



**Scottish
Ambulance
Service**
Taking Care to the Patient

BETTER CONNECTED

Our Digital
& Data Strategy
2022-2030

**Using Digital & Data to enable SAS to save more lives,
reduce inequalities and improve health and wellbeing**

Foreword from our Chair and Chief Executive

The Scottish Ambulance Service aims to save more lives, reduce inequalities and improve health & wellbeing.




Digital technology, supported by reliable and accessible data, is recognised as a key enabler to support these strategic commitments. We will build on the digital and data innovation work accelerated through the Covid-19 pandemic to co-design and develop coherent, user-centred solutions for our people and the public with partners.

As demand for health and care increases, the Service must adapt to deliver services in new ways, focusing on providing care to patients at home whenever possible and ensuring those who need specialist care are conveyed to the most appropriate care settings as quickly, safely and efficiently as possible.

'Better Connected' is our first Digital & Data Strategy. It sets out our commitment to invest in digital technology & services, data solutions and the resources required to implement them. Our aim is to meet the needs of our future workforce and population while supporting our current staff to deliver the best possible care to our patients. We look forward to working with you to deliver it.



Tom Steele
Chair



Pauline Howie OBE
Chief Executive

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Our Digital History

The Scottish Ambulance Service is a data rich organisation with a strong reputation for delivering successful change programmes. Over the past 15 years, the Service has transformed the way it responds and delivers care to patients, utilising data and technology to drive service improvement.

The Service were early leaders in digital delivery within the ambulance sector, introducing the UK's first ambulance electronic patient record (ePR) back in 2007 alongside mobile data technology and touch screen capability across our unscheduled care ambulance fleet. This ensured a faster response to patients and automated electronic data collection for reporting and analysis. This was quickly followed with the introduction of mobile data capabilities to our patient transport fleet in 2011.

The ePR provides a wealth of clinical data which has enabled leading clinical audit and research work, improvements to clinical practice and unique data sharing opportunities with partner organisations.

Since then, the Service has continued to evolve its digital capability, rationalising three geographically disparate ambulance Command and Control systems into a single national platform supported by advanced network and telephony links to ensure ambulance calls can be delivered to the next available call handler in each of our Ambulance Control Centres (ACC), regardless of where the call originates.

Development of our ACC and vehicle based systems is continuous, delivering improvements including access to Emergency Care Summary (ECS) records held by a patients GP, delivery of ePR data for patients treated at home to their GP to support follow-on care and the provision of clinical tools and calculators to aid clinical decision support for our staff. More recently we have enabled auto-dispatch functionality to the highest category emergencies and implemented remote clinical access to enable clinical triage from non-ACC sites

Our Digital History (continued)

The Covid-19 pandemic accelerated digital delivery across the health and social care system. The Service adapted quickly to new ways of working which included the swift implementation of Microsoft Teams to support collaboration between teams working from home to support the frontline operational staff. We adopted video conferencing technology to enable enhanced video triage for patients with non-immediately life threatening conditions, allowing Advanced Paramedics to gain additional information about a patient's condition to determine the most appropriate care pathway for their needs, reducing unnecessary hospital attendances and ambulance journeys.

Our back office systems have also evolved and improved over the period. We have worked with our NHS Scotland partners to implement a variety of national shared systems to enable efficiencies and standardisation of processes and services in areas such as Human Resources, Finance and Procurement.

Whilst the Service has continued to make strides in many areas of digital delivery, these have been largely targeted towards individual system replacements, driven by contract expiry deadlines or through the direct replacement of priority paper-based processes to improve patient-facing services.

The Service recognises that a dramatically different, and more holistic, approach is needed to deliver digital transformation of our services and to unlock the potential of our data for future clinical research and improvement. Investment is needed to ensure the Service can reclaim a place at the forefront of ambulance digital innovation, in order to meet the future needs and demands of the Scottish public and our workforce in a fast-paced environment of digital change. This strategy sets out the aims and ambitions of the Service to rise to this challenge.

Our Digital & Data Strategy in Summary

Our Vision

To improve the care and wellbeing of people in Scotland, our staff and our partners by making best use of *digital technologies and data* in the design and delivery of service.

Our Population

To enhance anticipatory care and response, improve population health and reduce inequalities through the development of digital and data solutions

Our People

To provide our staff with the right digital tools, skills and data to perform effectively within their role.

Our Partners

To collaborate with our partners to deliver digital and data solutions supporting best value and integrated planning & delivery of care to our patients.

Delivered through 5 pillars

Connecting
People,
Services and
Communities

Partnerships
& Data
Sharing

Digital
Resilience

Workforce
& Skills

Design,
Development
& Delivery

Aligning our Digital & Data Strategy

Our Digital and Data Strategy 2022-2030 coincides with the publication of the Scottish Ambulance Service's corporate strategy 'Our 2030 Strategy' which recognises the use of data and digital innovation as one of its cornerstone principles for successful delivery.

This strategy supports the Service's 2030 organisational vision and mission to save more lives, reduce inequalities and improve health and wellbeing. We will achieve this by working together with the people of Scotland, our staff and partners to deliver sustainable and effective care, experience and treatment, anticipating needs and preventing ill health.

'Better Connected' is one of a number of supporting strategies which will support the overall delivery of 'Our 2030 Strategy'. Some of the other key supporting strategies are depicted below:



The commitment to maximise the use of digital, data, research and innovation will underpin the delivery of the ambitions set out in 'Our 2030 Strategy', ensuring the Service can develop and deliver digital and data solutions to meet user needs and expectations.

Our 2030 Strategy

Our Vision

Saving more lives, reducing inequalities, improving health and wellbeing

Our Mission

Working together with the people of Scotland, our staff and partners to deliver sustainable and effective care, experience and treatment, anticipating needs and preventing ill health

Our Values

Care & Compassion

Equality, Dignity & Respect

Openness, Honesty & Responsibility

Quality & Teamwork

Our Principles

We will adopt an equality and human rights-based approach.

