

Managing evolving technologies for public sector transformation

Perspectives from UKAuthority's Powering Digital Public Services virtual conference 2022



Powering Digital Public Services 2022

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1. Ever evolving technology

It is now part of conventional wisdom that technology is changing more quickly than ever, and this has as big an effect on public services in the UK as anywhere.

The technologies that underpin many digital services are continually evolving, which provides new opportunities but also creates increasing complexity and a number of challenges for leaders in the sector. As the technology changes so do their requirements, and there are continual shifts in how the ICT estate must be managed.

This provided the background to UK Authority's Powering Digital Public Services 2022 conference, which brought together representatives of several public sector organisations and the ICT industry to outline some major changes and provide perspectives on how to manage the complexity. It produced a series of insights into the prominent technologies and how they can best be used to develop high quality services for the public good.

2. Changes in the cloud

Cloud has now been a significant part of the digital landscape for several years, and the trend towards moving more of the public sector ICT estate into cloud services has maintained a strong momentum.

But organisations are finding that there is seldom a solution for all their needs on one cloud service or platform, and the mantra of 'cloud first', despite it still being official policy for UK government, is now taking second place to thinking around 'cloud as appropriate'.

Multi-cloud future

Andrew Pudddephatt, director UK public sector for Nutanix, made the distinction between the traditional on-premise data centre, the dedicated environment of a private cloud – which could be on-premise – and public cloud offerings. A 'multi-cloud' hybrid of all these is becoming the favoured option for many organisations, in terms of where they are moving applications and the environment for their digital operations. This was borne out by an audience poll at the event in which 57% said their organisations are now operating in a multi-cloud environment.

It provides flexibility and high performance and can be cost-effective, but it also comes with challenges. Pudddephatt highlighted the need to ensure the interoperability of different cloud services – necessary to integrated data across clouds – along with security, the ability to move applications from one to another and to manage the costs.

Hybrid the new normal

Some organisations are showing this can be done, with Falkirk Council providing an example. Its team leader for network, infrastructure and cyber security, Murat Dilet, said it is focused for now on a hybrid cloud approach using the Nutanix platform, on which it has developed its private cloud, utilising a virtual desktop infrastructure with 70 virtual servers and a 100 physical to virtual conversions, along with the appropriate back-up functions.

This has provided the advantages of private cloud – such as reducing operational expenses and supporting the automation of workloads – along with the capability to extend more applications from the private to public cloud, or vice versa, when it helps to optimise operations. Also, the council is developing a

zero trust approach through a multi-device management system that includes anti-virus endpoints, patch management, device restriction and encryption, and the need for complex passwords or phrases to permit entry.

Complexity in legacy

David Price, director UK public sector at Rackspace Technology, also outlined the key challenges in managing a cloud estate. These include managing complex legacy applications, some of which are too difficult or costly to transfer to a cloud service, running an on-premise data centre when this remains part of the digital infrastructure, and managing the changes whenever a process is moved to cloud.

There are also the factors that it is not always possible to find a cloud service to support some operating models, that change often runs into internal resistance, and that it is always difficult to recruit and retain people with the right skills and experience to manage the systems.

But alongside this are encouraging signs in the growing familiarity with cloud environments – which will help organisations increase their capabilities and do more and more in the cloud – and the possibility of bringing control of these into a single view of data and applications held in different clouds. This will help to strengthen the understanding, support the adoption of further cloud platforms and help to achieve the benefits more quickly.

Price's contribution was accompanied by a description of the capabilities of one of the most extensive cloud platforms, Microsoft Azure, from enterprise specialist Jonathan Tapping. He reiterated the need to deal with complex issues in moving legacy applications to the platform, but said it is possible through delegated resource management in the Azure Lighthouse service.

3. Advances in automation

A more recent but increasingly prominent force in public sector digital is automation, with an increasing number of bodies now leveraging robotic process automation (RPA) in particular.

The most commonly perceived benefit is to provide more efficient back office processes – identified by 73% in one of the audience polls – but many are now seeing the potential in supporting the integration of systems into modern front ends (45%) and bridging gaps in the flow of data between systems (41%).

