

Social Security Scotland Digital and Technology Strategy Chief Digital Officer Division (Social Security)



2018-2021



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Foreword

My intention with the Social Security Scotland Digital and Technology Strategy 2018-2021 is to set out the approach and direction we are taking to develop the high level architecture and solution design to support the new agency, Social Security Scotland, which is based in Dundee, in delivering Scotland's first devolved welfare system.

11 benefits are being wholly transferred, and the transition of these is challenging and complex – especially when there is a huge amount of interdependency between what is being transferred and what is remaining a UK Government responsibility, but this is also an opportunity for us to show people how the Scottish Government would like to see public services designed and delivered and that is with people rather than for people.

We are putting the citizen at the heart of all of our planning and design, and will be adapting and changing the technology we introduce to ensure we meet their varying needs, whilst treating them with dignity, fairness and respect.

The scale and intricacy involved in ensuring the safe and secure transition of these benefits into the new Social Security Scotland Agency cannot be underestimated. It is a process that will happen over the next few years, and will require us to take an innovative, collaborative and flexible approach as we set up the new public service, therefore this document will change and be updated over time as we evolve.

The opportunity that comes with developing the digital and technology that drives the completely new public service for the 1.4 million people who will rely on getting the amount of money they expect, when they expect it, is exciting and a privilege.



Andy McClintock
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01

Executive summary

This document sets out the 2018-2021 Digital and Technology Strategy (the Strategy) for supporting both the overall Programme (the Programme) that will implement the 11 benefits being transferred from the UK Department for Work and Pensions (DWP), as well as the new Agency (the Agency) for Social Security in Scotland which is based in Dundee.

The initial focus of the Strategy is to develop the high level architecture and solution design to support the programme in the delivery of wave one and subsequent deliverables, in particular the Low Income Benefits (LIB) phase of work.

Building on the Agile Discovery engagements in late 2016 and early 2017 with the support from the Scottish Government Procurement and Digital Directorates, the Chief Digital Officer Division was established and has commenced detailed technical analysis with programme, digital, and policy colleagues to explore the most achievable solution outcomes to meet Ministerial commitments and ensure that transfer of powers is smooth and not detrimental to the people of Scotland.

Through the engagement of experienced market resources and extensive dialogue with the Department of Work and Pensions (DWP), significant work has been undertaken to determine the complexity of the legacy UK welfare systems that stems back decades, and consider potential solutions to deliver the 11 benefits to the citizens of Scotland based on a user focused approach and with dignity and respect embedded into our delivery model.

As we embark on this digital and technology journey we have the opportunity to benefit from a better starting place, not a blank canvas, but an opportunity to adopt approaches such as user research, user need, usability, accessibility, safe and secure by design into the very fabric of our architecture, from the outset and not as an afterthought.

This is a multi-year journey that we cannot underestimate in terms of scale and complexity, but also the real impact we will have on citizens if we deliver poor solutions or fail to pay people on time, every time.

We cannot, and will not, do this alone or become too reliant on the commercial sector to deliver and sustain a technology estate for the Social Security Agency. We will be mindful of the legacy of people and systems costs as we move through programme delivery into long term agency operations.

Our own digital and technology staff will learn from both suppliers and technology specialists who will be with us only for as long as necessary. To achieve this we have to recognise the competitive digital skills market, particularly in Scotland and we will create an environment which encourages innovative and enthusiastic professionals to spend part of their career in the most challenging and exciting area of government transformation for many years.

Finally, we will create an overall architecture which will have loosely coupled components that can be interchanged as technology evolves with the involvement of multiple solutions and suppliers, reducing vendor control which could restrict our future platform and product choices.

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Background and introduction

The Scotland Act 2016 devolves a wide range of powers, most notably powers over welfare benefits and employment support. These powers currently cover around 1.4 million people and amount to around £3.3 billion.¹

The Scottish Government has announced the creation of a new Agency to deliver social security to the Scottish people, based in Dundee with a second location in Glasgow. It will be one of the largest executive agencies of the Scottish Government and will employ at least 1,500 staff by the time all devolved benefits are being delivered.

