

Beyond 2020:

Where Next For The
Government's Digital
Strategy?



Cloud
Technology
Solutions

 Outsmart your future.

Foreword

Embracing digital transformation is increasingly essential for the UK Government.

Its everyday business requires departments, agencies and local authorities to work together effectively to meet the needs of citizens. Whether it's providing essential welfare services, accurately recording and storing population data or responding to the demands placed on healthcare – the IT infrastructure underpinning Government plays a key role. And the Government must also meet these requirements while striving to stay within heavily-scrutinised budgets.

In light of these challenges, it is unsurprising that the UK Government is exploring how digital transformation can help it function more efficiently and effectively. A landscape of creaking legacy IT systems and low-quality data siloed across different departments impedes agility and responsiveness. Ultimately, this hampers the Government's ability to function effectively.

Our report on the Government's digital estate comes at an important time. As the Government Transformation Strategy 2017-2020 comes to an end – key questions remain on the future framework for digitalisation across Government. What is the current state of digital transformation? What are the key challenges that Government still faces? What should the forthcoming National Data Strategy focus on achieving?

In this report, we will be taking stock of achievements to date, while outlining a road map for the future. As an increasing number of businesses and organisations embrace the benefits digital transformation can deliver – increasing productivity, providing user-friendly online services and improving decision making through data-led insight – the Government cannot afford to be left behind.

We hope this report will give decision makers across Government a reason to pause for thought over future direction and priority areas for investment. Whatever digital direction the Government takes next will shape the future of public services long into the future.

Alison King
Public Sector
Cloud Expert





Introduction

Data holds huge potential. It's a fact widely recognised by governments across the globe. And, increasingly, these governments are seeking to use data to uncover new insights, improve the provision of services and inform better decisions.

The UK Government is no different in this respect. The Government Digital Service (GDS) has published its Transformation Strategy 2017 – 2020^[1] and made significant progress in overhauling the digital adoption of many departments. However, as we approach the end of the strategy, decision makers must consider what its next steps will be.

Whether a department aims to renew its infrastructure, use its data better, increase productivity and collaboration or simply modernise its applications and processes, this marks a crucial period for digital transformation in the Government. A failure to embrace such transformation could inhibit the Government's ability to meet the needs of its citizens at a time when public trust is fragile.

Starting with a brief assessment of the Government's current digital situation, followed by identifying the key challenges it faces, this report explores the various opportunities available to the Executive around cloud infrastructure, data analysis, Artificial Intelligence (AI) and data storage.

Current state of play

The Government Transformation Strategy, released in 2017, covers a range of key objectives relating to various aspects of the adoption of technology. It advises on technology's role in the transformation of citizen-facing services, departments themselves and across Government as a whole.

At its core, the strategy aims to help the UK Government better understand citizens' needs, assemble services more quickly, and continually improve services based on data and evidence. A particular focus is also placed on making processes more user-friendly, both in terms of digital accessibility and transparency of activities and spending.

To date, there has already been considerable progress towards meeting the objectives of the transformation strategy, such as the ongoing development of GOV.UK – a successor to DirectGov. This hub hosts multiple Government functions in a single location to improve the public's interaction with Government online.

There have also been many other public-facing initiatives in individual departments. Several have now implemented their own digital schemes and, with help from GDS departments, 25 services have been radically rebuilt to make them 'digital by default'. HM Revenue and Customs has launched the 'Making Tax Digital' scheme, the Department for Work and Pensions (DWP) is re-engineering the welfare system, and HM Courts and Tribunals Service (HMCTS) is modernising the court system.





Behind the scenes, advancements have also been made in the areas of data analysis and interpretation. This includes the appointment of data analysts and behavioural scientists, particularly in the areas of policy development and predictive models designed to improve decision making.

It's clear that the Government's technology estate is radically different from where it was in 2017 as a result. But, as the current strategy nears its end, the question of what happens next remains. This marks a crucial time for the Government to accelerate digital adoption across all departments and utilise its modernised estates to reap bigger benefits through new emerging technologies.