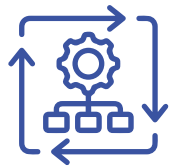
Our services will be planned, designed and delivered around people and their lived experience.

Ensuring best value, good governance, joined-up working and effective management of resources.

Implementation will build on evidence and best practice, championing digital and innovation.



Why Digital & Data is important



Digital technology and data are essential to delivering the corporate ambitions of the Scottish Ambulance Service as set out in 'Our 2030 Strategy'.

This strategy marks a significant milestone in our digital transformation journey. It signals an intent to focus our attention, and our resources, on the design, development, and delivery of innovative digital and data services that are secure and are integrated with wider health & care services across Scotland.

Data has consistently played a key role in the planning and provision of services in the NHS and other sectors. The ability to derive insights about populations, patient groups and customers has enabled intelligence led decision making and has helped to drive improvement. This was brought to the forefront, and the attention of the general public, during the Covid-19 pandemic where the importance of the good quality, timely data and the part this plays in the ability of the Government, the NHS and other partners to make informed decisions. The future strategy of the Scottish Ambulance Service and the wider care system will be driven by data insights, to provide the evidence for change, inform the direction of travel and measure the progress made. To achieve this the collection, collation and analysis of quality meaningful data is essential.

This strategy is fully aligned with wider Scottish Government strategies, including the Digital Health & Care Strategy and the forthcoming Data Strategy for Scotland (Q1 2023), as well as the underpinning national delivery plan. It demonstrates our commitment to developing digital service choice for our citizens, to start addressing the 'digital-divide' between those who are digitally included and those who are digitally excluded as well as increasing the role we play in public health with a view to improving the health and wellbeing of the people of Scotland. It also outlines our commitment to using digital technology and data to improve sustainability.

Why Digital & Data is important (continued)



In terms of the '*problems we are trying to fix*' through the development and delivery of this strategy, they include:

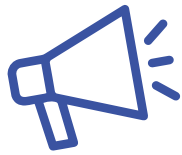
- ➔ Our reliance on legacy systems and technology to underpin some key systems and the risks this involves;
- ➔ Difficulty extracting data needed for research and innovation due to the complexity of our system architecture and the presence of data across multiple systems;
- ➔ The presence of inefficient paper-based processes which could be better served with digital alternatives;
- ➔ Duplication of effort in re-keying data into multiple systems due to a lack of interfaces between them;
- ➔ Increasing load on our hardware and infrastructure to meet the processing demands of new technology;
- ➔ Challenges in accessing the historical patient data needed to inform clinical care;
- ➔ Challenges in accessing accurate and reliable information on local care pathways for patient referral;
- ➔ Difficulty in safeguarding patients by ensuring recommendations for care are followed up with their GP;
- ➔ An expectation from patients to have their care record shared with multiple clinicians throughout their care journey and their frustration when this does not occur;
- ➔ Staff do not feel confident in their digital skills and knowledge to make the best use of the systems they are supplied with;
- ➔ An inability to consistently track patient outcomes to inform future clinical practice.

Why Digital & Data is important (continued)

Whilst it is accepted that digital and data are key enablers to deliver the Service's strategic aims, we must also acknowledge the challenges we may face in delivering our digital and data ambitions, which include:

- ➔ Maintaining the delivery of our 24x7 services to the public throughout our digital transformation journey;
- ➔ Providing equity of solutions and training across a complex and geographically diverse organisation;
- ➔ Significant competition for the limited skilled digital and data resources available in Scotland;
- ➔ A significant public funding challenge to finance the delivery of this strategy.

What are our population telling us?



As part of the public consultation process for the Scottish Ambulance Service 2030 Strategy development, we asked the Scottish public to provide feedback on the five delivery pillars we have identified to deliver this Digital & Data Strategy.

We asked participants in the consultation survey to rank the five delivery pillars in order of their perceived priority and to identify anything we may have missed.

The feedback from the public suggests that the collaborative work between our staff, partners and patients to design and implement digital and data solutions is the key priority for our population. This aligns with our commitment to co-design digital and data solutions to meet user needs and expectations, both internally and externally, based around the lived experiences and challenges faced by our service users.

Our public consultation also highlighted a desire to better connect people, services and communities through the development of digital and data solutions. This is seen as a key indicator of the public desire to have local access to national services and to harness the power of technology to address health inequalities and to promote better health outcomes for our patients and public.

The results of the public consultation further solidified the message that people expect their data to be shared between service providers, particularly in health and social care settings to avoid the need for service users to re-tell their story multiple times throughout their care journey. People also want the opportunity to access and update their own personal data and take ownership of who it can be shared with.

What are our population telling us? (continued)



The experiences lived through the pandemic and the accelerated introduction and adoption of digital solutions for citizens such as the vaccine booking portal, Check-in Scotland, Test & Protect and vaccination status apps, appear to have driven a wider acceptance of digital and data sharing solutions to benefit public health and citizen access. By connecting services through the Scottish Government/NHS Scotland's digital access to services, we can build on this momentum to create a cohesive package of service access across Health and Social Care and across the wider Public Sector in Scotland.

Our public consultation provided acknowledgement of the importance of cyber security and resilience within the Service along with a requirement to ensure that the digital and data skills of our staff and service users are aligned with our ambitions. This will ensure that nobody is left behind or excluded from accessing our vital services. For this reason, whilst we are committed to driving digital transformation for future service delivery, we will continue to invest in developing non-digital methods of access to ensure a blended approach is maintained for those citizens who cannot, or choose not, to adopt digital solutions. This will also act as a vital resilience measure for business continuity purposes.