The scale of this undertaking requires significant investment and deployment of resource in terms of people, time, funding, knowledge, systems and services. This is reflected in the Minister for Social Security, Jeane Freeman, MSP, statement to the Scottish Parliament on 27 April 2017:

“This is a challenging time. It is, as Audit Scotland said, an ‘exceptionally complex task’.²

This is an exciting and complex opportunity which will require an innovative, flexible and collaborative approach to deliver a world class service.

This document is the 2018-2021 Digital and Technology Strategy (the Strategy) supporting the Social Security Directorate (SSD) in the delivery of the programme to support the 11 devolving benefits and the establishment of the new Agency for Social Security (the Agency) in Scotland. It will also consider technical operational support arrangements post implementation.

It is vital that we have the right approach to considering, designing and implementing technical solutions to enable the safe and secure transition of the welfare benefits from the UK Government to the Scottish Government.

The history, legacy and inter-dependency of the existing benefit systems currently used by the UK Department of Work and Pensions (DWP) cannot be ignored. We will have an ongoing requirement to work alongside their systems as they cannot administer reserved benefits and we cannot administer devolved benefits in isolation.

The ability to exchange information with DWP about benefit entitlement is not short, medium or long term, it has no end point as long as social security responsibilities are split between the two governments. This is a constraint that both social security and DWP have to accept and work with, but equally it will allow both organisations to manage their welfare obligations effectively.

¹ <https://news.gov.scot/news/final-vote-on-social-security-scotland-bill>

² <https://news.gov.scot/speeches-and-briefings/social-security-agency>

03

Key drivers

The safe and secure transition of the 11 devolved benefits to Scotland, through the programme and into the remit of the new Social Security Agency, is one of the primary drivers that will influence what level of technology is deployed initially.

Secure by design will be at the heart of all digital and technology solutions that we introduce and maintain. By embedding security and cyber protection into the fabric of our architecture and design we will seek to gain the confidence of citizens, and their trust in the Scottish Government, to deliver the devolved benefits with payments made on time, every time.

We will introduce technology solutions that are designed and implemented with user centred focus at their core. Through the engagement of users from the Experience Panels, we will involve those with real experience of previous welfare systems in the design, usability and testing of systems that will underpin the operations of the benefits being delivered by the Agency.

We recognise that citizens will require options and choices for how they interact with the Agency and we will pursue a multi-channel approach to ensure that those who cannot, or choose not to adopt digital methods will not become isolated through technology.

Through our continuous working with policy, programme and agency colleagues, we will maintain an awareness and adaptive approach to changing the technology we introduce, with the varying needs of the citizen at the forefront of our planning and design.

The technology required to build and sustain the payment of benefits is on a scale that has not been attempted previously in Scotland. Learning from other major ICT initiatives in recent times our focus will be on **Reuse**, before **Buy**, before **Build** as we consider the most cost effective approach and lower risk to technology implementation.

We live in an evolving digital world and will ensure that the Digital First Standard is at the forefront of our strategic thinking and solution designs. The early engagement with the Scottish Government Digital Directorate that helped shape the initial user research and usability approaches, will continue through the life of the programme and throughout the duration of this strategy.

There is an aspiration to create an integrated benefit solution where information is captured once and processed many times.

04

Digital principles

We will pursue alignment with the Digital First Standard in all the technology solutions we adopt or introduce.

Through engagement with the Scottish Government Digital Directorate, we will ensure our approach of 'Digital as Appropriate' is underpinned by a focus on user needs and services that are both accessible and usable.

As the programme to deliver the transition of the 11 benefits progresses, skilled user research resources will be embedded into the teams that are focused on service design and service delivery.

When solutions are fully tested with citizen involvement, we will seek regular feedback on their suitability and fitness for purpose. Our technology will change over time and it is important that we continue to engage citizens on this journey so that we do not lose sight of the user need or impact of technology evolution.

As the new Agency comes into operation and solutions are deployed to help citizens, we will need to remain sensitive to potential legislative changes that will require technology to adapt whilst still needing to be user focused and responsive to the varying needs of citizens.

