THE AWS INSTITUTE

# Accelerate public service transformation with the cloud

# FIVE CHALLENGES OF DIGITAL TRANSFORMATION

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# How do I build the capability I need?

**When it comes to the capabilities required for digital transformation, you'll need to identify your people who have a drive to change public services for the better, new hires with experience in how to deliver digital services, and possibly external partners.**

**In this section, you'll gain valuable insight on how to find, attract and retain the best talent, as well as why open code and open standards help you move faster, and how to use them.**

**Capability to deliver digital transformation comes from people and technology. There's a need for new experts with the right digital transformation skills who can work with the public sector experts already within a department or organisation. You also need consistent leadership support for the change you're making.**

**For the technology element, the good news is that because other governments have already put in place successful digital services, there are open source code and service standards available. Use these as the basis for your transformation to save time and money that you would otherwise spend on research and development.**

### Expert contributors


**Mike Beaven**
Government Transformation Advisor at Amazon Web Services (AWS)

**Liam Maxwell**
Director of Government Transformation at AWS

**Caroline Mulligan**
Government Transformation Advisor at (AWS)

**Claire Spiller**
Senior Manager re/Start Programme (EMEA) at AWS

# Capability: What skills do I have and which must I add?


The ideal multi-disciplinary team will comprise existing talent and new hires with specialist skills

> **To successfully drive transformation, you need to bring in fresh eyes or the people who are there will use the new tools and technologies to do what they always did**
>
> **Claire Spiller**
> Senior Manager re/Start Programme (EMEA) at AWS

## Don't overlook what's in front of you

People who already work in the public sector have a lot to offer. Mike Beaven says it's important that leaders know where to look.

"In government organisations of all sizes, you will almost always find someone who has already tried to solve the problem, working away in a cupboard under the stairs to come up with a digital solution," he says. "If you're a leader, and you're either coming into the organisation or are already there but want to make a change, find the person or people on the inside who are willing to embrace it. They know the organisation and they'll have a real appetite and passion to try to do things in a different way."

The disciplines that are useful to have in your team include procurement, regulation and data science expertise.

Working collaboratively with outside experts is also a vital part of complementing and building capability. These may be tech companies but may include those with expertise in specific communities and disciplines such as social anthropology. This is because it is important to understand stakeholder motivations and

customer behaviour for optimal service design, which will improve the user experience and support the intended policy outcome.

## How to get new skills

The next step is to hire people who know how to implement the cloud-based applications that high-quality digital services require.

“Your priority should be to bring in people who have had their hands on the technology and know how to build and deliver it. That’s a vital skillset,” says Beaven. Specifically, these are “people who know how to build websites, how to build online transactional services, the types of technology you need and the working methods and project delivery tools you use in that space.”

A proven track record in being able to deliver successful digital transformation programmes is at least as important as their technology expertise, Beaven adds. “You’re going to run out of credibility quite quickly if you don’t start to show real progress,” he explains. This is why your first showcase project or service is so important. For the UK’s Exemplar programme, the mix was roughly one-third each of internal people, new contractors and external partners. Iceland is another example of a government that looked to independent technology partners to expand capability.

Claire Spiller, who works with organisations’ hiring managers to build digital transformation capability, is also a firm believer that new people are essential. “To successfully drive transformation, you need to bring in fresh eyes or the people who are there will use the new tools and technologies to do what they always did,” she says. “People resist, they feel really uncomfortable about change. New hires cannot revert to type, they only know the new way and they follow it from day one.” This is true whatever the hire’s level of seniority, she adds.

Transformation leaders may find that some of their existing team will not want to develop the new service or feel comfortable with different ways of working. They will move roles or departments – or leave altogether.

**For the UK’s Exemplar programme, the mix was roughly one-third each of internal people, new contractors and external partners**


**This AWS Institute video shows how, with the right solutions, digital transformation can be simpler, faster and cost less**

## Transparency is helpful

As with lots of elements of any change programme, transparency is important and this is true of the hiring process for the digital transformation team.

“Sometimes people get the impression that in the digital space, with an Agile approach, decisions are made quickly without enough consideration,” says Beaven. “A formal selection process is important because it shows people that you haven’t just picked your favourites.”

