

Realising Scotland's full potential in a digital world: a digital strategy for Scotland

Progress Report 2017 - 2021

July 2021

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The Digital Strategy for Scotland was updated in 2017. Significant progress has since been made with delivering the actions described in that strategy, contributing to the decision to produce a further update in March 2021. The report summarises this progress.

Economy

The strategy set out a vision of a country which stimulates innovation, welcomes investment and supports digital technologies industries; and supports the development of internationally competitive, digitally mature businesses across all sectors of our economy.

In 2017, we launched a new Digital Growth Fund to address the undersupply of digital skills. The success of this fund led to the launch of the Digital Development Loan which provides interest free loans of up to £100,000 to Small and Medium Enterprises (SMEs) to invest in their digital capabilities.

The strategy included a commitment to extend the DigitalBoost programme to give advice and support to improve the level of digital maturity amongst businesses in every part of Scotland. Funding to support this programme has been provided every year since 2017 and to date, over 15,000 Small and Medium Enterprises have received specialist digital support. In August 2020, funding for this programme was doubled and in January 2021, £20 million was invested into the DigitalBoost Grant to provide grants to over 2,200 SMEs to invest in their digital technologies and skills.

We set out to create the conditions in which our digital technologies industries can thrive, and work with the industry to meet a shared objective to employ 150,000 in digital technology roles over the next five years. To do so, we have committed over £12.5 million in funding to deliver the Digital Skills Investment plan, which seeks to tackle both the immediate digital skills shortage and to boost the number of skilled individuals available in the workplace and in the hiring pipeline.

The Logan Review was commissioned to review the tech ecosystem. We accepted the recommendations presented by the Review and subsequently announced an initial £7 million in tech scalars and £1 million in a tech ecosystem fund.

Data and Innovation

The strategy set out a vision of a country which shares and opens-up non-personal data as a source of innovation and efficiency.

In 2017 we made a number of commitments to increase public trust in public services to hold their data securely and use it in appropriate ways, including sharing and opening up non-personal data as a source of innovation and efficiency. At the

time of publishing, much of this work was still at an early stage and considerable progress has been made since then.

We developed www.statistics.gov.scot as the main source of official statistics datasets – over 250 datasets from a range of producers – that can be used to drive innovative solutions in the private and public sectors. We also included a number of activities around opening up data as part of Scotland's Open Government Action Plan (2018-2020) and a full progress report can be found at [the following link](#).

We established the Administrative Data Research Partnership Scotland (ADR-S) as part of a UK wide data sharing and linkage programme which ensures public data is accessed by researchers in a safe and secure environment so that high quality research can be delivered and inform policy decisions and interventions that improves people's lives. This has been instrumental in supporting the response to the coronavirus pandemic.

We have improved arrangements to support secure, legal and ethical data sharing where it is for public benefit via the creation of Research Data Scotland, a national research data support service facilitating access to data for research in the public good.

We have strengthened our information governance approach to ensure more proportionate and timely access to data for research, as set out in the existing legal frameworks such as the General Data Protection Regulation (GDPR), which helps us to take a more rigorous approach when considering ethical principles underpinning the use data.

The 2017 strategy sought to strengthen Scotland's geospatial expertise and reputation. The Scottish Government is working with industry leaders, academia and the Association of Geographic Information (AGI) to produce a Scottish Geospatial Roadmap, this will define the vision and future direction for Scotland's geospatial information sector and how we maximise the opportunities offered as part of the Public Sector Geospatial Agreement (PSGA) in the use of location data. The direction will reflect Scotland's current strategic priorities but also address how we review these priorities going forward, this will enabling the Roadmap to become an agile document aligned to Scotland's Digital and AI strategies but also National Outcomes such as Programme for Government.

In May 2020 Scotland transitioned from the existing One Scotland Mapping Agreement (OSMA) to the Public Sector Geospatial Agreement (PSGA) with the remit of increasing economic growth and improving social and environmental outcomes by setting policy and data standards, improving accessibility and interoperability of geospatial data while improving capability, skills and resources to support new and existing businesses and improve public services. The transition to the PSGA also offered considerable cost savings to the Scottish Public Sector organisations with an estimated £30 million in savings over the 10 year contract period.