In line with the Scottish Government Digital Strategy, we will adopt a Cloud First approach and store our data within secure UK facilities in line with our risk appetite. Working with our delivery partners, we will ensure that the data of our clients is protected at all times in line with government information security requirements and industry best practice.

With a focus on reuse where appropriate, we will seek to both consume existing services or digital assets and share our own components with other parts of the public sector where there is interest and alignment. Our focus will be on components, services, and contracts that are available in both Scotland and the wider UK landscape.

Our approach to data driven services will be in line with those set out in the Digital First standard and we will use this evidence to evaluate the performance and effectiveness of the solutions we deploy, seeking to continuously improve the end product for the citizen within the realms of affordability and sustainability.

The teams within the remit of the Chief Digital Officer will have a combination of skills and experience to support the ongoing operational lifecycle of technology in what will be a multi-vendor environment. They will draw on experience and expertise from the wider digital profession in Scotland and share their own knowledge with others.

All of our expenditure in technology will be underpinned with appropriate investment cases proportionate to the spend value and any commercial commitment.

05

Secure by design

Our solutions will adopt a secure by design ethos. One of our service design principles states that “security will be a critical element of the new service – we will hold information safely, and we will ensure that the people who work in the agency and the people who use it are safe.”

The design phase of software development or customisation provides the foundation for secure software, minimising the security risks within systems. Our emphasis on building security into our solution addresses the tendency for security to be an afterthought in the development of ICT solutions.

Our approach to developing the social security solution is to ensure that the technology components, software and hardware, that make up the solution, are as free of vulnerabilities and resilient to attack as possible and we will employ a number of measures to achieve that aim, such as:

- Implementing secure software development processes;
- Ensuring continuous testing;
- Aligning with both government and industry best practice;
- Conducting threat analysis;
- Deploying static and dynamic source code scanning tools;
- Utilising penetration testing and vulnerability assessment skills.



The understanding and use of such techniques and how they are employed in a system’s production will significantly decrease our chances of exposure.

Our solutions will throughout their entire lifecycle be subject to security assessment at every stage. Security will be built into the fabric of the social security systems in Scotland, from design and development, through testing and continuous improvement, to operationally live through to eventual decommissioning – security will be a key factor at every stage.

We will work in partnership with the UK National Cyber Security Centre, the national technical authority for cyber security, to ensure that our risk managed approach to solution development aligns with current thinking and the modern approach to the government security policy and practice.

06

Solution pillars

Our solutions will be built around the principles of tackling poverty and inequality through treating citizens with dignity and respect.

As we focus on the safe and secure transition of 11 benefits to Scotland, we will ensure that secure by design is integrated to the fabric of our architecture from the outset with the digital first standard alignment clearly in our sights at all times.

Underpinning all of the above are a combination of people, processes, and systems which will support the programme initially and then agency operations in the longer term.



07

Infrastructure

As we support the delivery of the programme and then the operational status of the agency, we will make use of existing infrastructure and services that already exist in both Scotland and the wider UK public sector.

Desktop services



We aim to make use of SCOTS Connect desktop services, as they already provide accredited connectivity to the Public Sector Network (PSN) through a range of components including secure managed devices and mobile connectivity. We will consume this as a shared services customer through the Scottish Government Digital Directorate.

PSN



The PSN offers a UK wide accredited network which we will adopt for cross government communications and data exchange in a secure manner.

SWAN



The Scottish Wide Area Network (SWAN) is available across the country and offers us the ability to build resilient connectivity between both agency locations in Dundee, and Glasgow, as well as a secure communication reach into other delivery partners, including Local Authorities and Health via existing infrastructure.