What are our people telling us?



Our staff have told us they need the right tools to do their jobs effectively.



Staff highlighted the need for systems to be robust and reliable, both in terms of the hardware and software provided for data input i.e. tablets, laptops and PCs but also in the networks supporting these e.g. WiFi connections, bandwidth, security and resilience. The provision of intuitive, well-designed solutions will improve staff experience and maximise the opportunities to enable data sharing and improve the quality of the data collected.

Through our engagement with staff, there was overwhelming support for unlocking the potential of some of the digital tools we already have in place, through effective training and support mechanisms. Staff prioritised the need to eliminate the paper-based processes still in use across the Service and the creation of interfaces between our key systems to minimise duplication of data entry into multiple systems and inefficient use of resources.

Our staff engagement also highlighted the need to develop digital and data solutions at pace in order to stay aligned with development work and solutions that are readily available to our partner organisations. This will help ensure our staff feel valued and supported to do their work effectively, with access to modern digital solutions and systems. Staff prioritised our objective to work in partnership with them, our patients and partner organisations to design, develop and deliver digital and data solutions which meet the needs of the end user and they highlighted the importance of connecting our people, services and communities as one of our key ambitions.

The ability to share information quickly and easily with partner organisations where appropriate was highlighted as a key requirement. This will support staff in both SAS and the wider health and social care sector to provide the best possible care to patients.

What are our partners telling us?



Our engagement with partner agencies has highlighted the need to focus on the transition of care for patients and the effective and secure passing of data between all partner organisations and systems involved in a patients' journey.



There is a need to understand the patient experience and ensure that data flows are appropriate, with a focus on user stories for patients and staff alike. There is also a need to evidence added value in the delivery of digital and data solutions whilst maintaining alignment with the wider Scottish Government and Health & Social Care Digital & Data strategies.

Our partners were also keen that we focus on opportunities to do things differently rather than re-procuring like-for-like replacements of existing systems where alternative options for innovation or partnership working may produce better results. Our strategic intentions need to aim higher than the churn created by contract expiry dates and tender and procurement timelines.

Our partners are keen to share learning from us and with us to ensure we can benefit from the experience of others to avoid duplication of effort and minimise issues encountered on our digital transformation journey.

The feedback from our partners highlighted their shared ambition to work collaboratively with us to improve the health and wellbeing of the Scottish population, exploiting the opportunities to use data as a lever to do so. This could, among other things, take the form of real-time data sharing to direct patients to the most appropriate care pathway or longer-term collaborative data analysis to understand the needs of patients now and in the future.

There are opportunities to partner with other organisations to develop the digital skills of our staff, for example through input to, and utilisation of, the proposed central digital skills resource work being led by NHS Education for Scotland (NES). This work aims to streamline digital education provision across the health and care section, avoiding duplication of effort in addressing the digital skills gap.

Why do we need to protect our Digital systems and our data?



As a national healthcare provider, the data we gather and use can be both sensitive and valuable so we must ensure it is protected accordingly.

The risks we face range from the unintended disclosure of sensitive information to a successful ransomware attack by a sophisticated threat actor that renders our entire ICT estate unusable.

The risk of a being victim to a successful cyber-attack is now firmly established as a global ‘top 10’ strategic risk.

Indeed, the World Economic Forum report that in a survey by Allianz Global Corporate & Specialty, 2,650 risk management experts from 89 countries ranked cyber incidents as the biggest risk to business in 2022. The organisational impact of a successful attack can be devastating as reported following successful high-profile public and private sector attacks. In addition, the 2022 Russian invasion of Ukraine is a stark reminder of how quickly the global cyber-threat landscape can change.

As well as the external threat landscape, we acknowledge that our staff have a critical role to play in maintaining the confidentiality, integrity and availability of our digital systems and our data. Global research consistently shows that over 75% of cyber breaches can be attributed to human factors. Under the ‘Workforce and Skills’ pillar of this strategy we will endeavour to ensure that our staff are provided with the knowledge and skills required for them to be a robust link in our cyber defences.

The Scottish Ambulance Service is also committed to continually improving our compliance against the Cyber Resilience Framework (CRF) developed by the Scottish Government in their role as Health Competent Authority (CA) in relation to the 2018 Network Information Systems (NIS) regulations.



Why do we need to protect our Digital systems and our data? (continued)

For the period covered by this strategy, our strategic intent is to improve our corporate cyber resilience, as well as physical, personnel and information security risks. This will be achieved by delivering our annual NIS audit action plans and improving our SAS CRF compliance by 5% each year until 2026. We will then maintain it at 80% or above.

All organisations have statutory responsibilities to manage any information they hold in an appropriate manner. This is underpinned by legislation such as the Data Protection Act 2018 (DPA2018), UK General Data Protection Regulation (UKGDPR), Freedom of Information (Scotland) Act 2002 (FOISA) and the Public Records (Scotland) Act 2011 (PRSA). These acts help ensure that the population have assurance that their information is processed appropriately, for example: the security of any information held or shared, the retention of records and their right of access.

Our Digital & Data Pillars

Connecting People, Services & Communities

What we will achieve:

- ➔ Use digital and data as enablers to improve our ambulance response to patients with the most time-critical need.
- ➔ Reduce unnecessary hospital admissions and provide access to appropriate health and social care pathways within the community.
- ➔ Provide anticipatory and proactive response to patients with long term conditions.
- ➔ Support work to position SAS as an 'anchor institution' in Scotland with the aim of reducing inequalities in healthcare access.
- ➔ Provide targeted support and services to save more lives and improve clinical outcomes.
- ➔ Encourage digital participation and meet the communication preferences of our digitally-enabled population.
- ➔ Support digital and data collaboration across Health and Social Care Services in Scotland through the use of high quality, trusted data and co-design of digital Services.