In the early digital transformation projects he worked on with the UK government as part of the Exemplar programme, each project in each department followed a formal three-month HR change programme to appoint the right team. They identified the skillsets and organisational structure they needed, then wrote job descriptions to match those.

Being “open, transparent and above board” in how you add capability is an important part of building positive sentiment towards the transformation, Beaven adds.

> **“You’re going to run out of credibility quite quickly if you don’t start to show real progress”**
>
> **Mike Beaven**
> Government Transformation Advisor at Amazon Web Services (AWS)

## Write smart job ads

When they recruit new, highly qualified hires, public-sector managers consider how they can compete with tech or financial services companies with regard to pay. Spiller says government can offer two things that people with tech skills value highly: flexible working and an innovative working environment, where experimentation is encouraged.

"Rather than being prescriptive about a particular coding language, job ads could prioritise these things, which are what people want," she says.

Liam Maxwell adds: "'Communicate the whole package. Government is for everybody. In government jobs, you deliver for every citizen and there is a powerful sense of purpose that motivates people. Public sector leaders say that three years in a government role is the equivalent of ten years of experience in similar private sector roles because of the scale of the challenges and level of exposure."

## Continued communication and support from the top

Digital transformation only succeeds with buy-in from the very top of an organisation, as experienced reformers know. But a commitment to start the work is not enough: continuous and visible support is one of the essential capabilities that a government organisation needs.

Maxwell says it's essential that leaders in charge of digital transformation communicate often and clearly while the work is taking place. One effective way to achieve this is through a series of blogs that set out the progress of the transformation. Regular and accessible blogs help build a sense of momentum around the transformation.

"It becomes more effective to help people understand what's going on when information is drip-fed," he says. "You need to actually show the delivery and what will follow in the next stage. It also makes it much more intimate. The UK Government Digital Service (GDS) Blog is a good example."

The Singapore government also does this effectively, he adds. "They regularly say what has happened and how it will change things, and it becomes a normal state of affairs that things are changing." There are two blogs that serve different audiences. One, the LifeSG blog, provides updates on citizen services. The other, on the Singapore Government Developer Portal, is for the technology community.

This type of open communication is also a great recruiting tool, adds Beaven, alerting people to interesting projects that are going on in government, which attract them to work there.

> **"Government can offer two things that people with tech skills value highly: flexible working and an innovative working environment"**
>
> **Claire Spiller**
> Senior Manager re/Start Programme (EMEA) at AWS

# Code and standards: Do I need to create them all?

Simply, no. When it comes to the technology element of capability, there's a growing movement, for example among European governments, in Brazil and in India, that projects should use open source code. For example, in October 2020 the European Commission committed to the use of open source in practical areas, such as IT, and also in areas where it can be strategic. Using coding languages and frameworks that people want to work with and where skills are available makes adding the capability to build the service simpler.

Open source code is found in online repositories and can be freely accessed and reused under open source licences. Caroline Mulligan, who worked with the UK Government Digital Service (GDS), says: "Why reinvent the wheel? Why not use something that works and then focus on the bits that are relevant to your unique problems or legislation?"

One such example was the UK government's Digital Marketplace, set up to help public sector procurement bodies buy and deliver cloud-based services. It took around two years for the UK team to build it. The Australian government reused the UK government's open source code and was able to launch its own digital marketplace in just six weeks from start to finish. This approach meant there was no need to spend the time and money on development that the UK government needed to find.

"The development savings run into hundreds of thousands of dollars when you consider that the UK evolved their service over several years," says Mulligan. The service has evolved substantially since this time and is now called Buy ICT.

> **"Why reinvent the wheel? Why not use something that works and then focus on the bits that are relevant to your unique problems or legislation?"**
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> **Caroline Mulligan**
> Government Transformation Advisor at (AWS)

In the same way as code, open standards for digital services are invaluable. Mulligan explains: “Things we take for granted, such as seamless mobile phone connections in different countries and international rail services are all possible because common standards have been agreed. The same principle applies to digital transformation. Common standards mean digital services can interoperate with one another. They also provide high quality across security, accessibility, user experience and data exchange. They make sure that suppliers have equal access and opportunity to work with government, which gives governments access to innovative technology at competitive prices.”