08

Key tenets

User centric		We will focus on user needs, whether that is a citizen or an internal user.
Commodity first		Increasing elements of IT are commoditised. The use of commodity enables value to be delivered early and frees up resources to be focused on value add activities. We will adopt a Cloud First approach and design our data hosting requirements in line with our risk appetite.
Loosely coupled		We will design and implement a loosely coupled and component based architecture which will allow us to respond quickly to change in technologies and organisational needs over time.
Open standards		We will consider the use of interoperable open standards to promote openness and portability, reducing vendor lock-in. It will provide us with greater choice around tools, people and processes. This should help to lower risk and increase innovation.
Automated		Manual processes and interventions add time, cost and risk. We will embrace automation to allow for repeatable builds of software defined environments from templates, automation scripts, frequent release cycles and support for continuous delivery.
Self-healing		We will introduce solutions that automatically detect and recover from failure with minimal manual intervention. Errors will be handled in a controlled fashion, allowing systems to continue to operate normally (graceful degradation). We will implement best practice 'design for availability' patterns.

08

Key tenets (continued)

Auto-scaling



We will make use of auto-scaling to enable our solutions to scale capacity up to meet demand spikes and back down when not needed. Cloud hosting of our infrastructure will support us in this domain and we will only pay for what we use.

Resilient



We will build solutions that do not have single points of failure.

Real-time



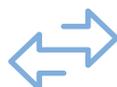
We will build solutions that handle requests in real-time, reducing the need for batch-based processes.

API first



We will use an Application Program Interface (API) approach for the reuse of other governments systems, such as those in DWP to further endorse our loosely coupled architecture. We will expose our services and data using standard APIs to allow wider government to develop new services on top of ours, compliant with the General Data Protection Regulation (GDPR).

