

Technology foundations for a digital public sector

Perspectives from the UKAuthority Powering Digital Public Services 2023 conference



Contents

1. Underpinning digital transformation	2
2. Moving away from the legacy	3
3. Transformative technologies	3
4. Up in the cloud	3
5. Low code in Wigan	4
6. Networks and zero trust in Norfolk	5
7. The sustainability factor	5
8. Funding and supplier relations	6
9. Direction from the centre	7
10. Accelerate progress	7
11. Powering Digital Public Services	8
Session One - Wednesday 8th March 2023	<u>8</u>
Session Two - Thursday 9th March 2023	<u>8</u>
Session Three - Friday 10th March 2023	<u>8</u>
12. Events Partners	9

Events Partners



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1. Underpinning digital transformation

Amidst the ambition for the digital transformation of public services, it has to be kept in mind that a number of core technology features are crucial in underpinning the effort. These are constantly evolving and public sector leaders need to keep a watch on the changes and be ready to reassess their approaches to using the technology. Several significant points emerged in the presentations and discussions of the recent UKAuthority Powering Digital Public Services 2023 conference, providing a range of perspectives and ideas on using the technologies successfully.



2. Moving away from the legacy

There is consensus that legacy technology estates have their limitations and that a transformation needs investment in new solutions; but this is tempered by the constraints of limited finances and the technical challenges in moving away from the legacy. One strategy for handling this is build up the capacity for joint procurements.

This was conveyed by the combination of a warning and a cause for optimism from Harriet Green, joint CEO of the Centre for Digital Public Services (CDPS) Wales: “The legacy tech issue is the shark in the water. It will come up and stop you from achieving the change you want. So we have a balancing act, and have to ask ‘Where can I leapfrog to newer, lighter weight solutions? Where do I have to grit my teeth and do the work to move to the cloud?’ Where can we get people together to procure joint solutions and give them more power in the marketplace with suppliers?”

As an example, she pointed to the joint procurement of a schools management system for all the local authorities in Wales, emphasising that it takes time to work collectively, but adding that CDPS can take the lead in bringing them together – taking on the “collaboration overhead” – for a joint procurement.

The organisation has also published a policy paper to convey the learnings on better approaches to sharing technology across the public sector. Efforts such as this can provide assistance to public authorities in moving away from the legacy to a more cost-effective digital estates.

3. Transformative technologies

A range of technologies are promising to make this possible and can add new dimensions to service delivery. Nadira Hussain, CEO of the Society of Innovation, Technology and Modernisation, listed them as cloud computing,

big data and analytics, digital identity, mobility and connectivity, low/no code platforms, the internet of things, new developments in cyber security, AI and cognitive services, gamification, mixed and virtual reality, blockchain, new platform capabilities and quantum computing.

She also emphasised a need to maintain focus on the desired outcomes of digitalisation, citing increasing organisational capabilities and local productivity, strengthening security and resilience, ensuring services are built around users, better connectivity and use of data, strengthening democracy at a local level, maintaining an ethical approach, building digital inclusion and achieving value for money.

4. Up in the cloud

The potential of cloud computing solutions is always high on the agenda, and there is now a higher awareness of the complexities and possible pitfalls in their adoption than was the case a few years ago.

Damon Crawford and Daniel Cartter of managed IT services provider SCC outlined three key factors in approaching the challenges. One is that much can be achieved through the use of cloud services, especially those provided by the hyperscalers – the major cloud service providers that offer not just applications but platforms and infrastructure for developing services. Their platforms have the strength, range of capabilities and flexibility to provide strong foundations for innovation; and the companies can provide large capacities for data storage and processing, strong cyber security and internal skills.

A second factor is a need to deal with legacy problems. A recent analysis of SCC’s work with the public sector showed that, while around 65% is focused on innovation, a substantial 35% is in dealing with issues caused by earlier, misdirected efforts to move applications and workloads to the public cloud. This can derive from organisational issues – such as gaps between IT teams and the informatics departments responsible for reporting – and requires the building of a good working relationship between technology and business teams to give users power over the decisions on how technology solutions will be developed and deployed.

Third is that efforts should never begin with bringing a specific technology to the forefront, but with basic questions and problems, so the teams can work backwards towards a digital solution that delivers positive outcomes. This is what drives real innovation and should be a major factor supporting the public sector through its challenges.