Additional resources

- Open Government Solutions on AWS curates resources developed by the public sector can help government agencies at the local, regional, and national levels find solutions that have worked for others so that they can accelerate their digital transformation. An example of how to build an open source solution quickly is Performance Dashboard on AWS.
- Video: Use what works (8 minutes)
- Video: Start small to build big (7 minutes)
- Video: Bias for Agile action (8 minutes)
- Blog: Bias for Agile action speeds digital transformation in the public sector
- Blog: How governments can use open source solutions for faster transformation and more
- Open Standards principles
- Open Standards for Government
- AWS re/Start

**“In the same way as code, open standards for digital services are invaluable. Things we take for granted, such as seamless mobile phone connections in different countries and international rail services, are all possible because common standards have been agreed”**

**Caroline Mulligan**
Government Transformation Advisor at (AWS)

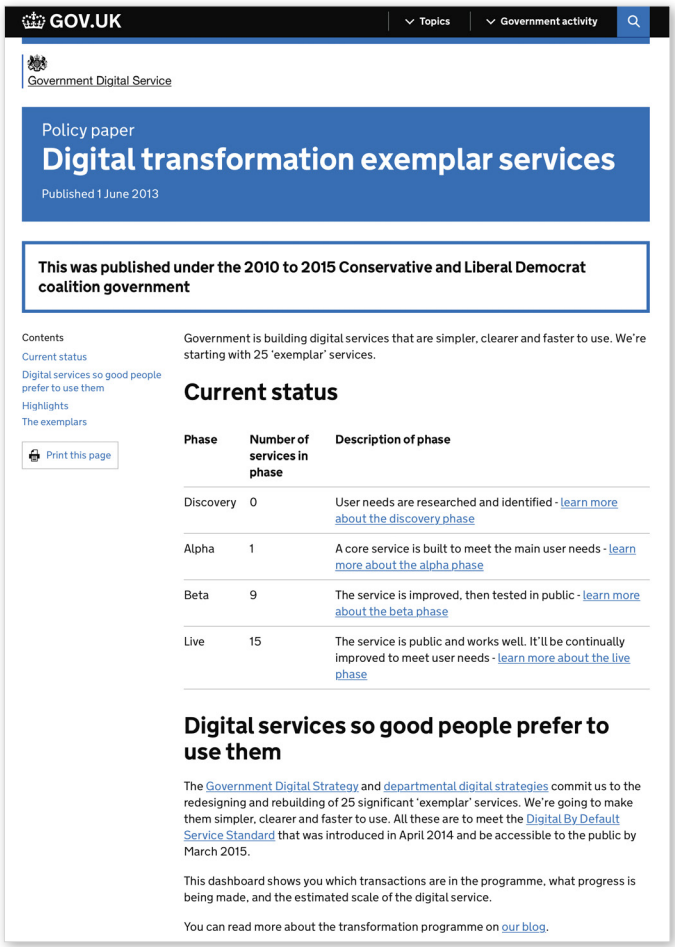
# United Kingdom
# Building capability through the Exemplar programme

## Challenge

The UK Government in 2013 wanted to save money and improve services through digital transformation. But it did not want to outsource the project. Instead it wanted to build and retain the skills in-house.

Its answer was the Exemplar programme.

The Exemplar programme's aim was to transform 25 government services across 12 different departments and ministries —from the Home Office to the Foreign & Commonwealth Office — within two years. In the process, it would create digital champions within the civil service, equipped with the skills to launch, lead and contribute to subsequent digital services projects.



GOV.UK

Topics | Government activity

Government Digital Service

Policy paper

**Digital transformation exemplar services**

Published 1 June 2013

**This was published under the 2010 to 2015 Conservative and Liberal Democrat coalition government**

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Government is building digital services that are simpler, clearer and faster to use. We're starting with 25 'exemplar' services.