User services

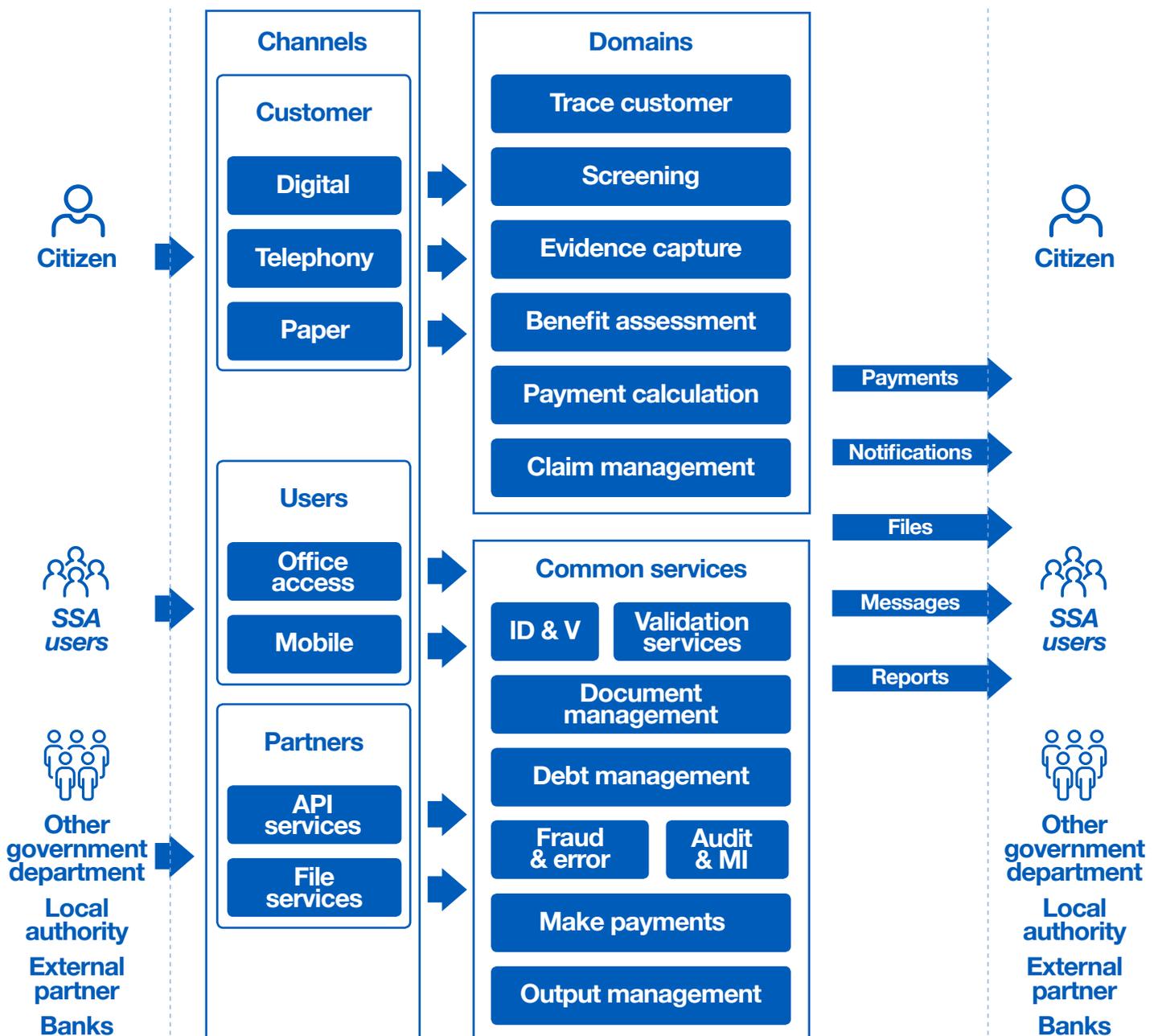


We will provide online services as part of a wider, user-focused service offering. As we encourage this channel shift we will be mindful of citizens who cannot or do not always wish to use digital channels.

09 Architecture approach

9.1 Logical View

The IT solution will be based on a number of loosely coupled business services. These services will be delivered by supporting IT components that will evolve over time. Flexibility to decouple and ease of replacement will be key factors in the selection of IT solutions.



