

Digital Transformation in the UK Government

A Research Programme

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Abstract— This ongoing research programme tells the story of the successful digital transformation initiative conducted by the UK government between 2010 and 2019. Spearheaded by the Government Digital Services (GDS) unit, a part of the UK Cabinet Office, the ‘Digital by Default’ programme redefined the way information technology (IT) solutions could be developed in the public sector and showed that it is possible for digital technology to streamline and improve online delivery of government services for citizens. The research documents the trajectory of the initiative from its beginning in 2010 to the establishment of a mature GDS in 2019, addressing such themes as the political and social imperatives that led to GDS; the role of key individuals in the project and the challenges of introducing radical technology-driven change into central government. Based on data collected from the main participants in the transformation programme, it identifies the enabling factors, the transformation initiatives, and the successes and failures experienced along the way. This paper outlines the context of the overall research programme and highlights emerging themes. These include identification of success factors, such as the necessity of obtaining senior political sponsorship at every stage, the dependence on people and skills to make the change happen, and the huge effort required to change culture and mindset in sometimes labyrinthine, stolid and vast government departments. It also provides a perspective on some of the challenges faced, and failed expectations of the programme. Although much of the data was collected in 2018, it is acknowledged that change of this scale takes time. Accordingly, a follow-up round of data gathering and analysis is planned in 2026 to assess the lasting effects of this transformation.

Keywords: *digital transformation; government; UK Government Digital Services.*

I. INTRODUCTION

In recent years, digital technology has become pervasive, easy to use and affordable. Almost all aspects of modern life have been transformed by the availability of online services, and for many people, digital technology (the ‘digital channel’) is the preferred and increasingly the only way to use business services. In many industries, companies use digital channels to provide services not only because it is what customers want, but also because it is less expensive, easier to use and easier to change.

Use of digital technology to provide public services is not widespread. In the UK, for the most part, government services are provided to citizens using non-digital means such as mail, meetings and telephone calls. Moreover, the UK government has had a mixed track record of getting value for its sizeable IT investment over the past 30 years and has a poor reputation for procuring and deploying technology effectively [9]. Writing in 2004, Sir John Bourn, the head of the National Audit Office noted that: “The history of failure of major IT-enabled projects has been characterised by overspends, delays, poor performance and abandonment of projects at major cost.” [18]. In 2011, his successor Sir Amyas Morse, speaking about the £12 billion National Health Service (NHS) National Programme for IT (NPfIT), said: “This is yet another example of a department fundamentally underestimating the scale and complexity of a major IT-enabled change programme.” [19]. The UK is not alone in struggling with public IT projects. Many of the developed economies have suffered expensive project failures, such as the troubled implementation of HealthCare.gov (‘Obamacare’) in the US [12] and the problems experienced with implementing the Queensland Health Payroll System in Australia [4].

The structure of this paper is as follows. In Section 2, the origin and outcome of the GDS digital by default programme is summarised. Section 3 describes the context and methodology of the research, and Section 4 sets out preliminary conclusions and emerging themes. The paper concludes by setting out the planned stages of further research in Section 5.

II. A SUCCESSFUL PUBLIC SECTOR TRANSFORMATION

Public sector projects are not doomed to failure. More enterprising administrations have seen in the online world and associated development technologies an opportunity to remodel the way in which government services are provided to citizens. An exemplar is the former Soviet Republic of Estonia, which has developed one of the world’s foremost digital democracies underpinned by a robust, ubiquitous digital infrastructure, and capable of providing all government services to the citizen via online channels [13].

Another striking success has been the digital transformation effected in the UK. In 2010, a general election brought to power a government formed by a coalition of the Liberal Democrat and Conservative parties. On taking office,

this government set up an organisation called the Efficiency and Reform Group (ERG) with the aims of saving money, transforming the way public services are delivered, improving user experience and supporting UK growth. A letter from Martha Lane Fox, the government's Digital Champion, had earlier urged a radical redesign of how government services should be provided to citizens [15]. Ostensibly in response to a request to review direct.gov, the UK government's online presence, the letter addressed a much wider question: how could the UK government use the Internet both to communicate and interact better with citizens and to deliver significant efficiency savings?

Ms. Lane Fox's recommendation was summarised in the subtitle to her report – 'Revolution, not Evolution'. Francis Maude, the government minister responsible for efficiency and reform, agreed to adopt all her recommendations. In 2011 he recruited Mike Bracken to lead a new government agency named Government Digital Services (GDS), which had an objective of making public services simpler and better by using digital technology. GDS set about building common digital platforms; changing the way government procures IT services; consolidating government online services and making them easy to access and use; and streamlining high-volume transaction services.