### Current status

| Phase | Number of services in phase | Description of phase |
|---|---|---|
| Discovery | 0 | User needs are researched and identified - learn more about the discovery phase |
| Alpha | 1 | A core service is built to meet the main user needs - learn more about the alpha phase |
| Beta | 9 | The service is improved, then tested in public - learn more about the beta phase |
| Live | 15 | The service is public and works well. It'll be continually improved to meet user needs - learn more about the live phase |

### Digital services so good people prefer to use them

The Government Digital Strategy and departmental digital strategies commit us to the redesigning and rebuilding of 25 significant 'exemplar' services. We're going to make them simpler, clearer and faster to use. All these are to meet the Digital By Default Service Standard that was introduced in April 2014 and be accessible to the public by March 2015.

This dashboard shows you which transactions are in the programme, what progress is being made, and the estimated scale of the digital service.

You can read more about the transformation programme on our blog.

A 2013 UK government webpage shows the status of the Exemplar digital transformation services

**The Exemplar programme's aim was to transform 25 government services across 12 different departments and ministries**

## Solution

At its peak, the Exemplar team consisted of about 120 people. Roughly a third were civil servants, a third were contractors and a third were external partners. Mike Beavan, who led the team, says: "It's important to recognise you can't always do everything yourself. And you're going to need those core skills that the different groups bring."

The civil servants brought knowledge of what each service had to accomplish, along with insight about culture, politics and how to get things done. The contractors had experience and skills within digital technology such as design, programming and project management. The external partners brought leadership skills.

Each Exemplar programme followed a pattern. First, the Exemplar team showed a group of users in the civil service what to do, so they could learn. The two groups — the Exemplar team and users — worked alongside each other, then the Exemplar team shadowed the users before they left them to work alone. This method embedded the skills that service transformation needed and created champions who could recruit and train followers, building an in-house skills pyramid.

## Result

At the end of the Exemplar programme, in March 2015, it had successfully launched 20 services and five were in beta stage, meaning that each was safe to use, but not finished in terms of user journeys.

The numbers of users demonstrated the Exemplar programme's success. By March 2015, the Register to Vote service had 4.3 million registrations, the File your Self Assessment tax return online service had 1.5 million users, more than 70,000 motorists viewed their licence information online every month and 94 per cent of patent renewals were online. The increase in people using the digital service meant there was more capacity for the service providers to do other important work, such as identity checks for driving licences. With the exception of Register to Vote, digital teams designed and built all the Exemplars in their respective departments.

Beavan says: "I've watched as the people who worked on Exemplar moved to work on other areas of digital government. It's great because they take all the skills and knowledge and grow more teams. Those team members split off and grow more teams, who continue to improve the services and work on new ones."

**The numbers of users demonstrated Exemplar's success. By March 2015, the Register to Vote service had 4.3 million registrations and the File your Self Assessment tax return online service had 1.5 million users**

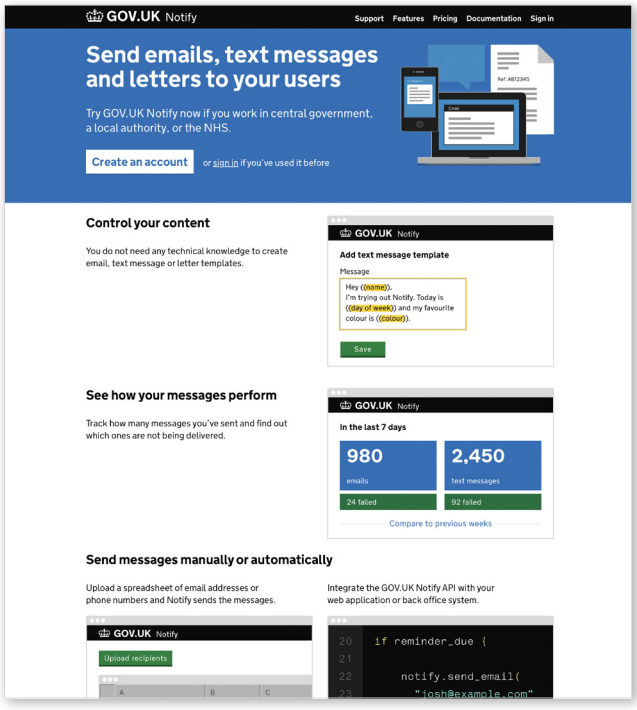
# International

# Australia, Canada, US and Brazil adapt the UK's open source notification service

## Challenge

In 2015, the UK Government Digital Service (GDS) developed the Exemplar programme to transform 25 services. The aim was to show stakeholders what was possible and build up capabilities for larger digital transformation within the government. Staff who worked on the programme identified features common to every project, which included sending notifications, gathering information through online forms and collecting payments. They set out to standardize these elements and provide them centrally, to be used across services and departments.