The autonomy of Government departments means levels of digital adoption vary between them. As a result, there is still more to be done across Government to unify its approach to transformation.

Beyond this, the pace of change in the technology sector as a whole means that there are a range of new systems available to further the digital agenda. For instance, adoption of AI and Machine Learning (ML) has been slow to date, yet the technology behind systems on the market has progressed considerably since 2017 making them easier to adopt than ever.

Meanwhile, there are numerous opportunities for Government agencies to take their understanding of data to the next level. The way Government stores data and how it is managed could have a huge impact on public services. With considerable progress being made in the world of cloud computing and infrastructure, now is the perfect time for the Government to put this at the forefront of its strategy.

Barriers to widescale digital adoption

All organisations face a variety of potential barriers to digital transformation, and Government departments are no different.



Security

When it comes to personal data relating to members of the public, security is paramount. Despite the considerable advantages of cloud computing, however, there can still be a reluctance to adopt it as a solution. Often, this is based on the misconception that cloud storage is less secure than on-premise infrastructure.

Cloud providers are all too aware of concerns over data security, which is why considerable progress has been made towards showcasing just how safe the cloud really is. Thanks to Google data centre maintenance, for instance, departments can benefit from industry-leading security systems and processes. In fact, many organisations opted for cloud storage mainly because of the security benefits it offers^[1].



Legacy IT

Many Government departments still rely on older IT systems and ways of working, and all-too-often it's easy to operate with a 'if it isn't broke, don't fix it' mantra. Yet, Government departments could be missing out on the opportunity to increase productivity, understand their data better, and ultimately provide a more efficient service.

While there is not a one-size-fits-all solution, it is important that any proposed changes can be rolled out equally across all departments, and then fine-tuned for individual requirements. Departments can use APIs to extract information from legacy systems, which helps to improve the exchange of information and enable data-sharing for more up-to-date solutions.



Data silos

Data is crucial to the way Government delivers services for citizens, improves its own systems and processes, and makes decisions⁽ⁱⁱⁱ⁾. Whether through ML or AI, the true value of data is unlocked when it is part of the bigger picture; allowing links to be made between the data stored in separate departments. This can't be done while data storage is siloed across individual departments.

Understanding that higher-quality data can lead to significant service improvements is the first step. Then, Government as a whole must consider how to tackle the culture of tolerating and working around poor-quality data. Inter-departmental cooperation should underpin future digital transformation to ensure that data can be easily shared and accessed.



Change management

Successful digital transformation involves a sizeable degree of change. In departments where systems and processes have been the same for many years, it's understandable that there may be some resistance to digital transformation. Unfortunately, such resistance can also mean that solutions aren't used to their full potential. This is often true where fundamental changes have been made to software like email clients or word processors.

An effective training plan is critical to managing this process of change. When all users understand the importance of the changes, not just to their own daily work but to the bigger picture, it's much easier to initiate buy-in and a positive attitude towards transformation. In addition, it may also be necessary to have a plan in place to phase out legacy IT systems, highlighting the timeframe for individual users' migrations and the deadline for understanding the new systems' functionality. Major digital projects, such as cloud migration, can also involve adopting new pieces of software. However, these are often designed so that they are easy to use and slot into an organisation's existing operations. For example, Google's BigQuery data warehouse is fully managed by Google itself and is available through a subscription model, removing the need for internal teams to sink time into its set up.





Political influences

Government departments are uniquely beholden to a variety of political influences, many of which can impact the approaches taken towards digital transformation. This could be anything from a significant development like a change in Government or the impact of Brexit on data storage to the creation of new policies that require Government to record new information.

It is therefore important that Government departments employ a strategy that is flexible enough to account for these political influences. In many cases, moving to a modern, flexible infrastructure is likely to be part of the solution as it can make data storage more adaptable to change – both in terms of scalability and in terms of accessibility between departments.



Opportunities presented by digital transformation

Embracing digital transformation can unlock a variety of advantages for Government - namely improving delivery of public services, increasing productivity and collaboration across departments and uncovering new insights from data.



Cloud
Technology
Solutions

Outsmart your future.