How we will achieve it:

- ➔ Support the creation of our integrated clinical hub through digital developments and data insights.
- ➔ Enable national visibility of patient flow into receiving centres including ED turnaround times and bed availability.
- ➔ Enable clinical video consultation options for patients and staff to seek clinical decision support.
- ➔ Improve staff visibility of, and access to, clinical pathways through online directory tools.
- ➔ Provide digital remote monitoring solutions e.g. for patients with long term health conditions.
- ➔ Support the provision of publically accessible equipment and infrastructure, such as PCs and webcams, within our estate.
- ➔ Use historical trend and analysis data to target healthcare services and provision in communities most at risk from acute illness and accidental harm.
- ➔ Provide alternative solutions to the traditional '999' telephony access route whilst continuing support for non-digital access methods.
- ➔ Providing journey reminders, updates and transport cancellation options for our scheduled care patients via SMS messaging.
- ➔ Co-design intuitive and familiar interfaces for citizens across multiple public sector platforms for example through the Scottish Government/NHS Scotland digital access platform.
- ➔ Enable the provision and sharing of high-quality trusted data with our Health & Social Care Partners.
- ➔ Expand access to publicly available data about our Services.

How we will know if it is successful:

- ➔ An increase in pre-despatch clinical consultation, including the use of video triage, to determine the most appropriate response and care pathway for patients.
- ➔ An increase in appropriate referrals to local community health and social care pathways.
- ➔ Provision of proactive response for patients showing signs of potential health deterioration through remote monitoring alerts.
- ➔ Our building and spaces will be used to support community access to digital healthcare services and self-care information.
- ➔ A reduction in the presentation of patients with acute conditions including OHCA, Stroke, Falls, mental ill-health and Drug Harm.
- ➔ An increase in ambulance requests made via digital channels.
- ➔ Time efficiencies in ACC workflow and call handling times, releasing resources for redeployment to other value-added services.
- ➔ A reduction in aborted scheduled care journeys.
- ➔ Patients will receive more co-ordinated, appropriate care, with visibility and control over how their data is shared.

Our Digital & Data Pillars

Partnerships & Data Sharing

What we will achieve:

- ➔ Avoid unnecessary duplication of effort and cost in developing digital and data solutions and processes.
- ➔ Enable consistent, appropriate and secure data sharing, in real-time, between health & care services.
- ➔ Provide citizens and staff with access to their personal data held by SAS.
- ➔ Align with the Research & Innovation and Care Quality Strategies to deliver data-driven and evidence-based improvements to reduce health inequalities and improve population health.
- ➔ Increasing our capacity and capability to support research and innovation projects.
- ➔ Improve our Digital & Data maturity so we are considered a trusted partner by our peers.
- ➔ Develop and share insights about population groups to influence the development and design of services.

How we will achieve it:

- ➔ Adopt and adapt existing technology solutions to meet the needs of the Service.
- ➔ Digital Collaboration and Co-Design of services, solutions and data interfaces with new and existing partners e.g. NHS Inform as they develop access channels to enable real-time data sharing.
- ➔ Implementing common data standards within our systems in line with the NHS Scotland Data Strategy.
- ➔ Work with partner organisations to enable secure citizen access to their health records and control permissions.
- ➔ Develop secure access for staff to view and update the personal data held in our internal systems.
- ➔ Identify appropriate partners for data sharing to promote early years healthcare education, preventative controls and targeted support services.
- ➔ Identify and share key metrics which can be shared with other NHS Scotland Boards, Integrated Joint Boards and third sector organisations.
- ➔ Placing bids for external funding streams to support research and innovation work.

How we will know if it is successful:

- ➔ A reduction in bespoke SAS-specific development costs with our systems suppliers.
- ➔ Patients will not be asked to share the same medical history details multiple times throughout their care journey.
- ➔ Electronic patient records for matched patients will be shared with health and social care partners via near real-time integration solution e.g. Ensemble and NHS Inform to support clinical care and timely referrals to appropriate pathways.
- ➔ A streamlined process is in place to enable patients and staff to access their personal information.
- ➔ SAS data is used as an additional layer of intelligence during local and national service design as part of a whole system approach.
- ➔ Data collection is consistent across all systems in SAS and aligns with the wider NHS in Scotland enabling simplified data matching and analysis through common data standards.
- ➔ Data will be accessible across multiple systems and effectively utilised to evidence the performance of the organisation in meeting the strategic aims set out in the 2030 Strategy.

Our Digital & Data Pillars

Partnerships & Data Sharing in 2030

Greta is a 61-year-old who has recently suffered a stroke, and been deemed by her consultant to be at high risk of having a repeat episode. She has a wearable device that constantly monitors her health to help those responsible for her care to prevent a deterioration in her condition.

Greta wears this device on her wrist, it continually transmits key health indicators to a number of services. The Scottish Ambulance Service receives an alert that she has been experiencing atrial fibrillation – an irregular heart rhythm that can be an early indicator for stroke – for an unusually persistent amount of time, and an ambulance response is automatically dispatched.

Selina works at our ACC, and contacts Greta through a communications channel linked to her device to inform her of the alert our system has received and makes further enquiries. During the course of their conversation, Selina receives a further alert generated by Artificial Intelligence software used to examine speech patterns, which suggests that Greta is at increased risk of experiencing a Hyper Acute Stroke. The ambulance response is upgraded to the highest level.

Selina can see from her anticipatory care plan that Greta has family nearby, and she is able to alert them immediately of the developing situation through details stored in Greta's device. She is also able to instantaneously alert Greta's GP and update her health records.