Details of a major cloud migration project in the works were provided by Stephen Koch, executive director of platforms at NHS England, in talking about the plan to move the NHS Spine to the cloud. This has begun with the migration late in 2022 of the Message Exchange for Social care and Health (MESH) service, which was re-architected to native cloud services based on a 7R cloud assessment.

Learnings from this included that it was more expensive than expected, with unexpected costs in two main areas. One was that an existing API for the service included a lot of undocumented features that had been built in, which all had to be included in the cloud service. The other was that the highly integrated nature of the service required a 'big bang' rather than incremental approach, which meant there was a need to run both the old and new systems in parallel for a few months, which has come at a significant cost.

"It is really important to design your cloud services with cost in mind from the start," Koch said. "We had prior experience before building this MESH and found it was really important to use service patterns when building new cloud services, and when building out your development and test environments they can be inflated and deflated quickly and easily so you don't run them all the time. You see quite a few cases in a lift and shift cloud migration where you end up spending more on your test environments than even the live."

He added that it also important to leverage autoscaling to make efficient use of cloud resources, and that there are some gaps in the availability of database services among hyperscale providers. But there are benefits in the form of: a 30% reduction in running costs compared with the original MESH; clear controls and guidelines on building secure software; excellent resilience with high availability services across three sites; and the flexibility to build and deploy services more quickly.

A couple of other significant observations on cloud came from other speakers.

Rob Miller, strategic director customer and workplace at Hackney Council said it is important to see cloud as a means to an end not an end in itself.

"I've seen examples where I've asked people with cloud productivity suites how it would work if their on-premise was not available, and quite often they realise they have partly cloud but still have significant dependencies.

"And it is still extremely hard to get to grips with fundamental issues of process, culture, skills, quality of data, and as DDaT (digital, data and technology) people we can't fix those ourselves but we have strong levers that we can bring to them."

Stephen Koch also made a point that a multi-cloud approach is usually the best from a resilience point of view, and that organisations should be careful about avoiding a potential lock-in to a supplier when building services.

5. Low code in Wigan

The benefits of low code platforms – which are becoming more widely used in the sector – were outlined by Suraj Kika, chief executive of Jadu. He highlighted the agility within the technology – which makes it possible to develop services through configuring an interface rather than requiring in-depth coding skills – along with the capacity to develop services faster at a lower cost.

A team from Wigan Council described how they had used the Jadu platform in a number of developments, beginning with a highways back office system and a damp and mould professional referral form, and amounting to 40 processes in 18 months. They said the platform fits within the council's user centre design approach and identified benefits including that low code provides service teams with the confidence to work with developers, a flattening of the hierarchy in agile working techniques and bringing realism to digital transformation.

6. Networks and zero trust in Norfolk

Kurt Frary, head of ICT at Norfolk County Council, highlighted challenges in networks and security in its digital transformation. He pointed to the ‘tromboning’ effect of traditional networks to support remote working, which is increasingly common. A laptop connected to a Wi-Fi router will send traffic to the internet pipe, then to a managed service provider’s network, then to the authority’s data centre, then back to the cloud for a corporate cloud service – using the same pipe to go into the data centre then back to the cloud. This is an inefficient way of moving data, and makes it more complex and time consuming to change digital services that rely on the route.

“These are things we need to improve,” Frary said. “We need to improve security year-on-year, reduce the complexity as that will help with the skills problem, improve the speed of change and to take back control so we can do more ourselves and reduce costs.”

He said zero trust network access and secure access service edge can do a lot to improve security, defining them as access based on identity combined with contextual security compliance policies. In simple terms this means trust no-one or anything and always verify.

These ideas are feeding into Norfolk Future Network programme, in which instead of using a managed service provider it is buying business grade internet access links and a secure network gateway. This means information from its laptops is encrypted and delivered to the gateway, which directs the traffic to the cloud service without going to the council’s data centres. It will also provide access to line of business legacy apps in the data centres without tromboning, and deliver encrypted information directly to software-as-a-service providers.

“This will hopefully remove the reliance on some of the more detailed skills we need, and save money, estimated at around £500,000 per year, and is removing a lot of the complexity,” Frary said. “The benefits are improving security, increasing the speed of change and making us digital transformation ready.”

7. The sustainability factor

There is an increasing focus on the need to use investments in digital as part of the environmental sustainability efforts in government, and this is now feeding into much of the thinking about new approaches to technology and infrastructure.

