technology, and identifying best practices. The CoE would be in charge of the experimental pilots for smarter spending (Recommendation 2, above), including full digitalization of the Online System for Central Accounting and Reporting (OSCAR), which provides key management information and data for public reporting.

The creation of a CoE would also require government to offer Directors, Director-Generals, and Senior Responsible Officers training and certifications in technology services to help them manage in data-driven ways. The training would include adopting a “portfolio governance” approach, and help managers develop cloud-based dashboards to acquire visibility of portfolios; be transparent in the way they monitor, allocate, and report on spending; and shift from programme management to daily improvements. This way, government will take full advantage of effective frameworks for the adoption of technology such as G-Cloud.

4. The Government Digital Service should update the forecast of savings from digital transformation - and account for the cost of legacy IT systems and contracts.

Today, the UK Government does not account for the costs and risks of ‘technical debt’ – and its last Digital Efficiency Report was in 2012. As the government prepares to review its spending, it should develop a methodology to assess the costs of maintaining its technology footprint, versus the benefits of investing in flexible, on-demand technologies like the cloud. This would enable the government to better manage the risk called out at the CyberUK Leadership conference in April 2018: the inability to establish a clear picture of what systems government has and what it currently finances.

In review: Spending Smarter and Delivering Better with Technology

Cabinet Secretary Jeremy Heywood's recent words on helping Government work better for everyone, the benefits of a digitised government are timely:¹⁴

"... Because many people rely on public services, developing effective user-focused digital services is perhaps more important for Government than any other organisation. As well as saving time and taxpayers' money, it improves the relationship between citizen and state."

The UK government has made significant strides, and is praised internationally for its achievements. To further unlock the benefits of digital transformation, it needs to remove structural and operational barriers to technology adoption. With the long-lasting improvements that a digital transformation offers, the UK government should use its next Spending Review to make the requisite changes to help it realise this potential. As time passes and budgetary pressure mounts, digital transformation becomes a financial opportunity for government – and the citizens it serves.

¹⁴ <https://civilservice.blog.gov.uk/2018/04/26/sprint-18-helping-Government-work-better-for-everyone/>

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