Within two years GDS and Bracken had changed the mindset about the UK government's capability to effect change using technology. It implemented the award-winning gov.uk portal, a simple, effective gateway for citizens to find information about public services. It identified 25 services across government for end-to-end service redesign ('exemplars') to show how new approaches could make it easier for citizens to access services online and help remove unnecessary costs and to prove that central government departments could design and provide services efficiently through digital channels. Through the exemplars, GDS sought to change the perception of government as wasteful and slow in technology matters, and to position the UK government as a leader in digital transformation. In parallel, GDS re-designed government procurement to accommodate small and medium sized companies, opening competition to a wide range of innovative and flexible firms; and it championed the use of open-source technologies and agile development approaches, resulting in less dependency on large software vendors, quicker deployment and lower cost. This stimulated growth in the digital technology sector across the UK, predominantly for small to medium enterprises, and generated significant annual savings for the taxpayer [7].

In short, GDS showed that it is possible to provide easy to use, cost-effective online public services designed around the citizen's needs. Although in recent years, it has been criticised for failing to redefine its role as it has grown, it has nonetheless been recognised that it has 'successfully reshaped government's approach to technology and transformation' [20].

III. CONTEXT AND METHODOLOGY

This research paper lies at the intersection of technology (digital transformation) and history. It is primarily narrative and descriptive and does not purport to provide quantitative

scientific proofs. It is particularly important for such multidisciplinary research to be placed in a firm academic context, as described in this section.

A. Context

This research programme tells the story of GDS and the 'Digital by Default' programme by compiling a narrative history from those who were involved. This includes perspectives from citizens (users), policy makers, procurement specialists, technologists, and civil servants among others. The research documents the trajectory of the initiative from its beginning in 2011 to the establishment of a mature GDS in 2019, addressing such themes as the political and social imperatives that led to GDS; the role of key individuals in the project and the challenges of introducing radical technology-driven change into central government. The emphasis is on the narrative history, rather than on interpreting underlying or hidden meaning. This means identifying common themes, events, and milestones in the GDS story as perceived by those who participated in it: the intent of the research is to allow the voices of first-hand witnesses to tell the story, and to enliven a bland statement of events with anecdote, humour and perception.

B. Theory, Research Method and Data

Although it is difficult at this stage to nominate a dominant theoretical approach, the research references the information systems (IS) historiographical constructs expounded by Land [16] and Mason et al [17]. It also follows a view of historiography that emphasises the role of individuals rather than abstract forces in history [6]; although rather than using narrative as a rhetorical device, or depending solely on anecdote, the research underpins personal experiences with empirical data. In part, the narrative follows the lines of certain broader historical and social scholarship, including the traditions of social historical research exemplified by the historians Hobsbawm [11] and Zinn [25]. From an analytical point of view, the research uses grounded theory techniques [8].

Data informing the research comprises primary and secondary written reports, emails, blogs and other contemporary and current documented sources. The bulk of the data is derived from a series of face-to-face interviews with the principal actors, conducted in a 12-week period in the last quarter of 2018. The interviews were semi-structured and relatively informal in format, and covered the interviewee's background (before GDS), and their history and involvement in GDS. The aim of the interviews was to solicit views about actual events (recollection of what happened); to understand motivations and policies (why things happened); and outcomes (what transpired). In the course of these discussions, interviewees were prompted to present their views on such topics as the technology used, the policies adopted, the problems faced, as well as circumstantial descriptions concerning such elements as the work-environment; the style and form of individual engagement; and recruitment policies.

C. Significance of Research

In 1997, a paper in *MIS Quarterly*, the pre-eminent journal in the field of IS research, noted that “MIS as a discipline has not yet developed a tradition of historical research” [17]. Histories, according to one scholar, “...are powerful because they both create and reinforce collective identities... Having a history is important because what is articulated as having happened in the past profoundly affects all aspects of our lives and will affect what happens in the future” [3]. This research is, in part, a response to the challenge posed by Mason, Bryant and others. It presents a view of one of the most significant (and successful) deployments of information and digital technology at scale in the world today, and documents the role played by its pioneers and participants. In doing so, it brings some balance to the academic literature, which features a disproportionate number of studies on IT failure. Further, the research will inevitably have significance in academic disciplines outside the field of IS and digital transformation. It should, for example, be relevant to those interested in organisational theory (the transformation of business enabled by digital technology), and economics and social history (the social impact of process automation in the modern era).

Finally, there is the value of the research to industry. The UK government’s digital by default programme was one of those rare initiatives when something different happened: what was regarded as a dull, expensive and failure-prone domain became the centre for innovative and transformative activity, attracting the brightest and most talented people in the industry. Although there is some distance still to travel, what GDS and its originators achieved is undeniably positive for citizens, public servants, taxpayers and digital professionals in the UK and further afield. They showed that contrary to much of the evidence, implementing information technology projects in government could be done successfully with verve, flair and good deal of fun. Moreover, although the study is primarily focused on the UK, the research has global relevance and highlights similarity and specificity of digital transformation across different nations.