A high level view was presented to the conference by Adam Turner, sustainable technology lead at the Department for Environment, Food and Rural Affairs and chair of the Sustainable Technology Assurance and Reporting (STAR) group. He emphasised that there are two sides to the challenge: to make ICT used in public services sustainable by lowering its carbon emissions, removing waste from the system and improving efficiency; and using ICT to meet sustainability goals, maximising the value of data and promoting innovation. The UK Government has a Greening Government ICT strategy in place and STAR can provide internal consultancy to departments, projects and programmes.

Turner highlighted the value of Government Sustainability Technology Insight Dashboards, created by STAR through annual engagement with government bodies to measure their digital carbon footprints and provide breakdowns for categories such as hosting, end user devices, audio visual equipment and cloud. He cautioned that it is difficult to break down the environmental impact of cloud services and that the figures are almost certainly under-reported.

He also pointed out that the Central Digital and Data Office and Government Digital Service are using spend controls on digital to enforce sustainability requirements as a ‘must have’. But he said more has to be done to make the issue part of the skillset for public services.

“I’ve been campaigning for about five years to build sustainability into the DDaT skills framework,” he said. “It’s desperately needed. Either it goes in as an individual skill or a cross-cutting skill. We’ve heard about the importance of low code, areas of FinOps or GreenOps, the need to build business cases and supplier management. It is vital that we do this as we are literally going to run out of resources for digital unless we build this stuff sustainably. It’s absolutely vital and extremely concerning

it's not there at the moment."

Carbon emissions from the technology stack were highlighted by Ben Tongue, digital net zero lead at NHS England, who said the amount in end user devices really stands out with data centres also a big factor.

"How we use digital as a decarbonisation enabler is a really big question," he said. "The obvious answer is to go at those big sections."

He said that digital is seen as an enabler for decarbonisation, notably through developments including the expansion of telehealth, the development of 'smart' hospitals, using the technology in asset management and circular hardware procurement – which is focused on reducing the creation of waste and negative environmental impacts.

NHS England has developed an approach involving five main processes – developing the business case and benefits, digital service design, procurement risk management, climate change risk management and data collection – along with the relevant obligations and tooling.

The latter includes a net carbon calculator for digital tooling, a sustainable digital service design specification, guidance on compliance with the Cabinet Office public procurement policy notes and prototypes for climate change risk assessments of digital health services.

Tongue said his team is currently running a baseline exercise for data collection, taking into account factors such as digital maturity assessments, procurement data and cyber security.

One of the prime questions to arise in the discussions was how to include sustainability in the business case for investment in digital when budgets are very tight. It prompted a reply from Adam Turner that this requires a mindshift in thinking about sustainability, in which it is not about buying an expensive product with that as a goal, but to include the issue as a key driver in transformation plans. He said that including a net zero target in a business case could provide big savings in money and carbon emissions.

"It's not an environmental section in your business case, but about key benefits and outcomes in everything you are doing," he said.

8. Funding and supplier relations

Other factors came under the spotlight. Underlying most of the issues is the fact that funding in the public sector is tight and organisations have to take care in getting the best value for money from their investments.

There are sources of support from the centre. Paul Tait, delivery manager of the Local Digital team in the Department for Levelling Up, Housing and Communities, pointed to its Local Digital Fund which provided £16 million shared among 60 councils for digital projects since 2019. He said the key principle is for councils to approach the team with ideas for solutions for common problems in local government, and that the priorities involve developing open source products – such as the LocalGov Drupal web content management systems – and cyber security, which is seen as an intrinsic element of digital transformation.

He also pointed to the recently announced Future Councils programme, under which DLUHC is supporting eight pilot projects for digital and cyber improvements, saying the team hopes it will strengthen the understanding of systemic barriers to progress and how they could be overcome.

"And we want to understand how we as a central government team could add value for councils," he added.

Rob Miller raised the issue of over-reliance on a small number of vendors of applications, saying there is scope for bolder moves to get away from the dependency and saying there could be progress in consolidating innovation funding rather than making it available in relatively small chunks.

Harriet Green raised a similar point, that one of the key challenges to progress in Wales is organisations being locked into supplier contracts that hinder new technology initiatives. But she said there is scope for collaboration in which suppliers

can still be influential as partners. “No-one wants to be a bad supplier,” she commented.