The geospatial network integrator (GNI) or Location Data Scotland project is now operational with a remit to support the development of the geospatial data sector,

raise the profile of the capabilities of the sector, identify growth opportunities for companies and make linkages that will enable companies to exploit growth opportunities and establish collaborations that can access future opportunities. The GNI should, therefore, act as a “glue” that joins together public, academic and private sector organisations so that new opportunities, that would otherwise not be achievable, can be pursued, with economic growth as the key outcome. The successful delivery of the GNI role will, therefore, deliver a more cohesive, collaborative and organised sector that is actively engaging with the key customers and developing new business, delivering economic growth.

In response to Scotland Climate Changes commitments, the Scottish Ministers established an inter-agency research project, known as the National Coastal Change Assessment which aims to develop a shared evidence base to determine coastal change across Scotland’s soft coastal areas. The use of collaboratively funded remote sensed data has proven invaluable to the Scottish Public Sector organisations in such projects as determining the Mean High Water Springs Tidaline and the delivery of more targeted cost-effective public services such as flood risk management. This data also has the ability to be made openly available through the Scottish remote sensed data as open data and can be accessed through the [Scottish Remote Sensing Portal](#).

In the 2017 strategy we made a commitment to work with stakeholders, privacy interests and members of the public to develop a robust, secure and trustworthy mechanism by which an individual member of the public can demonstrate their identity online.

We established the Digital Identity Scotland programme – overseen by a Programme Board with broad stakeholders and interests – and aligned this work to the principles of open government. We have now completed the initial phases of this work (Discovery and Alpha) which has allowed us to develop a proof of concept and outline business case. We are now finalising procurement for a development partner to move to the next (Beta) phase.

In 2017, we had only delivered CivTech (Beta). Since that time, we have developed and expanded the program through four successful iterations. Developments have continued to be innovative and have built upon the lessons learned from previous cycles.

Through the five iterations of CivTech, 188 FTE jobs have been created and there has been £50.3 million in investments. 55 teams have taken part in the Accelerator Stage, and 52 of these have remained operational. This survival rate is far higher than the private sector norm in which 20% of new businesses go under within 12 months, and 60% within three years.

CivTech has also captured attention on the world stage and has been described as a leader in its field. This led to the launch of the CivTech Alliance in April 2020 whose purpose was to develop links and share knowledge and expertise across the growing number of public sector focused innovation initiatives across the world, and to promote CivTech alumni companies in these markets. Membership is growing, with some 20 regions, initiatives and countries engaged.

Digital Public Services

The strategy set out a vision of a country which creates digital public services around the needs of users; ensures we have the talent and capability to deliver digital transformation in the public sector; and establishes a public sector that operates on common digital platform-based business models to make it more efficient.

A major building block to ensure successful digital transformation was the need to design services around the needs of users. In 2018, the Office of the Chief Designer was established within the Digital Directorate to build the skills and develop the processes required to enable this to happen consistently. Since that time, we have delivered a programme of training on service design, which has been provided to teams delivering public services, including local government and the third sector. We also established a community of practice for design in public services which now has almost 500 people across the network.

We ensured that our service design capabilities were aligned to the Digital Data and Technology (DDaT) profession framework which was introduced around the same time. In doing this our aim was to ensure that we could attract, develop and retain the people with the service design skills needed to achieve digital transformation

The publication of the Scottish Approach to Service Design playbook provides guidance, tools and methods to support public service design projects. This includes a focus on inclusive and accessible design methods to make sure everyone can participate. Additional advice and guidance on user centred design is available via the Digital Transformation Service (DTS).

User-centred design is a core theme of the Digital First Service Standard, which we also introduced in 2017 to ensure that all organisations who were being assessed were provided with guidance and a minimum evidence standard to meet.

The Digital First Service Standard was established to provide a framework of 22 standards essential for service transformation, with projects not able to proceed to the next phase until they have met all 22 Standards. This was later refreshed and relaunched as the Digital Scotland Service Standard in 2021, broadening the focus from assessments and assurance to supporting organisations to plan and deliver new services in line with the criteria. The focus has shifted from digital products to end-to-end services, and ensures organisations consider key strategic aims for Scotland such as reusing and contributing to shared platforms, and the performance indicators that map to Scotland's national outcomes in the National Performance Framework. Training on the Digital Scotland Service Standard is available for teams through the Scottish Digital Academy.

We strengthened our approach to the assurance of digital projects with the introduction of the Technology Assurance Framework in 2017. This includes mandatory reviews of major digital projects and also assessment for compliance with the Digital First Service Standard for new or transformed services. The Framework aims to reduce the risks of projects failing for common reasons and to help identify issues early in a project to enable these to be addressed.