When they arrive at Greta's home, the crew are also able to update her care record by downloading her health information directly onto their tablet. This tablet enables them to see Greta's medical history, current prescriptions and recent health measurements recorded by her device. This up to date information is also passed to the Interventional Neuroradiology team at the nearest Thrombectomy Centre, so that the team who will take over Greta's care have all of the information they need to act instantly on her arrival.

The crew are able to treat Greta and take her to the specialist care centre so that a time critical intervention can be carried out there by experts, to prevent further deterioration, and prolong Greta's life.

Being alerted to Greta's deterioration at the earliest possible opportunity and being able to dispatch the right resource to help her, contributed to a positive outcome for her from the treatment she received.

Our Digital & Data Pillars

Digital Resilience

What we will achieve:

- ➔ An improved cyber resilience posture.
- ➔ A reduction in our physical, personnel and information security risk exposure.
- ➔ Improved ICT Business Continuity and Disaster Recovery arrangements.
- ➔ An improved ICT Governance & Compliance capability.
- ➔ An improved Data Governance & Compliance capability.
- ➔ Alignment between our digital resilience ambitions and our capability to deliver them.
- ➔ Achieve year on year improvement in our maturity measured against the Cyber Resilience Framework (CRF).

How we will achieve it:

- ➔ Develop and implement a cyber resilience strategy.
- ➔ Invest in internal resources to focus on activities related to cyber resilience, ICT Governance & Compliance and Data Governance & Compliance.
- ➔ Develop and deliver annual action plans to address the cyber vulnerabilities highlighted through our annual NIS audits.
- ➔ Better align our ICT Service Continuity, ICT Business Continuity & ICT Disaster Recovery capabilities, with the business continuity requirements of the wider organisation.

How we will know if it is successful:

- ➔ Our maturity measured against the Cyber Resilience Framework (CRF) will increase by 5% year on year until 2026 when we expect to achieve our baseline compliance target of 80% for ongoing maintenance/improvement through to 2030.
- ➔ Our annual reporting of significant data breaches to the Information Commissioner and our Corporate Authority will be maintained at zero incidents.
- ➔ The number, and priority, of the actions in our annual NIS action plan will reduce over the period covered by this strategy.
- ➔ Our Digital Team will include roles specific to improving cyber resilience and governance processes.
- ➔ Compliance with mandatory Cyber Security and Information Governance training for all staff will be embedded into staff induction processes and completion will be maintained at >95%.
- ➔ Data governance and system security considerations are embedded into development projects from the outset.

Our Digital & Data Pillars

Workforce & Skills

What we will achieve:

- ➔ Develop, maintain and improve the digital and data skills and experience of existing staff, both technical and non-technical.
- ➔ Digital leadership exist at all levels of the organisation.
- ➔ Establish the Scottish Ambulance Service as an employer of choice to attract digital and data talent in a competitive recruitment market.
- ➔ Provision of the resources needed to deliver true digital transformation.
- ➔ Support skills and knowledge data and Information Governance staff
- ➔ Provide resilience for crucial roles and tasks within the data and digital teams.

How we will achieve it:

- ➔ Establish a SAS digital training academy.
- ➔ Provide Continued Professional Development opportunities for all staff to access digital and data training.
- ➔ Create an internal digital champions network.
- ➔ Support individuals at all levels and in all departments to become digital leaders through development, training and active participation in digital and data projects.
- ➔ Identify learning and career pathways for school leavers and those leaving higher education to establish appropriate apprentice opportunities for digital and data roles in the Service.
- ➔ Enhance and further developing links with other data led organisations.
- ➔ Work with academia and third sector to find new and innovative digital solutions for our staff and the public e.g. use of gaming and virtual reality technology.
- ➔ Establish a new organisational structure to support digital transformation and implement effective promotion of careers opportunities and engaging recruitment strategies to attract the necessary talent for delivery.
- ➔ Use digital technology to allow recruitment of staff who can work remotely.
- ➔ Build strong relationships with other data led organisations creating a network of support and development for staff.

How we will know if it is successful:

- ➔ Our digital training academy will support digitally enabled learning across the organisation through development of digital tools and resources.
- ➔ Staff will be trained in the digital systems needed to perform effectively within their roles with access to continued support and training throughout their career.
- ➔ An increased number of appropriate applicants for digital and data vacancies within the service and from a wider geographical area.
- ➔ SAS is considered a forerunner in the use of data technologies for data development, analysis, and intelligence.
- ➔ Our core digital & data teams have the appropriate skills and knowledge to deliver our strategic ambitions.
- ➔ We will have the appropriate capacity to undertake proactive reviews of innovative digital and data solutions to continuously improve our services.
- ➔ Our workforce will be structured to support effective succession planning and resilience, ensuring skills and knowledge retained within the organisation.
- ➔ Participation and representation by SAS in data and information governance forums with:
 - the NHS in Scotland
 - UK Ambulance Services
 - Other data led organisations

Our Digital & Data Pillars

Workforce & Skills in 2030

Paramedic Steve is starting a run of three back-shifts. He arrives on station at 1550 and checks his email and shift roster via his personal issue smartphone. He is pleased to see his annual leave request has been authorised which means he can now book a family holiday. He picks up some overtime shifts via the rostering app on his phone to help pay for the holiday. He is confident the overtime payment will come through in time as the process is paperless meaning there's no need to fill in a claim form then have it physically approved by his manager.

Steve and his crew mate are allocated a job to attend a patient who has fallen at home. The call comes through their ESN-enabled smartphones and the in-vehicle tablet which is equipped with intelligent satellite navigation to route them to scene quickly.

The patient has already been triaged by a GP in our Integrated Clinical Hub who has started completing the electronic patient record (ePR) which Steve reviews whilst his colleague drives them to the property. Steve is automatically passed a link to the patient's recent medical details via an app called Citizen Wallet. The wallet details the patient's most recent vital signs readings taken from their home monitoring device early this morning as well as a manual entry from the patient showing they were well at 8am.