Automating acceleration

David Burrows, public sector industries leader for UiPath, said automation can accelerate the digital journey in three key areas: by transforming operational processes and integrating service management with other systems; transforming the citizen experience with more self-service; and transforming business models with the integration of new and legacy systems. The latter can combine with the capabilities of machine learning and artificial intelligence to create new value propositions in delivering services.

Many are looking for ways to accelerate the automation effort with a service design that can be quickly replicated around the organisation, while taking account of the demands of individual processes. The Department for Environment, Food and Rural Affairs (Defra) is emerging as a pioneer, with the creation of its Digital Robotic Automation Centre of Excellence having provided the momentum for a scaling up of the technology since it was set up in 2020.

Internal resource pays dividends

Service owner Dave More outlined its progress, which was predated by a proof of concept for automation over 2017-18, then implemented with a £1 million investment in the centre, supported by UiPath, as an internal resource to make new deployments faster and cheaper.

It set out 11 service design principles for using automation in the Defra group, of which More emphasised the importance of two. The first is not to assume that colleagues in the group business can tell the specialists everything they need to know the first time; it often takes reassessment and iteration to get things right. The second is a recognition of the importance of managing data quality and accuracy, which reduces the risk in automating a process, and deploying solutions in high supervision mode until they are validated by the partners.

New robot, new starter

More pointed to some key lessons from the centre's work so far, including the need to get business users to think of robots as new starters in a team which, like human workers, will raise their hands to ask for help. Others are: to recognise that incurred data entry has consequences downstream; that initial 'live proving' deployments, in which a robot pauses to ask the user to check their work before it is submitted, can bring a quick return on investment; that this approach negates the need for traditional user acceptance testing; and that once the robot is trusted it is possible to remove the pause points from the process.

The conference discussions also brought out the capacity of RPA to overcome a widespread problem for the public sector. Many organisations have found it very difficult and/or expensive to have application programme

interfaces (APIs) attached to legacy software for the transfer of data to other systems. In response, a growing number are using RPA to copy and transfer the data, a lot more quickly than could be done manually.

4. Breaking ground with 5G

5G networks are also emerging as big element in public sector thinking, especially as an infrastructure for the internet of things (IoT).

Robert Franks, managing director of WM5G – backed by the West Midlands Combined Authority and Department for Digital, Culture, Media and Sport as a technology testbed – said it is up to 10 times faster than 4G in transmitting data and can connect 20 times the number of sensors within a geographic area. This gives it the ability to deliver data in real time, down to milliseconds, if required for business critical applications.

He said a lot of work is needed to obtain the benefits of 5G, partly because the network roll out is currently slow and expensive, and it needs continual innovation to solve real world challenges – which where WM5G is involved. It has two strategic objectives: to accelerate the deployment of networks and to test, prove and scale 5G services.

Work on the latter includes three projects to harness 5G in healthcare: one to transmit ultrasound scans direct from an ambulance to a hospital where a clinician could diagnose any problems; the second to run 'remote ward rounds' of patients in care homes; the third to enable people with suspected bowel cancer to

use a small 'pill cam' to diagnose the condition at home rather than going to hospital for an endoscopy. WM5G is also working with NHS Digital on supporting people in social housing to monitor chronic diseases.

5. A single view of people and services

Platforms for online self-service have already emerged as a significant element of the digital estate for many public sector bodies.

Rob De Felice, business development director at IEG4, outlined how they can be especially important for local government, giving citizens a clear view of council services, integrate with back office systems using APIs, and provide a single sign-on to third party portals using industry standard protocols.

The capability to integrate data and processes from different sources can support development of community based services and give people a clear view of the options available where they live, which will be increasingly important in adult social care. It will also be enhanced as new offerings using machine learning and artificial intelligence become available.

6. Interoperability and working with suppliers

As the underpinning technologies evolve, the need to ensure that systems are interoperable remains as much of a challenge as ever.

This came up in the discussions, with the point that it has been a major issue for a long time but is still hard to manage - especially with a lack of standardisation among cloud providers. This can be an impediment to the development of new solutions.