The Scottish Government launched the Digital Skills Academy for Government to improve the level and quality of digital skills across Government and the wider public sector. Over the past 2.5 years, around 2,500 delegates have attended one of the 18 courses we offer. Throughout 2020, these courses were all moved to online delivery, increasing the accessibility of our services to everyone

In 2017, we committed to offering all public sector leaders the opportunity to attend a “Digital Champions” programme. When the strategy was published, the programme was running successfully and had 122 alumni. Since 2017 a further 206 public sector leaders have joined the programme. In total the programme has now had 328 delegates from 128 public sector organisations. Programme completion rate continues to be over 95%. Feedback from leaders has praised the value of the programme in allowing them to develop their understanding and confidence of the benefits of digital transformation and how they can drive this in their organisations.

In 2020/21 the programme has been redesigned in partnership with Heriot Watt University and now gives leaders the opportunity to undertake elements of the MSc Digital Leadership programme as well as a bespoke 2-day leadership course focused on Leading Effectively in Complex Environments and turning strategy into delivery.

The work of the Academy is led by the Office of the Office of Digital Capability and Talent, which was also instrumental in embedding the Digital, Data and Technology (DDaT) profession across Scottish Government and associated bodies, so we are better able to recruit and retain people to digital roles where staff are in short supply. To date 769 have been accredited to DDaT.

In 2018 the Office of the Office of Digital Capability has also introduced the First Minister’s Digital Fellowship to bring in senior leaders from the digital technologies industry with key skills into the civil service, to share their skills and insight and increase our own digital transformation capabilities.

These foundations have allowed us to take forward successful digital transformation projects across national government

Since the publication of the 2017 strategy we have continued to develop mygov.scot to provide information on government services for the public and businesses through the platform rather than through a number of disparate websites. Notable early successes included information on housing such as a model tenancy agreement, information on Social Security including baby boxes and baby and pregnancy grants; and information relating to Scotland’s readiness for exiting the EU.

These foundations and ongoing work to add content proved instrumental at the outset of the coronavirus pandemic, as we were able to quickly pivot so that mygov.scot became a central point of information on shielding content and other coronavirus related information such as self-isolation grants, travel restrictions, and a coronavirus postcode look up to help people determine what tier of restrictions their household fell into.

In support of this work we began work on an ecosystem catalogue project to help identify barriers to the re-use of common platforms and standards across the public sector. The aim of this was to provide value for money for the people of Scotland by simplifying, standardising and sharing ways of working across the public sector; and deploy common technologies that can be built and procured once.

This has provided the foundation for many of our ambitions to transform government in the revised digital strategy published in March 2021, which are based upon the principle of adopting common platforms and common ways of working across the public sector – in particular our ambitions for a common payments platform to facilitate financial transactions across national government, and a common digital identity platform to allow people to confirm their personal identity securely when accessing public-sector services digitally. The development of common platforms for digital identity and payment services are both in their beta phase and form the basis of the public service transformation strategy described in the strategy refresh of 2021.

We have also worked with central government organisations to help them understand the benefits of the cloud and how to transition to cloud based services. This began with a review of our suite of documents on data hosting and resulted in the publication of a cloud policy statement that reinforced our commitment to ‘cloud first’ to introduce scalable cloud based services across central government in Scotland. We have subsequently made preparation and planning tools and templates available to support organisations who are preparing for their cloud journey, and established a cloud platform service to offer a shared cloud platform. We have also established a Cloud Community to help grow the cloud capabilities across central government, promote collaboration and build communities of practice to help remove the barriers our earlier discovery work established around issues such as skills shortages, and misconceptions around cyber resilience. This community now has representation from over 50 central government organisations and services.

Since 2017 we have also supported other parts of central government in Scotland in their own digital transformation journeys. The digital directorate has continued to provide “hands on” advice and support to various organisations and parts of Scottish Government in order to shape and deliver their digital transformation ambitions. We have supported 100 public sector organisations in this way to ensure that they are equipped with the culture, skills, and capabilities required.

We have supported the development of Social Security Scotland to design and build the service to deliver social security benefits devolved from the UK Government. We applied the principles underpinning Scottish Approach to Service Design to ensure that the new Social Security system was designed in partnership with the people of Scotland. In doing this we were able to simplify application processes, and embed digital thinking and processes within the new organisation.

We have worked with Disclosure Scotland to deliver a challenging programme to transform from a paper driven and manually intensive organisation into a customer focused, cost effective online business. This resulted in a new Basic Disclosure

service allowing members of the public to make an online application, input their details, confirm their identity and make a payment.