The UK government initially wanted to make notifications part of a wider tracking system, where citizens could check in and see how all their government interactions were progressing. However, user research as the project developed showed that this made people proactively go online to check their status. The development team realised that text or email notifications – which told people that their passport application was being processed, for example – would be a simpler option for the user and a more effective way to communicate with people. They decided to build an all-of-government notifications system instead.




Many government services send notifications and the development team standardised this through Gov.UK Notify

> **"The principle was self-service. It had to be if it was going to succeed at scale. We said to early adopters, 'try it out and let us know what doesn't work'"**

**Pete Herlihy**
Technical Product Manager and Open Source Lead, Government Transformation Team, AWS

## Solution

The development team visited government services across the UK to understand how automatic digital notifications could offer a better experience to citizens and save taxpayers' money. One service on which they tested the notification system was applications for carers' allowances. The volume of emails and calls from people checking to see if their online application had been received dropped by 40 per cent, which reduced the workload for service teams.

More than 70 government organisations stepped forward to try out the beta version of the system. It was named GOV.UK Notify.

"We co-designed it with users," says Pete Herlihy, now a senior technical product manager with AWS and formerly product manager for Notify when working for the GDS. "The principle was self-service. It had to be if it was going to succeed at scale. We said to early adopters, 'try it out and let us know what doesn't work.'"

Central government departments adopted Notify first, followed by local government. By late 2018, the NHS introduced the system. The service came into its own in 2020, when the government needed to send out bulk messages in the first days of the COVID-19 pandemic to alert vulnerable people to the need to shield. Subsequently, the government used the platform to issue public health messages to the entire population. Notify became a key part of the country's test and trace system, and then was used to provide vaccine notifications.

**More than 70 government organisations stepped forward to try out the beta version of GOV.UK Notify**

## Result

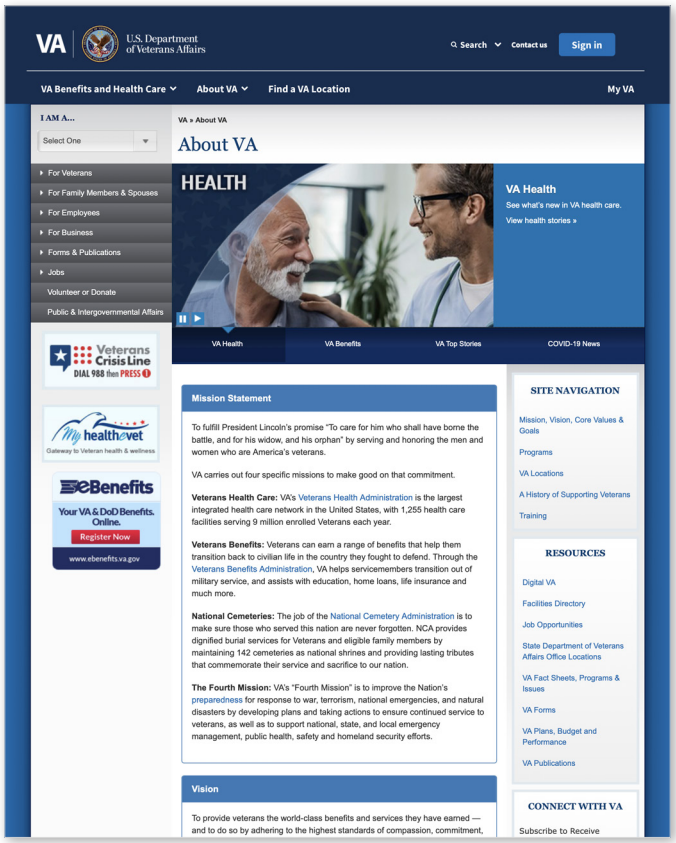
The GDS team published the Notify code to make it available to other developers. The governments in Australia, then Brazil and Canada then reused this code to create their own systems. After the pandemic hit, the US Department of Veterans Affairs, which oversees healthcare services for 9 million military veterans each year, also picked the code up.