Andrew Puddephatt said this is partly due to the commercial priorities of the hyperscale cloud providers, who do not want to make it easy for customers to move from one environment to another. When public sector bodies ensure systems based on one cloud platform work successfully with others it can be difficult to move away if they need to begin using different protocols and data standards.

Common data standards

There is a sense that developing common data standards to support this will not be enough, as it will take a big effort to get suppliers to adopt them. Robert Franks said there are similar challenges in the development of 5G, although it is at an earlier stage than cloud which provides more scope for the early adoption of standards to make it all work together. There is ongoing work on the issue for specific service areas such as social care, and this will be a significant factor in how the technology develops for public services as a whole.

Intellectual property issues can also stand in the way of finding solutions when they involve existing digital systems. Franks said that this sometimes emerges during trials, and efforts to develop new ways of working can be slowed down by debates over what is and is not subject to IP rules. One way to avoid this could be for public authorities and suppliers to engage at an early stage in the trialling of solutions so they clearly understand if there are any legal issues.

Working with suppliers

This reflected the thrust of a presentation by Georgina Maratheftis, associate director, local public services of IT industry association techUK. She emphasised the important of public sector bodies making connections and collaborating with suppliers at an early stage and pointed to the work of her organisation of bringing local authorities together with its members.

She outlined a plan to set up an innovator's network in which local authorities will be able to speak with suppliers about possible technology solutions to common challenges. This will act as a forum for peer-to-peer support and invited interested councils that are looking for new approaches to get in touch.

"Where we can add value is by signposting good practice and bringing local authorities together with suppliers to solve common challenges and bring together different suppliers to act as consortia to act in response to a challenge," Maratheftis said, adding: "We'll be creating forums focusing on common challenges to showcase innovation across the country and provide opportunities to connect with suppliers in a non-commercial environment. It will also provide a chance to demystify challenges and ask questions about emerging technologies to help realise what potential there is."

There is no doubt that there is plenty of scope for improvement in how public authorities work with suppliers. Audience polls revealed that 87% described it as 'a mixed bag', half said they need to work with a wider set of companies, and majorities identified significant problems in suppliers not integrating their systems (58%) and procurement processes providing an obstacle to an agile approach to service development (92%).

7. Public sector perspectives

Views were presented on how different parts of the public sector are facing up to the technology changes.

Eddie Copeland, director of the London Office of Technology and Innovation (LOTI), highlighted the achievement of local authorities in developing new tech and data solutions in response to the Covid-19 pandemic, saying that for some "the penny dropped" on the importance of data. But they are now faced with the large gap between what they need to spend, including on tech, and their revenues.

He said they need to do three things: get better with data, using not just their own but sharing effectively with others when possible and taking steps to build public trust; innovate to develop new service models, especially for social care, with a better targeting of resources; and bring in more people with expertise in digital and data, which he acknowledged as a big challenge given the limits on salaries in the public sector. This reflects much of the work LOTI has done with London boroughs and which can provide a lead for all of local government.

Another local government view came from Natasa Patterson, director of resident experience and digital at Lambeth Council, who emphasised the need to integrate systems more fully to provide a better experience for customers. She said a data methodology to support an integration capability is one of the most important elements of the council's approach, along with cloud infrastructure, a data strategy and efforts to build its internal capability.

A police perspective came from Ian Bell, chief executive of the Police Digital Service (PDS). He outlined its main workstreams, pointing to efforts to modernise policing's core technology, reducing the complexity and cost of modern infrastructure, and making more use of connected technology to give officers and staff access to crucial data wherever they may be. In addition, the PDS is working on incentives for an open market in police tech that encourages innovation and provides value in helping to meet the challenges.

8. Looking to the future

Perhaps the biggest, if not immediate, challenge in a changing technology landscape is that everything can become obsolete over time.

Software systems are upgraded annually by many suppliers, operating systems ultimately become obsolete, platforms may evolve but often require users to invest to stay up-to-date, and infrastructure changes more slowly but can take a different shape over time. There is considerable expense and effort in keeping up with constant change and evolution, and it provides an unwelcome addition to the financial pressures on the public sector.