We have worked in partnership with organisations from across the justice sector to understand how digital evidence is being shared throughout criminal proceedings. Considerable user research with these organisations provided a detailed understanding of how these partners are sharing, disclosing, and presenting evidence such as CCTV footage and images, and the complexity involved in doing so. The foundations laid in this work were instrumental in helping the justice system to pivot at the beginning of the coronavirus pandemic, and make use of the emergency powers offered by the Coronavirus (Scotland) Act to ensure the justice system was able to function by enabling the transmission of documents across civil and criminal processes.

Connectivity

The strategy set out a vision for Scotland which provides high quality connectivity across the whole of the country, with commitments to ensure that every premise in Scotland is able to access broadband speeds of at least 30 Megabits per second by 2021, and address 4G mobile 'not spots'.

In 2017 an average of 83% of premises in Scotland had access to superfast broadband with average download speeds of 35 megabits per second. In rural Scotland, these figures were 46% and 15 megabits per second respectively. The Planning for Reaching 100% (R100) programme procurement was also underway with the contract notice issued on 14 December 2017.

Our commitment to provide everyone (100% of residential and business premises) in Scotland with access to superfast broadband by the end of 2021 will be met. Independent broadband analysis site, thinkbroadband.com (the same site the UK Government quotes in its own figures), states that 94.6% of premises across Scotland are now able to access superfast broadband speeds of 30 Mbps and above – up from just 50.7% when the DSSB programme began. In our rural and Island communities, the programme has transformed access, with 65% of premises in Orkney, 75% in Shetland and 79% in the Western Isles now able to access superfast broadband.

We have now transformed the R100 programme into largely a full fibre programme, which will deliver future-proofed, gigabit capable connectivity, and the first connections are now live (as a comparison other parts of the UK are still planning for this). In addition, we are providing 10 years rates relief on newly laid and lit fibre with the aim of encouraging new investment in Scotland's fibre infrastructure network, and we also agreed a Full Fibre Charter with industry operators in December 2020 to encourage commercial providers to deliver more, and faster.

Our £25 million Scottish 4G Infill programme is investing in future-proofed infrastructure to improve rural 4G mobile coverage, whilst working collaboratively with wider mobile initiatives to ensure maximum impact. 11 masts are now live and delivering 4G services, and anticipate the programme delivering future-proofed, 4G mobile infrastructure at up to 46 locations.

In the 2017 strategy we made a commitment to maximise the value of the then emerging 5G technology as a driver of innovative solutions to the private and public sectors. This began by the publication of our well-received 5G strategy in August 2019, and continued with the establishing of the Scotland 5G Centre (S5GC), to facilitate investment in the development, deployment and commercialisation of 5G in Scotland.

We have also laid the foundations to go further and ensure that 5G technology is at the heart of our future connectivity plans. In the 2020/21 Programme for Government published last September, we announced an additional £4 million in funding support to the S5GC to deliver a network 5G Innovation Hubs. Our aim is for the network of Hubs to act as a catalyst to place Scotland at the forefront of next generation wireless communications services, and first Hub – located in the Forth Valley should be operational shortly.

In the strategy we also made a commitment to ensuring Scotland is equipped with the underlying infrastructure capable of supporting a widespread sensor network to maximise the benefits to our businesses and communities of the Internet of Things (IoT). We are delivering on that commitment through several initiatives.

In 2018, we invested £2.7 million in IoT Scotland, a three year programme to create a widespread network using one of the world's most popular standards (LoRa), in partnership between with Scottish Enterprise, Highlands and Islands Enterprise and our commercial partner 'North' (formerly Boston Networks).

During 2019/20, we worked collaboratively with the Centre for Sensor and Imaging Systems (CENSIS), one of Scotland's Innovation Centres, to promote IoT technologies through our 'IoT Support Programme'. We focussed on five sectors – Health, Transport, Tourism, Food & Drink and Smart Cities – where there is significant potential for IoT growth to stimulate demand and ensure uptake in Scotland.

Through CivTech 5.0, we used IoT as the basis for a new, technological and data-led solution to infection control and explore how 'smart building' applications could be applied to smaller scale settings.

In 2020, we commenced a project with 'FarrPoint', Scottish Futures Trust, and the community of Pairc in the Western Isles, examining rural applications as well as user acceptability. A major aim is to demonstrate to providers that demand exists in rural areas.