“It is open source and the same research and refinement that went into the product also went into the accompanying explanatory documents for developers, making it much simpler for others to reuse, which is as important, ” says Herlihy.

The work done with users in the UK to refine the service means other governments can skip that step and move on to adaptations they need, such as adding different time zones (something that did not apply in the UK), and in Canada, adding an interface in French as well as English.

Notify is available on Open Government Solutions on AWS, along with more than a hundred other open source solutions that governments around the world have created.

**The service came into its own in 2020, when the government needed to send out bulk messages in the first days of the COVID-19 pandemic to alert vulnerable people to the need to shield**




After the COVID-19 pandemic hit, the US Department of Veterans Affairs, which oversees healthcare services for nine million military veterans each year, reused the UK’s open-source code

# Iceland

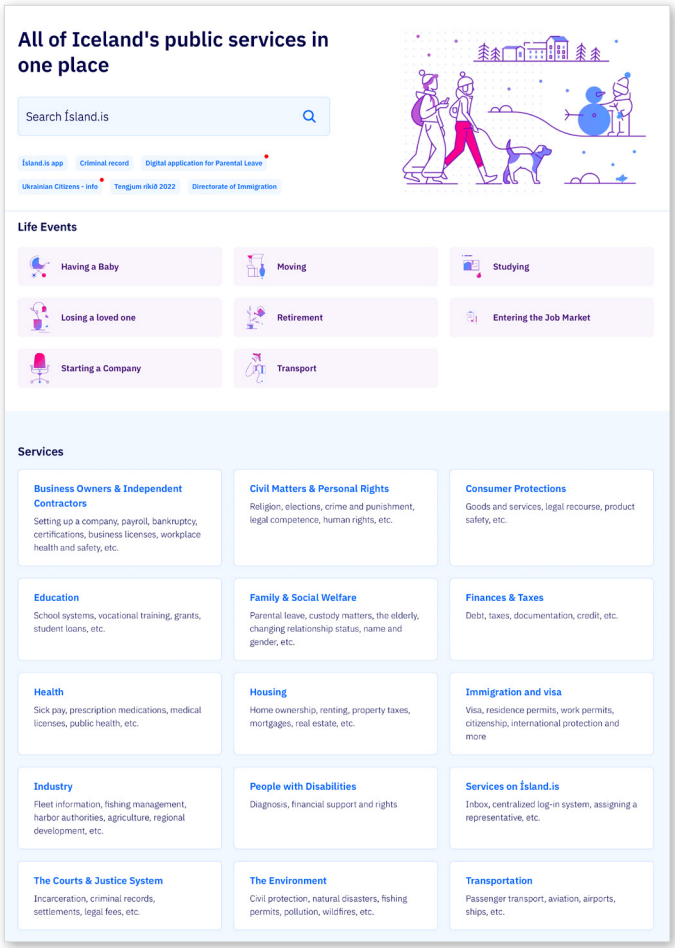
# The open source approach and collaboration accelerate digital capability

## Challenge

In 2019, Digital Iceland, , run by the country's Ministry of Finance and Economic Affairs, started work on a new central government portal: Ísland.is. Iceland already had a web gateway for its citizens to interact with government services, but the government built it 10 years previously. Digital Iceland wanted to improve it and add new features. They also wanted Ísland.is to be in the cloud to make it secure and allow new services to be added quickly and cost effectively.

The overall goal was to make it easier for Icelanders — some of whom live in very remote parts of the island — to securely access information and forms and use online self-service tools to interact with government.