One of the long running questions facing public authorities is how they can future proof their systems to evolve with changes in technology, avoiding urgent deadlines and the need for emergency investments. This has fuelled the movement to develop system architectures based on re-usable components rather than running as an enclosed standalone, which has encouraged the view that there could be a market of components that could be integrated into a system.

One of the conference discussions emphasised the fact that there are plenty of common processes through the public sector and components are being designed for these, but they are often related to a

specific cloud platform. This means future proofing can be tied to that platform, which removes the scope for customers to look for more cost-effective alternatives. There is also a commercial tension for suppliers between wanting to keep customers happy while not providing an environment in which there could be a big increase in market competition.

The consensus is that there is no silver bullet solution that would make organisations completely comfortable with the situation. But continuing to emphasise the need for re-usable components will have an effect on the market, alleviate some problems and give the public sector a stronger capability to deal with digital change.

Be comfortable with change

It reflects one of the key points from the event, that change will never be complete. As organisations complete one programme on their digital infrastructure and capabilities they become aware of new challenges and need to begin the next round of change. A big element of managing the digital backbone will be in having the mindset and skills to cope with an evolution that continues way into the future.

This perspective was summed up by David Burrows: *"The cycles are getting faster and faster, and you have to be comfortable with being uncomfortable with change, and open to ideas as we can't solve all the problems. The last thing you want is technology to be a drag on what people came into the public service to do.... We all have to figure out how to reduce the friction as best we can."*

9. DAY ONE - Wednesday, 9th March



03:00 Powering Public Services through Partnership and Place - Georgina Maratheftis, Associate Director - Local Public Services, techUK

How we build on the place based innovations we saw at the start of the pandemic and the role procurement can play as an enabler of innovation. A key part of place based transformation is meaningful partnerships and Georgina Maratheftis puts the spotlight on what good industry collaboration and engagement looks like ([Download slides](#))

17:50 Hybrid Cloud & Hybrid Workplace - Murat Dilek, Network & Infrastructure, Cybersecurity Operation Team Leader, Falkirk Council

Murat Dilek outlines the council's journey to a hybrid cloud model and explores where does the corporate network start and stop these days ([Download slides](#))

31:30 Enterprise Cloud Index: cloud trends in UK Public Sector - Andrew Puddephatt, Director - UK Public Sector, Nutanix

Andrew Puddephatt shares findings of the fourth Nutanix research report on cloud deployments and adoption trends - with a particular focus in this session on the public sector ([Download slides](#)) Report referenced: [Enterprise Cloud Index](#)

45:43 Scaling-up benefits from digital health trials - Robert Franks, Managing Director, WM5G Limited

West Midlands are using 5G sensors and data to improve patient care. Here Robert Franks shares insights and lessons and next steps to extend some of these concepts nationally ([Download slides](#))

57:30 Q&A / panel discussion

10. DAY TWO - Thursday, 10th March



01:24 Automation accelerating the digital transformation of Public Services - David Burrows, Public Sector Industry leader, UiPath

Figures suggest as much as £480 billion in Government revenue is reliant on systems that are out of date. Here David Burrows talks about tackling the challenge of legacy technology within the public sector and how automation can bridge the gap between different pieces of legacy software, giving them a new lease of life ([Download slides](#)) Report referenced: [Tackling the hidden challenge of legacy technology in the public sector](#)

11:37 Digital Robotic Automation Centre of Excellence - Dave More, Service Owner, Digital Robotic Automation Centre of Excellence, Department for Environment, Food & Rural Affairs

Dave More showcases Defra's Digital Robotic Automation Centre of Excellence - a unique and innovative low risk delivery methodology and how that applies to a mix of modern and legacy estate ([Download slides](#))

28:48 Creating a single council view - Rob De Felice, Business Development Director, IEG4

Rob De Felice gives a brief overview of IEG4's OneVu - a single place where citizens, businesses and partners can access council services in a consistent and coherent way while providing seamless integration to back-office systems in 'real-time' ([Download slides](#))

42:40 Lambeth's Digital Customer Platform - Natasa Patterson, Director of Resident Experience and Digital, London Borough of Lambeth

Natasa Patterson discusses with event host Helen Olsen Bedford how Lambeth is working on a council wide digital customer platform, with a focus on the citizen experience and delivery