More efficient operations

A scalable, modern IT environment can help Government future-proof its IT estate. The scalability and flexibility that public cloud infrastructures offer can allow Government to increase the bandwidth of its IT systems without the need for significant upfront investment.

The need to invest in hardware to expand capacity is mitigated while the amount of resource required can be flexed up and down quickly and easily. This means that public cloud provides a more a cost-effective solution than on-premise infrastructure.

With servers hosted and maintained offsite, this also frees up resource within Government IT departments as they no longer have to worry about maintaining and updating hardware. This also leads to enhanced security, as systems are backed up across multiple data centres and gain from constant monitoring provided by vendors such as Google, Microsoft and Amazon.

New applications can also be built and run on cloud infrastructure more easily than before. In fact, migrating existing applications to the cloud often helps aid their performance too. This is something that the Department for Transport took advantage of when it migrated its LENNON application to cloud infrastructure. The application monitors rail network ticket sales and franchise earning across the UK and migrating it has helped reduce the time taken to execute multiple data queries from hours to seconds - improving productivity in the department.



Greater collaboration and productivity

A widespread approach to cloud would unlock significant productivity gains by allowing users to work on documents on a range of devices, in a variety of locations, and at the same time as other colleagues.

As the UK seeks to address its productivity puzzle, harnessing the potential of cloud productivity tools could help the UK Government lead on this issue through enhanced collaboration.

Real-time updates to documents help ease the administrative burden associated with document version control and the filing of documents. And by utilising productivity tools which bring a number of applications into one system – work processes can be made simpler and quicker. In turn, this could create additional capacity within existing teams and help foster a more productive culture.



Unique, data-driven insight

The ability to integrate data across Government departments and agencies is one of the most exciting opportunities that digital transformation presents. Currently, a large amount of data held by Government is siloed, restricting depth of insight that can be drawn from it.

Better integration of data through the creation of data lakes that pull together data from multiple areas of the Government could uncover a wealth of currently untapped insight. ML can be used to rapidly analyse this data to identify key trends that could have significant implications for how public services are delivered.

As well as providing a depth of insight now, enhanced data modelling would allow departments to make more informed decisions. For example, combining population data with information on large events taking place in a region could help inform traffic management measures more accurately. And Met Office insight could be used to plan public transport services – helping local and central Government to put in place contingency measures to ease the impact of bad weather conditions.

Investing in the tools that allow data to be analysed rapidly – and applications that present the resulting insights in a clear, visual and integrated way – is another important component. The ability to create data dashboards, which outline key insights, is central to data's utility, shareability and applicability across Government.



Leading examples of digital innovation in Government



Department
for Transport

Department for Transport

The ability to action queries on the vast volume of data the Department for Transport (DfT) holds is crucial to informing the way transport services across the country are run. For rail, which provides some of the UK's most important transport infrastructure, these queries are run by the DfT's rail technical and data management team using the Latest Earnings Networked Nationally Overnight (LENNON) application.

LENNON is a 100 terabyte application which tracks data from ticket sales to franchise earnings across the UK's rail network. The in-house application previously relied on legacy on-premise data centres to retrieve this information.

However, the DfT recognised that the infrastructure had several downsides. Firstly, manual maintenance was regularly needed simply to keep the system running. In addition, the infrastructure was not easily scalable and executing multiple data queries could take long periods of time.

To remedy this, the DfT worked with Cloud Technology Solutions (CTS) and Google to build a data lake and migrate LENNON to Google Cloud Platform (GCP).

On GCP, the DfT gained a raft of new improvements to the LENNON application. It is now possible to run multiple data queries simultaneously on the system, with data queries returning visualised results 20 times faster than before. Results for many queries can now be generated in as little as 20 seconds, rather than several hours. This means better, more timely insight can be used to inform decisions made about the UK's rail network

Reduced query times has also freed up resources for the department, helping to increase capacity and productivity. Using Google's data centres has also eliminated the need for manual maintenance that was required for the on-premise infrastructure – unlocking more invaluable time for the team. And Google's data centre maintenance also ensures that the hosting platform for LENNON benefits from the industry's best security.