**They put in place a complete cloud environment in one month and a government financial support service was available via Ísland.is within six weeks**




**Translated homepage of the Ísland.is site: The Icelandic government embraced the opportunity to add digital capabilities from open-source software via the cloud, rather than spend time on expensive and unnecessary bespoke solutions**

## Solution

In late 2019, Digital Iceland put together a group of 18 product teams from 11 different technology vendors to develop the new services. The team included Andes, which worked on security of the infrastructure and DevOps. DevOps means that software development teams and operations teams work in tandem from the first development stages through testing and deployment to get applications in place faster through continuous improvements.

With the outbreak of the COVID-19 pandemic in early 2020, the government kicked the project into high gear. The team accelerated the original timeline, as the government anticipated that online services that let citizens and businesses access financial support would become a priority. They put in place a complete cloud environment in one month and a government financial support service was available via Ísland.is within six weeks.

## Result

With priority financial support services established, Digital Iceland carried on with its original mission to expand and improve the range of online services. These include drivers' licences, business loan applications, funding for children's sports, mortgage, health insurance and justice system services. In March 2022, Digital Iceland launched Ísland.is as a mobile app.

The Icelandic government embraced the opportunity to add digital capabilities from open source software using the cloud, rather than spend time on expensive and unnecessary bespoke solutions. "We could get an overview of what the infrastructure would look like and where concerns might be," says Vigfús Gíslason, project manager at Digital Iceland.

**They put in place a complete cloud environment in one month and a government financial support service was available via Ísland.is within six weeks**

# Expert contributors

### Mike Beaven
**Government Transformation Advisor at AWS**

Mike Beaven has a combination of public and private-sector digital transformation experience spanning 20 years.

He led the UK Government's Digital Transformation programmes from 2011 to 2015 as part of the Government Digital Service (GDS) team within the Cabinet Office. This involved establishing new Agile ways of working, setting up new commercial frameworks and establishing a national cross-government programme that delivered 20 new digital services in 400 days.

He worked in consultancy on strategic projects in the public sector and on large-scale software delivery programmes in the commercial sector.

### Pete Herlihy
**Technical Product Manager and Open Source Lead at AWS**

Pete Herlihy has 20-plus years of experience delivering software products in the finance and public sectors in both the UK and New Zealand. He was one of the founding team of the UK Government Digital Service (GDS), primarily delivering open- source platform services for the wider public sector and international reuse.

### Liam Maxwell
**Government Transformation Director at AWS**

Liam Maxwell is director of government transformation at AWS. He leads the global AWS team that helps senior government leaders accelerate their modernisation and reform programmes.

He was a civil servant from 2012 to 2018. As the UK Government's first chief technology officer, he led the reforms that enabled the modernisation of government technology and digital services. He was subsequently national technology advisor, responsible for accelerating growth in the digital economy, inward investment and creating intergovernmental and international trade partnerships post-Brexit.

He was twice elected (in 2007 and 2011) as a councillor and served as a cabinet member for policy at the Royal Borough of Windsor and Maidenhead. Between 2004 and 2011, he was head of computing at Eton College, Windsor. Prior to these roles, he was an IT director in FTSE 100 and Fortune 500 business service companies. He has a strong interest in education and is a founder of Holyport College, a Free School near Maidenhead, Berkshire, UK.

# Expert contributors

**Caroline Mulligan**
**Government Transformation Advisor at AWS**

Caroline Mulligan is a government transformation lead at AWS who led the launch of the Executive Education Program in Digital Transformation for the Public Sector and Performance Dashboard on AWS, a tool to drive transparency across organisations and rack activity. She supports the continual growth of Open Government Solutions, which showcases open-source solutions and public resources published by public-sector organisations around the world.

She previously worked in the UK Government's Cabinet Office as head of digital (Race Disparity Unit) and as Digital Marketplace service manager in the Government Digital Service (GDS). She has led technology and product teams at Vodafone Global, Sony Pictures and a UK crowdfunding start-up.

**Claire Spiller**
**re/Start programme (EMEA) Senior Manager at AWS**

Claire Spiller is a learning and development specialist with more than 20 years' experience in the technology sector. She now leads a programme that re-skills unemployed people with cloud skills and then connects them with organisations looking to increase capability in this area.

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Editor**: Sarah Ryle -** *AWS Institute Senior Content Manager*



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