This came with noting a particular issue for Wales, in wanting to develop a shared system on which bilingual services could be developed. The provision of Welsh language content is regarded as crucial, but for many online services it is just a poor translation of English text.

Another important factor is in the use of location based data as a building block for services. Richard Groombridge, strategic product and service development manager for GeoPlace, highlighted the importance of unique property reference numbers (UPRNs) and unique street reference numbers (USRNs) in supporting a range of initiatives, with achievements in protecting vulnerable people and scope for areas such as dealing with climate change.

9. Direction from the centre

In the background to all this is the strategic direction from central government for digital transformation across the public sector. Will Joss, head of strategy at the Central Digital and Data Office (CDDO), outlined the six missions it made public in 2022:

- transforming public services that achieve the right outcomes;
- getting all central government bodies using the One Login sign-on service;
- better data to power decision making;
- efficient, secure and sustainable technology;
- digital skills at scale;
- and a system that unlocks digital transformation.

Efforts are being made on all of these, and they are accompanied by a list of 75 services identified as priorities to meet a great standard in terms of usability and efficiency,

“Across all those there should be closer collaboration across government to make sure it adds up to the sum of the parts,” Joss said.

10. Accelerate progress

It was clear from all the contributions that, while there are plenty of impressive technology solutions to add new power to public services, progress has been piecemeal, with a sense of frustration that many of the barriers remain years after they were first identified. They have been harder to break down as many initiatives are localised or focused on specific groups, with the lead organisations lacking the clout in dealing with suppliers or technical issues that go beyond their powers.

It requires more collaboration and where possible support from the centre. The nature of public services in the UK means that a uniform effort on all fronts is not feasible, but there can be more co-ordination and a clear direction for all in a sector to follow. This is where the efforts of bodies such as the CDDO, NHS Digital, Local Digital and the Welsh CDPS are important, and will hopefully create more common purpose and co-ordinated action. This could make it possible to make effective use of the technology options in powering digital public services.

11. Powering Digital Public Services



UKAuthority
Digital, Data & Technology
for the Public Good

Just under 150 delegates took part in this three day online event on digital, data and technology infrastructure exploring where we should focus effort in terms of integration, delivering efficiencies, meeting net zero to power the digital public services of tomorrow. Discussions were hosted by Helen Olsen Bedford, publisher at UKAuthority, and all sessions can be viewed in full at www.ukauthority.com.

Session One - Wednesday 8th March 2023



Adam Turner,
Government and
Defra Sustainable
Technology Lead,
Defra



Will Joss, Head of
Strategy, Central
Digital and Data
Office, Cabinet
Office



Suraj Kika,
Chief Executive,
Jadu



Tracey Boffey, Service
Manager Web, Digital
Dev & Innovation,
Wigan Council



Paul Banks
Assistant Business
Partner, Wigan
Council



Amanda Litherland
Business Partner,
Wigan Council



Paul Tait
Delivery Manager,
Local Digital Team,
DLUHC



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Session Two - Thursday 9th March 2023



Stephen Koch
Executive Director
of Platforms, NHS
England



Harriet Green,
Chief Executive
Officer, Centre
for Digital Public
Services, Wales



Rob Miller
Strategic Director
Customer &
Workplace, Hackney
Council



Kurt Frary, Deputy
Director of IMT, CTO,
Norfolk County Council,
and Socitm VP



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Session Three - Friday 10th March 2023



Ben Tongue
Digital Net Zero,
NHS England



Damon Crawford
Practice Director.
SCC Hyperscale &
SCC Cyber



Daniel Cartter
Head of the
Innovation Hub, SCC



Nadira Hussain
Chief Executive Officer,
Socitm



Richard Groombridge
Strategic Product and
Service Development
Manager, GeoPlace
LLP



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Helping our clients stay ahead of the technology curve, our dedicated experts provide guidance, unbiased tailored solutions, and a truly unmatched customer experience to accelerate their transformation journey.

Learn more: <https://www.scc.com/>

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Jadu

Jadu has over 20 years of experience digitally transforming hundreds of government, education and private sector organisations around the world. With offices in the UK, North America and Australia, Jadu is a leading global provider of accessible web experiences, specialising in low code, CRM, accessible websites (CMS) and online forms, customer case management for the enterprise and expert digital design services. Millions of users use Jadu to access important digital services every day. Jadu focuses on using technology to connect communities and empower effective self-service.

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