09

Architecture approach

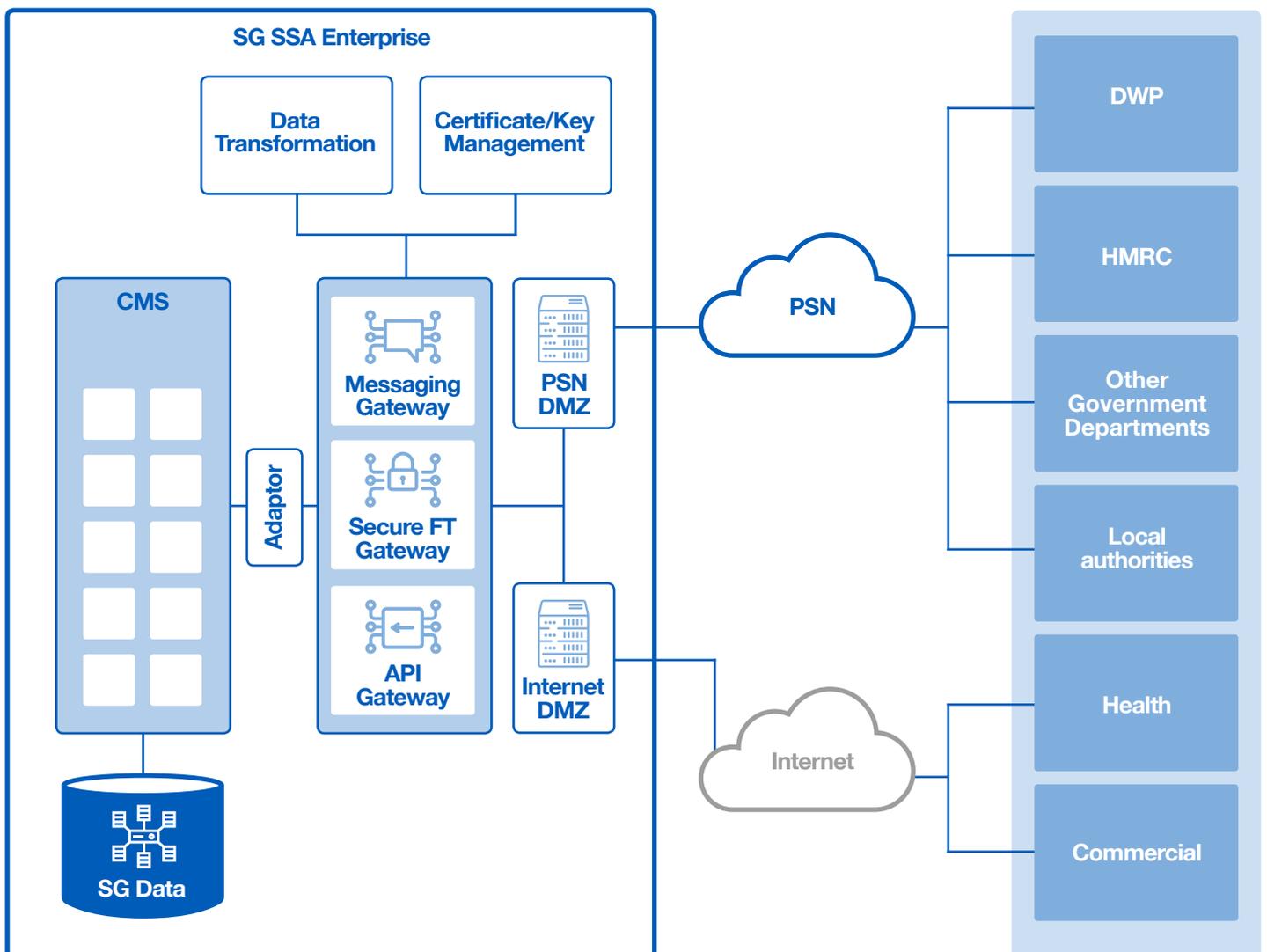
9.2 Integration

The target solution will be comprised of a number of distinct benefit processing applications, a Case Management System and a number of related support components. These solutions may be distributed across a number of hosting environments.

In the short-to-medium term, there will be a requirement to deliver a number of complex, scalable and secure interfaces to external organisations, particularly the DWP.

The integration solution will require a consistent and secure mechanism for file and message integration.

The diagram below is a logical overview of an integration platform that will be developed independently from the benefit solutions and will support integration from any Scottish Government source to and from any external organisations.



09 Architecture approach

9.3 Phased Delivery

The devolution of benefits will transform the delivery organisation and IT from the baseline DWP solution to a target Scottish Government delivery model.

The diagram below outlines the interim steps that will be considered on a case-by-case basis to de-risk delivery while meeting the key business drivers. Interim steps are optional but will be considered where appropriate.

Devolution Roadmap						
	Baseline	SG Accounting	SG Business Change	SG Operations	SG Core IT	Target
Business 	<ul style="list-style-type: none"> All benefits administered by the DWP operational teams 	<ul style="list-style-type: none"> All benefits administered by the DWP operational teams 	<ul style="list-style-type: none"> All benefits administered by the DWP operational teams 	<ul style="list-style-type: none"> Devolved benefits administered by the Scottish Government Social Security Agency 	<ul style="list-style-type: none"> Devolved benefits administered by the Scottish Government Social Security Agency 	<ul style="list-style-type: none"> Devolved benefits administered by the Scottish Government Social Security Agency
Applications 	<ul style="list-style-type: none"> Applications are hosted & managed by the DWP No special requirements for Scotland or Scottish cases 	<ul style="list-style-type: none"> Applications are hosted & managed by the DWP Scottish payments made via CPS and accounted for separately from DWP 	<ul style="list-style-type: none"> Applications are hosted & managed by the DWP Scottish payments made via CPS and accounted for separately from DWP Scottish benefit rule changes are embedded in DWP systems 	<ul style="list-style-type: none"> Applications are hosted & managed by the DWP Scottish payments made via CPS and accounted for separately from DWP Scottish benefit rule changes are embedded in DWP systems 	<ul style="list-style-type: none"> Core benefit applications are hosted & managed by the Scottish Government Continued re-use of shared services hosted by DWP, e.g. CIS, CPS for payments, DRS etc. 	<ul style="list-style-type: none"> All benefit applications and supporting services are hosted & managed by the Scottish Government Payments made using SG strategic payments platform Minimal DWP interaction, e.g. to report change of country
Data 	<ul style="list-style-type: none"> All Scottish customers and claims managed via DWP systems 	<ul style="list-style-type: none"> All Scottish customers and claims managed via DWP systems 	<ul style="list-style-type: none"> All Scottish customers and claims managed via DWP systems 	<ul style="list-style-type: none"> All Scottish customers and claims managed via DWP systems 	<ul style="list-style-type: none"> All Scottish customers and claims managed by Scottish Government Systems Personal details mastered by the DWP 	<ul style="list-style-type: none"> All Scottish customers and claims managed by Scottish Government Systems Personal details mastered by the Scottish Government