Steven then accesses the patients full health record and sees they recently attended a blood pressure clinic and were prescribed new medication just 5 days ago.

Steve takes his tablet into the patient's home so he can continue completing the ePR and access any clinical support tools he may need. This is seamless as the device is always connected to his response bag which charges automatically when placed on the charging plate in the vehicle, meaning Steve no longer needs to worry about taking his tablet in and out of a charging dock or having a flat battery. He can also enter data without removing the tablet from its pouch.

After helping the patient up from the floor with his colleague and ensuring there are no serious injuries, Steve uses the tablet to perform a falls assessment with the patient. The ePR flags some potential clinical concerns related to in-built alerts associated with out-of-parameter vital signs readings automatically transferred from the patient's monitoring device. Through discussion with the patient and a review of their medical history, Steve determines the majority of the patient's VS levels are normal for them. He has also downloaded 7 days of recent data from the patient's home recording unit which allows him to identify a trend of low blood glucose levels each afternoon since the new BP medication was prescribed, Steve suspects this may be the cause of the patient's fall.

The in-built GPS in the tablet automatically provides Steve with a list of suitable nearby treatment pathways for his patient, allowing him to select the most clinically relevant referral option. Steve believes the best option is for a GP to visit the patient's home within 48hrs. Steve checks the GP details presented on the tablet with the patient before sending the referral directly to the patient's GP. As he clears his equipment away, an acknowledgement comes through on the tablet so Steve is able to confirm with the patient that the GP will attend between 2pm and 4pm the next day.

Steve closes off the ePR and the information is immediately uploaded to the central health record with a summary added to the Citizen Wallet app to record ambulance attendance and to GP referral outcome. The GP will be able to access and update the data when they visit tomorrow and Steve is confident a change in the patient's prescription will avoid the need for a future ambulance visit.

Our Digital & Data Pillars

Design, Development & Delivery

What we will achieve:

- ➔ Digital options will be offered for all contact requirements.
- ➔ A 'paper-light' organisation.
- ➔ Minimise the use of analogue and paper-based systems and processes.
- ➔ Minimise our 'on-premise' ICT estate.
- ➔ Digital systems with security 'built-in'.
- ➔ Alignment with the NHSS Data Strategy and Scottish Government Data Strategy for Scotland.
- ➔ A solid technological foundation to process data and share data insights and analysis.
- ➔ Expand data science and analytical methods used to enhance insight-based decision making.
- ➔ Systems will support the implementation and management of statutory requirements with minimal overhead allowing new processes to be adopted at pace.
- ➔ Robust and accurate data collection will be enhanced through improvement to operational systems and processes.
- ➔ Improved efficiency through automation of routine tasks and processes.

How we will achieve it:

- ➔ Understand the staff 'pain points' and work with them to develop digital solutions to address them.
- ➔ Shift our focus towards the design, development, and delivery of digital services as opposed to focusing primarily on the technology that underpins them.
- ➔ Establish, and then maintain, an ICT infrastructure that meets the requirements of our staff and patients in terms of performance, flexibility, resilience, availability, and recoverability.
- ➔ Migrate to appropriate cloud-based infrastructure over the period covered by this Digital Strategy delivering sustainable and value adding systems.
- ➔ Use data insight, data visualisation, and automation to target support where it's most needed.
- ➔ Make data accessible to teams and organisations with legitimate interests, generating meaningful insights to unlock the potential for new types of innovation.
- ➔ Use data science and analysis to identify patterns and behaviours, with systems capable of responding to user expectations and needs in real time.
- ➔ Data protection requirements and records management obligations will be considered at the design phase of new systems or processes.
- ➔ AI and machine learning will be used to support automation of appropriate tasks and processed using insights from historic data collection.

How we will know if it is successful:

- ➔ All new systems are designed to include automated retention periods for records minimising the manual intervention required.
- ➔ Personal data is easily identified at collection and handled appropriately by our digital systems, ensuring both protection of the information and appropriate access.
- ➔ Introduction of data visualisation across the organisation with the ability to share insights across the Service, NHS and wider (e.g. public)
- ➔ ICT systems will be cloud-hosted where appropriate with secure access to the data at the heart of the design.
- ➔ Paper processes are in place are for disaster recovery, business continuity or accessibility reasons primarily, a digital alternative being the norm.
- ➔ Our digital estate is fully supported under manufacturer maintenance and security timescales.
- ➔ Our management teams have access to the data tools needed to easily manage performance reporting, resource planning and identify opportunities for efficiency savings.
- ➔ Enhanced use of data for the purposes of planning and forecasting including the modelling of demand, capacity and associated 'trajectories'.
- ➔ Systems and solutions will be intuitive and responsive for effective staff use in entering and accessing data relevant to their task.
- ➔ Efficiency savings in resource time and response due to automation of routine tasks.

Our Digital & Data Pillars

Design, Development & Delivery in 2030

Johanna is a recent school leaver who previously attended a careers roadshow hosted by the Scottish Ambulance Service at her local community health hub. Johanna, and some of her school friends, took part in a digitally-simulated exercise which demonstrated many of the different career opportunities within the Service as well as the traditional paramedic and technician roles she expected. Since then, Johanna has been interested in a career with the ambulance service and has an automatic notification set up on her smartphone to alert her to any administrative positions being advertised. She is excited to see a post advertised which seems to fit her skills and experience so she starts completing the application via the SAS Recruitment app. Johanna has applied for a couple of roles in the Service previously so she can update her previous applications with her most recent part-time job history and qualifications as well as tailoring her supporting statement to ensure she is covering the elements specific to this post.