IV. PRIMARY EMERGING THEMES

The data highlights several consistent themes that permeate the transformation programme, from which some early observations can be made. First, the scale of the initiative dictated approach and tactics. A small team of ‘outsiders’ – for the most part enthusiastic and talented digital natives, many with no experience of working in the public sector – sought to influence and sometimes overturn decades of practice and settled protocol in organisations that numbered tens of thousands of seasoned, knowledgeable and competent civil servants, with annual budgets in hundreds of millions of pounds. This was no mean undertaking; rather it was a concerted attempt to use digital technology to change the way in which public services were planned, designed, procured and delivered. The GDS team were in this sense revolutionaries, and conversations with the team repeatedly draw attention to a zealous sense of mission and focus, a willingness to take risk, a tendency towards iconoclasm. This drew predictable responses from some civil servants, who felt

threatened by and therefore sought to derail the introduction of change. Among the incumbent IT practitioners, the GDS approach was frequently welcomed as a refreshing and empowering programme.

Three essential elements of the GDS approach appear to be critical success factors in the digital by default programme: agile development methodologies featuring user-focused design; accelerated procurement from small, nimble providers; and the use of open-source rather than proprietary technology and standards.

While this research programme will comment on these and other success factors in due course, at this early stage it is possible to identify the use of agile development methodologies as an outstanding enabling factor. From the 1990s, PRINCE2, a generic waterfall project management methodology with an emphasis on risk management, was widely used for government-funded projects. It mattered little that PRINCE2 had failed to mitigate the risk of several high-profile IT projects, such as the London Ambulance despatch system [1], and the methodology continued to sometimes be required or expected in large government departments. GDS believed that user-centric digital services would be more effectively designed and delivered by in-house IT specialists using agile software development methodologies, rather than by using large software solutions bought off the shelf or developed by global IT service providers, such as IBM, Accenture and Oracle. This iterative, user-centred approach using Scrum was at the heart of the GDS programme and featured heavily in the Service Design Manual and associated Digital by Default Service Standard, a set of guidelines and benchmarks for government departments on development of digital services [21]. (A current version of the Digital Services Standard, now titled ‘Service Manual’ was published in May 2022 [24]). It appealed to developers because it was less constraining and more empowering than traditional waterfall development. Moreover, it acknowledged the inherent uncertainty in large scale development projects and sought to develop solutions collaboratively with users rather than in a technology vacuum.

As for many successful IT programmes, success was enabled by factors that had little to do with technology. In the case of GDS, a relentless focus on communication at every level proved extremely influential in dictating the pace and raising the profile of the digital by default initiatives. This ranged from formal engagement with external stakeholders through government channels to informal blogging, networking and promotion encouraged in GDS and in exemplar government departments. It mattered that Mike Bracken himself was a consummate communicator, and he deployed considerable skill in countering scepticism at high levels of government [2]. The award of the prestigious Museum Design of the Year Award 2013 for the flagship gov.uk website – a radical redesign of the online portal to UK government websites into a single domain – was more an indication of GDS’s skill at communication than of its technical and design prowess [23].

Other themes, including those that illustrate programme weaknesses, will emerge from the data as analysis proceeds. Detractors of the programme have identified flaws in the GDS

approach, and it is true that the organization as it exists today is different in many key aspects to the revolutionary cadre of agile developers who formed the core of GDS in the beginning. Edgar [5] identifies collaboration between government departments as a particular systemic weakness, along with a continued lack of accountability for outcomes across departments. The NAO in its 2017 assessment pointed out that "...only six of the live exemplars and two of the publicly available trials had provided an integrated service by March 2015. Full transformation and digitisation was not achieved, either for the citizen or for government." [20]

Nonetheless, even those who viewed the digital by default programme with suspicion cannot deny the impact it has had on the way in which digital transformation has shaped how UK citizens now consume public services online. The full scope of this impact is ill-defined at present and requires further study.

V. CONCLUSION AND FUTURE WORK

This programme of research aims primarily to document the history of the UK's digital-by-default programme between 2013 and 2018, and in doing so to identify the extent to which the ambitions of the programme have been achieved. However, transformation at this scale takes a great deal of time, and in an organization as large and diverse as the UK public sector, the pace of change can be glacial. Nonetheless, the next stage of this research will attempt to assess the impact of GDS on the effectiveness of digital service provision to UK citizens by conducting a series of follow-up interviews in 2026. Although this represents a short time since the GDS programme terminated, much has happened in both political and IT domains. Notably, GDS now includes other government digital agencies such as the Central Digital and Data Office (CDDO), the Incubator for AI (i.AI) and Responsible Technology Adoption Unit. Yet, progress on wholesale transformation remains mixed and a report by the UK Public Accounts Committee [10] notes that successful digital transformation remains elusive and that the government remains far behind the private sector in its recruitment of the technology professionals needed to force change.

Research on this topic is also sparse. There is active comment in the form of blogs, such as those by Edgar and Thompson [5][22], but to date there has been no major academic study on digital policy and transformation in the UK public sector. Future work in this research programme intends to remedy this by publishing a complete account of the GDS experiment (in 2025); conducting a further round of data gathering and analysis with current stakeholders (in 2026); and publishing a comprehensive longitudinal study that addresses the ambitions and outcomes of UK government digitization over the past decades (in 2027).

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