10

Architectural principles

The Digital and Technology Strategy is underpinned by a set of technology architecture principles, that will provide more detailed guidance as we move beyond the first wave of deliverables under the programme.

Long-term focus



Technology solutions will be based on strategic intent not on short-term aims, although solutions will evolve from Minimum Viable Product (MVP) to full strategic implementation.

Technology



Technical diversity will be managed through a Design Authority in order to control complexity and cost.

Commodity first solutions



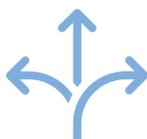
Where business requirements allow, commodity solutions will be our preferred option, including reuse where possible.

Simple solutions



Technical solutions will be as simple as possible. Where technical complexity exists it will be self-contained and hidden whenever possible and economically viable.

Flexible by design



Solutions will be loosely coupled and component based by design in order to provide flexibility, scalability, and future adoption of emerging technologies.

10

Architectural principles

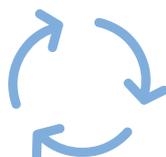
(continued)

Exploit metrics



Application & Technology Services, Processes and Components will be measured to enable appropriate monitoring, cost calculation and informed decision making.

Reusable services



Solutions should provide and/or consume services that are reusable across the agency.

Automated processes



Processes will be automated end-to-end including integrations with delivery partners wherever possible.

User-centric



Services will be built focused on the needs of the users consuming the service. This covers citizens, third-party partners and internal agency staff.

Data relevance



Data must be business relevant and managed in accordance with current legislation.

Data vocabulary



Data definitions and vocabularies will be consistent throughout the Agency.

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Architectural principles

(continued)

Master data



All data will have a master copy providing a 'single source of truth'.

Secure by design



Security will be embedded into business requirements, business logic, application, data and technology.

Non-functional requirements



Non-functional requirements should be treated with the same level of importance as functional requirements.

Continuous deployment



Infrastructure and applications will be designed to support continuous and automated deployment.

11

Innovative

As the strategy progresses and we start to deliver the initial wave of benefits, we will work closely with key agency staff and representatives from the Experience Panels to explore where we can introduce innovation into both our solutions and our operations.

Recognising that for some, a digital only approach for engagement may not be possible or acceptable. We will continue to evaluate what we can do through multi-channel options to improve the experience for citizens, our delivery partners, and the agency operations.

With the potential for a significant number of mobile staff, we will work closely with all stakeholders to consider what equipment, connectivity, and working methods can be explored, but always within the scope of 'safe and secure'.

As part of business continuity planning, we need to consider the most resilient options and measures that can be invoked rapidly, in the event of a serious incident or business impact to one of the agency key locations.



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People and skills

Our Digital and Technology Strategy will rely heavily on internal skills and capability. We already know that the availability of digital skills in the UK public sector are in short supply, high demand and the particular situation is no different in Scotland.

The programme to deliver the 11 devolved benefits represents a major career opportunity for digital and ICT professionals to join the Social Security journey and spend part of their developing career with us. We are creating an environment where the scale and pace of technology delivery will appeal to many professionals from within and outside the public sector.

As we continue to recruit staff in line with the programme schedule, we will be mindful of the talent pool from which we are drawing and look to minimise the impact on other public sector organisations, who lose staff that are attracted to our opportunities.

Beyond the life of the programme, technology development and operations will transfer into the agency and we will be mindful of the legacy of people that will be required in a different operating model to that of the programme.

We seek a working environment (people, management, processes, systems, tools, and buildings) which supports the civil service values and behaviours of today.