Two weeks later, Johanna is delighted to receive an app alert advising she has been selected for interview. She signs into her account to read full details of the interview format which is to be held virtually via video. The interview will be hosted within the app and she is invited to upload a presentation in advance of her interview. This is perfect for Johanna as she doesn't drive and would have been stressed about taking public transport to an unfamiliar location.

Following a successful interview and electronic receipt of the appropriate references and disclosures, Johanna is formally offered the role and is provided information about the induction process. It will include a mix of digital and classroom based training relevant to her role, issue of standard digital equipment, an opportunity to meet her team in person and a virtual reality showcase of the main Service roles and locations. Johanna will work a hybrid rota between home and the office, she therefore feels this virtual reality experience will help her understand the operational side of the Service and give her a sense of belonging in the wider team.

As previously advised, Johanna receives a delivery to her home a few days before she is due to start work. The package includes a laptop, smartphone and other equipment required to set up her home office. She also receives instructions on how to access her Service email account from her employment start date. Once she has reset her email password and completed any relevant systems training, she will automatically gain access to all the other systems required to carry out her role.

On her first day, Johanna is greeted by her line manager to commence her 2-week induction. Her manager notes Johanna's bank details, emergency contact information and any pre-planned annual leave requirements for entry into her personnel record on the staff portal. These will automatically be populated within the relevant HR, payroll and rostering systems ensuring Johanna will be paid on time and gets the leave she needs for the holiday with friends she has booked.

After a few weeks settling in, Johanna is enjoying her new role and impressed with how smoothly her induction has been. She has enjoyed all the training she has received and has met lots of nice people. Johanna is enjoying the flexibility of hybrid working and enjoys using the various digital collaboration tools to work with her colleagues. She understands the career pathways available to her and is excited about her future within the Service.

Implementing the strategy

In order to deliver the aims and ambitions detailed in this Digital & Data Strategy, a series of three delivery plans, aligned with our corporate strategic delivery plans, will be developed.

Our delivery plans will cover the period 2022-2030:

1. *Building our Digital Foundations 2022-2023;*
2. *Developing our Digital Capability 2023-2026;*
3. *Exploiting our Digital Potential 2026-2030.*

Whilst the detail and delivery projects within these plans will develop and overlap during the course of the overall strategy timeline, they will provide a vital mechanism for milestone planning, regular review and analysis to ensure the scope of this strategy is kept up to date in a timely manner as new requirements and opportunities arise.

A measurement framework will be developed to track outcomes and delivery against our strategic aims. This will include using innovative tools to continuously capture live feedback from staff and service users to ensure we are delivering solutions which meet their needs and are performing effectively.

The aim of our first two plans through to 2026 is to ensure our digital infrastructure, skills, leadership and structures are capable of supporting our wider digital transformation ambitions. The following priority areas will be targeted:

- Delivering the underpinning infrastructure to enable digital transformation;
- Securing our systems against cyber threats;
- Enabling our frontline and back-office support staff with the latest tools and technology for digital integration;
- Enabling our patients with the latest tools and technology for digital integration;
- Developing our data sharing capabilities with partner organisations;
- Restructuring ICT for Digital Delivery.



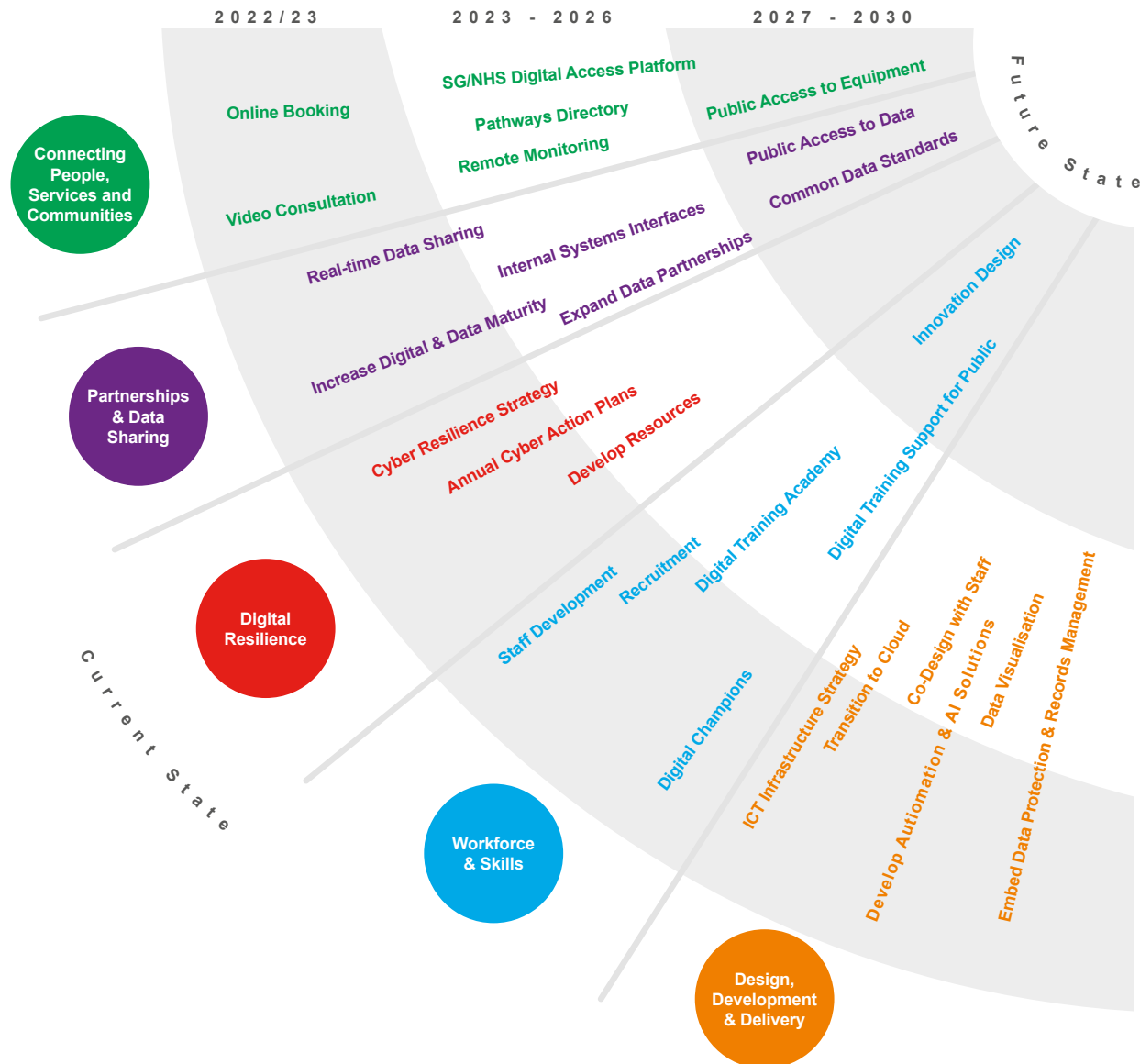
Implementing the strategy (continued)