56:00 Q&A / panel discussion

11. DAY THREE - Friday, 11th March



05:58: How Covid has shaped London's digital transformation journey - Eddie Copeland, Director, London Office of Technology & Innovation

Eddie Copeland shares his observations on the major digital trends and issues that the Covid crisis highlighted, and which of them are shaping London local government's future direction. He explains how LOTI is working to bring the relevance of digital and data innovation to a far wider audience and invest in the skills needed for London to be a more resilient city

16:32: Digital Policing of the Future - Ian Bell, Chief Executive, Police Digital Service

In this session Ian Bell outlines the role of the PDS in taking forward the national strategy with priorities and enablers to make better use of digital technology and data in policing. He shares the overall vision, achievements to-date, challenges ahead and next steps ([Download slides](#))

34:10: We all understand that our lives are complex - David Price, Director, Public Sector Cloud, Rackspace Technology

David Price talks about the role of cloud as an enabler to deliver better services. He explains the work of Rackspace Technology, how it's relevant to the public sector and how it can help organisations progress on their digital journey ([Download slides](#))

49:54: Microsoft ICS HLD - Jonathan Tapping, Enterprise Specialist - Azure, Microsoft

Jonathan Tapping highlights how Microsoft can help support organisations across health and social care in a new integrated care systems (ICS) world ([Download slides](#))

1:03:51: Q&A / panel discussion

12. Event Partners

Rackspace Technology

Rackspace Technology is the multicloud solutions expert. We combine our expertise with the world's leading technologies — across applications, data and security — to deliver end-to-end solutions. We have a proven record of advising customers based on their business challenges, designing solutions that scale, building and managing those solutions, and optimising returns into the future. As a global, multicloud technology services pioneer, we deliver innovative cloud capabilities to help customers build new revenue streams, increase efficiency and create incredible experiences. Recognised as a best place to work, year after year, by Fortune, Forbes, Great Places to Work and Glassdoor, we attract and develop world-class talent to deliver the best expertise to our customers. Everything we do is underpinned by an obsession with our customers' success — our Fanatical Experience™ — so they can work faster, smarter and stay ahead of what's next.

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Nutanix

Nutanix was founded with a bold vision: to make managing IT infrastructure so simple that it becomes invisible. It all started with bringing together compute, storage, networking, and virtualization in one invisible stack with Hyper Converged Infrastructure (HCI), this vision now extended to make clouds invisible too. In the UK, Nutanix is working with around 190 Public Sector customers to help them on their journey to a Cloud operating model whether that is Private, Public, or most often a Hybrid or Multi Cloud strategy. The starting point is the modernisation of legacy platforms and applications onto the secure Nutanix Enterprise Cloud platform, simplifying operations, automating processes, and managing the infrastructure to accelerate the delivery of improved digital services. Nutanix has partnered with UKAuthority to produce a series of briefing notes on cloud migration - the challenges, opportunities and the benefits of a hybrid cloud. [Catch up here](#)

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UiPath

UiPath has a vision to deliver the Fully Automated Enterprise™, one where companies use automation to unlock their greatest potential. Only UiPath offers an end-to-end platform for automation, combining the leading Robotic Process Automation (RPA) solution with a full suite of capabilities that enable every organization to scale digital business operations at unprecedented speed.

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IEG4

IEG4 delivers cloud-based digital solutions that enable simpler and easier access to public sector services, whilst providing cost savings and driving business efficiencies. Our innovative and outcome-focussed approach provides low code, dynamic solutions that enable valuable third-party integrations for seamless service delivery. With unparalleled functionality, our digital offerings enable Citizen and Patient engagement with built-in work management, the ability to set up generic, dynamic, and data-driven notifications, personalisation of websites, creation of, and access to a vast library of online service forms. All of which provide smarter working, avoidance of workload and unnecessary contact, and ensure #CitizensFirst.

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UKAuthority

This briefing note has been researched, written and published by [Mark Say & Helen Olsen Bedford](#), UKAuthority.

UKAuthority champions the use of digital, data and technology (DDaT) by central and local government, police, fire, health and housing, to improve services for the public they serve.

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