Skills

The strategy set out a vision of a country where education and training is focussed on expanding its pool of digital skills and capabilities and tackles the current gender gap in digital skills and careers.

In 2017, we set out to launch a new digital schools programme, to expand the number of school coding clubs and to provide teachers with the skills and resources required to use digital to enrich their teaching.

Since the 2017 Strategy, Education Scotland has set up regional primary and secondary lead teacher networks to up-skill teachers in knowledge and effective teaching approaches in computing science at all levels within the curriculum. They have also worked with British Computer Society and Computing at Schools Scotland to publish and promote computing science resources for early years and primary teachers.

SDS with industry and partners have also established Tech Experts into Schools where teachers and employers co-develop and co-deliver curriculum-mapped technology activities in schools.

Our goal was to work with our schools, employers, and skills providers to tackle the persistent gender gap in digital skills and careers.

Since June 2016, the Digital Xtra programme has been available to help children across Scotland develop their digital skills through extra-curricular opportunities like coding clubs and competitions. During its fifth year it supported tech clubs to reach a high number of young people, including girls, across 22 local authorities.

With the 2017 digital strategy, we set out to boost teacher numbers in computing and STEM subjects through the introduction of innovative pathways into the profession. To do so, in 2018 we introduced STEM bursaries to encourage more people to train as secondary school teachers in physics, chemistry, maths, computing science, technical education, and home education. 150 STEM bursaries are provided annually and 368 bursaries have been awarded since the introduction of the scheme.

Participation

The strategy set out a vision of a country where everybody could share in the social, economic and democratic opportunities of digital; and the conditions are created in which Scottish society can address concerns about the digital world.

In the 2017 strategy, we outlined our goal to use the Year of Young People (2018) as a platform to establish a clear commitment to digital rights and responsibilities that empower people to access the digital world creatively, knowledgeably and fearlessly.

To do so, we commissioned Young Scot to co-produce a report on the digital rights of young people. The initial report – [Our Digital Rights](#) – was published in 2017.

In 2018, we also sponsored Young Scot to host a conference with young people from across the United Kingdom to consider rights and responsibilities in the digital world.

We also committed to launching a new round of funding for community digital inclusion projects and to expand Scotland's Digital Participation Charter to increase

the number of organisations involved in a national movement to promote digital skills.

By 2017, five rounds of the Charter Fund supporting 86 organisations had been granted. Since then, a further three rounds of grants have been offered.

By round seven, 189 organisations had been supported. Round eight was announced in February 2021, making £700,000 available for small grants to help a range of organisations tackle inequality throughout their communities by embedding essential digital skills development work in day-to-day activity with service users. This is largest amount that has been accounted to date.

The 2017 Digital Strategy was also committed to expanding the Digital Participation Charter to get more organisations to commit to training their staff in basic digital skills and to contribute to community inclusion initiatives.

The Charter was set up in 2015, and by 2017 there were 480 member organisations. Since then, the Charter has secured commitment from 670 organisations across the public, private, and third sector to build the digital skills of their workforce, customers, and service users and to support each other to increase digital inclusion.

Large organisations that are Charter signatories include Bank of Scotland, Royal Bank, Barclays, BT, Sky Scanner, ASDA and Microsoft. These organisations use some of their volunteering programmes to support smaller companies and the third sector.

To comply with a 2019 Programme for Government (PfG) commitment, in autumn 2020 we set up an independent expert group “to develop a strategic framework and recommendations [to Scottish Ministers] for an Ethical Digital Scotland, informed by the best available evidence, specialist cross-sectoral knowledge, and insights from engagement with multiple publics and stakeholders.” This report is due to be published in late 2021.

Cyber Security

The strategy set out a vision of a country which aspires to be recognized as a world leader in cyber resilience, with a global reputation for being a secure place to work, learn and do business.

The first Cyber Resilience Strategy was published in 2015 to increase cyber resilience across public, private and third sectors.

Substantial progress has been made in building the foundations of cyber resilience across the public sector, including cyber security standards and C-suite responsibility.

As of May 2020:

- 76% of public sector bodies have placed cyber security on their risk register;
- 96% of public sector bodies have designated a board member with responsibility for cyber security;

- 60% of public sector bodies have put in place incident management policies;
- 88% of public sector bodies have achieved Cyber Essentials or Cyber Essentials; and
- 86% of public bodies agreed that the process of achieving (or working towards achieving) Cyber Essentials or alternative has helped to improve the overall cyber security of their organisation.



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