By building digital foundations in the initial phase of our digital strategy delivery, we will give ourselves the best possible chance of successfully developing and exploiting our digital capability in line with the priorities and timelines set out in this document.

It is recognised that the success of this strategy is dependent on a number of external factors over which we have limited control. These include a challenging economic landscape post-pandemic which limits the funding available to deliver on our ambitions. A cost versus benefit analysis will be undertaken at each stage of the roadmap to ensure investments are focussed in the right areas to deliver best value. We are also dependent on the ability of our partners to prioritise working with us to develop integrated digital and data solutions. A whole system approach is needed to deliver many of the anticipated benefits which can be achieved through data sharing and digital transformation of health & social care services. Early engagement and strong partnership working will be the key to driving our success through to 2030 and beyond.

We took the initial step of establishing our Digital Board in March 2022 in order to support the development, approval and execution of our three delivery plans, and ultimately delivery of this Digital Strategy. We also plan to review our current ICT Department structure, it has been in place for over a decade now and is based around traditional ICT disciplines including Telecoms, Networks and IT Support. The review will consider our future resourcing requirements as we shift our focus towards the design, development, and delivery of appropriate digital services as opposed to focusing primarily on the underpinning technology. Moving forwards, the Digital Board will be transitioned into the Digital, Data & Research Portfolio Board in line with the planned governance arrangements to support delivery of 'Our 2030 Strategy'.

Implementing the strategy (continued)



Glossary

Term	Definition
ACC	Ambulance Control Centre – the central locations where calls to the service are processed and appropriate clinical response dispatched
AI	Artificial Intelligence – technology that enables a computer to think or act in a more human way based on previous learning.
Automation	Using technology solutions to minimise human input to processes or systems
CA	Competent Authority – the organisation responsible for the oversight and enforcement of the NIS Regulations
CRF	Cyber Resilience Framework - The framework established by the Scottish Government to assess and improve the cyber resilience of operators or essential services as defined by the NIS regulations
Cyber Posture	The overall cybersecurity strength of an organisation.
Cyber Resilience	Our ability as an organisation to prevent, withstand and recover from cyber security incidents
Cyber Security	The practice of defending technical systems from malicious attacks
Data Insight	The deep understanding that can be gained from analysing information on a particular topic to identify actions for improvement.

Term	Definition
Data Protection	The process of protecting sensitive data from damage, loss or corruption.
Data Science	A combination of maths and statistics, specialised programming, advanced analytics, AI, and machine learning with subject matter expertise to uncover actionable data insights
Data Visualisation	The visual representation of data through common graphics such as charts, graphs and infographics,
Digital & Data Talent	Individuals with knowledge and skills in these areas.
Digital Innovation	Using technology to improve existing processes and services
Digital Transformation	The use of digital technology to fundamentally change one or more business process or function
DPA2018	Data Protection Act 2018
ECS	Emergency Care Summary – a record held by a patients GP detailing and prescriptions, allergies and palliative care information for a patient.
ED	Emergency Departments - areas within hospitals sometimes referred to using the order Accident & Emergency terminology.
ePR	Electronic patient record – the clinical documentation recorded by ambulance staff via a digital tablet

Glossary (continued)

Term	Definition
ESN	Emergency Services Network - the planned replacement mobile communications solution for emergency services in Great Britain.
FOISA	Freedom of Information (Scotland) Act 2002 – legislation which provides public access to information held by public authorities.
ICT	Information & Communications Technology
Machine Learning	An application of AI which allows systems to learn and improve from experience without explicit programming
Microsoft Teams	A software package which provides digital collaboration tools and video conferencing.
NES	NHS Education for Scotland – responsible for developing and delivering healthcare education and training for the Scottish health and social care sector and other public bodies.
NHS	National Health Service
NIS	Networks & Information Systems regulations - European legislation set out to assess and improve the cyber resilience of operators of essential service across Europe including many NHS organisations.
OHCA	Out of Hospital Cardiac Arrest

Term	Definition
On-premise	Technology solutions which are fully hosted within the SAS estate.
PRSA	The Public Records (Scotland) Act 2011
Records Management	The systematic management of an organisations records
Ransomware	A type of malicious software designed to block access to a computer system until a sum of money is paid
RI-SAS	The title of the Scottish Ambulance Service's Research & Innovation Strategy
SAS	Scottish Ambulance Service
Threat actor	A person or a group of people that take part in an action that is intended to cause harm to technical systems
UK	United Kingdom of Great Britain and Northern Ireland
UKGDPR	UK General Data Protection Regulation – legislation which controls how personal information is used by organisations.



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