Having successfully migrated LENNON to GCP, the DfT is now looking to use the project as a blueprint from which to migrate other applications from within the department.

Beyond 2020: recommendations for the Government's National Data Strategy

The UK Government has made some headway in exploring digital solutions to help it improve its operations. While progress has been made, it has been somewhat piecemeal so far. Universal adoption across Government departments, as well as within individual departments themselves, hasn't happened yet.

As the Government looks beyond its current transformation strategy and consults on its forthcoming National Data Strategy, we believe there are key steps it can take to become a world leader in digital transformation.

Commit to cloud-first approach by 2025

Investing in a modernised IT infrastructure not only makes commercial sense, it is also key to fully unlocking the potential of collaborative working and data analysis. This would help the UK Government deliver a more cost-effective and sustainable IT infrastructure fit for the future. Conversely, failure to adopt cloud infrastructure could see the UK Government lag behind other more tech-savvy governments.

A commitment to ensuring all departments operate a cloud-first approach by 2025 needs to be central to the Government's National Data Strategy. This would in turn help support a more agile and responsive state, with a net boost to productivity. At the same time, it would lay the foundation for innovative applications that further improve operations and public services to be developed.

With cloud-first becoming the preferred option for many businesses and organisations across the UK, we believe committing to a cloud-first approach by 2025 is both essential and eminently achievable.



Place change management and the heart of digital transformation

Any major digital transformation project also necessitates a wider cultural change to improve teams' familiarity with new systems in order to unlock the benefits of the technology. Existing teams may need to work in new ways to make effective use of new tools, processes and applications.

Meanwhile the public may have to be encouraged to use new systems they're not used to and may need to be guided along the journey in the same way. Building trust and confidence in the process of digital transformation is therefore critical to the success of this change management. Given the important nature of the public services the state provides, being able to present a watertight case to internal and external stakeholders should be a key priority.



Prioritise data integration across Government

At the same time, investment in technology by the Government could also provide an opportunity to create new jobs in data science. These roles can help accelerate the use of new technology adopted as part of the transformation strategy. Beyond 2020 these data-experts could be fundamental to creating a cross-departmental framework that allows different agencies to access a centralised repository for data.

A standardised approach to data collection across Government departments can deliver a step change in the way public services are delivered. Improved data collection processes would help alleviate the National Audit Office's concerns on the poor quality of data held by Government.

This improved accessibility of data can also play a key role in boosting productivity by allowing insights to be gathered, presented and actioned more rapidly than ever before. In many cases, data lakes will be able to provide real-time insight that can be used by Government departments to better understand peaks and troughs in demand for public services – ensuring their delivery is optimised.

Placing data at the centre of its operations is one of the most effective things Government can do to fully realise the benefits digital transformation can bring. And, as such, it should be a long-term focus for the future National Data Strategy.

Conclusion

Let's be clear, the UK Government recognises the need to embrace digital transformation.

The culture of transformation has been a core focus for some departments that are now using technology in far more innovative ways to make better decisions and improve public services.

However, transformation to date could be described as somewhat sporadic and irregular when looking at central Government as a whole. This is what the forthcoming National Data Strategy needs to resolve.

In many instances, data quality is poor and it sits in silos – restricting the insights that can be drawn overall. Breaking down these data silos to create a deeper pool of shared data must be a key priority as Government aims to evolve the way public services are delivered.

Modernising IT infrastructure across Government is also key to improving operational efficiency and fostering a more productive working environment based on collaboration. Again, while some progress has been made here, the next step for Government is for cloud infrastructure to become the rule rather than the exception. That is why we are urging the Government to commit to operating a cloud-first approach by 2025 – a move that could deliver numerous benefits from lower cost to greater efficiency and improved security.

Much now rests on the ambitions laid out in the National Data Strategy. We firmly believe that if the Government is bold and ambitious in its approach to digital transformation then the next five years could see it become a world leader in this area. An outcome that would be transformative for Government and the public alike.

Alison King

Public Sector Cloud Expert

Call: **07847 302291**

Email: alison.king@cloudsolutions.co.uk