We will create an environment where an individual can make a difference and where our people feel valued. We want people to feel proud of being part of Social Security in Scotland and focused on providing an outstanding service to citizens.



The challenge of delivering the devolved benefits and building new technology platforms will have a significant impact on the number and types of jobs we need, the skills our people require and on other things like grade mix. We want to maximise the potential of the people we already have and grow our own internal capability through investment in them.

We will create a blend of technical and commercial capabilities within our people to manage a technology environment, which is likely to involve numerous suppliers and solutions.

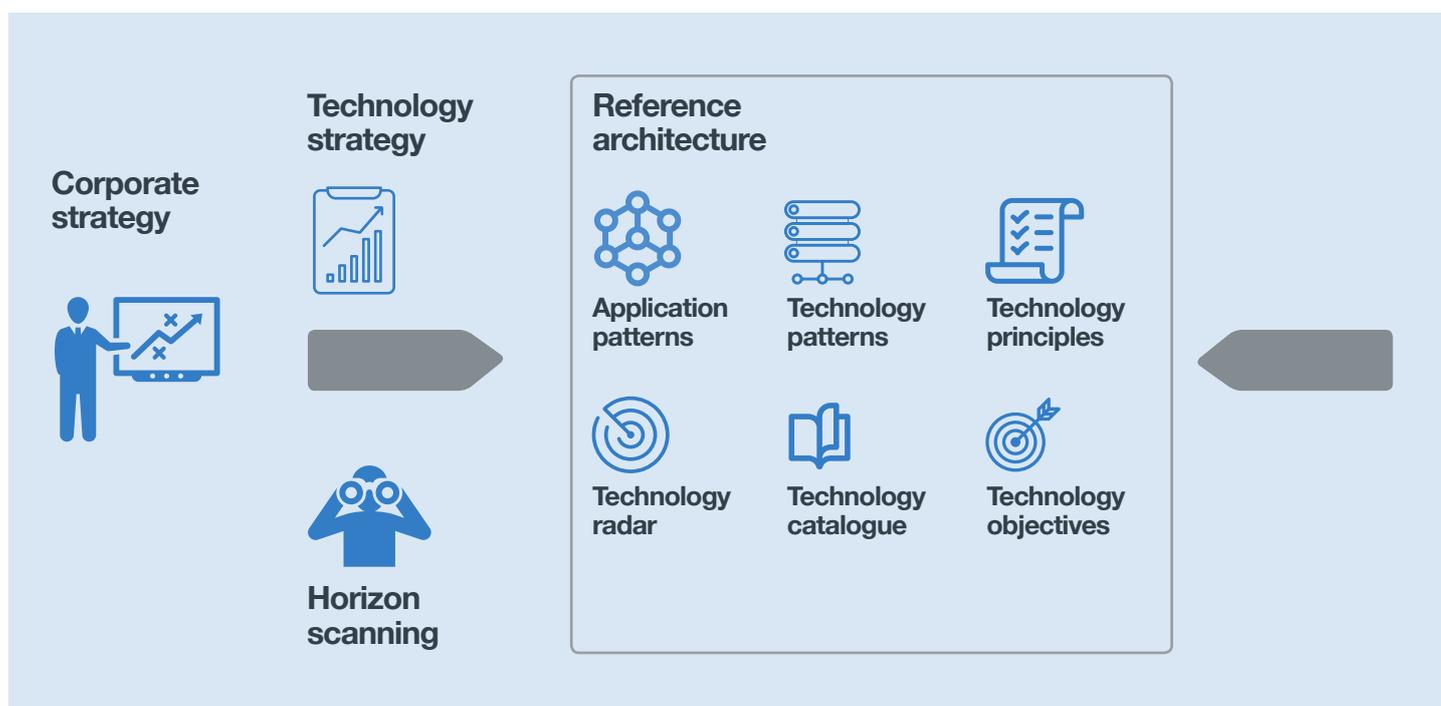
To manage this landscape and have a lower dependence on vendors, we will bring in people who can understand technology and long-term contract management, working closely with procurement colleagues. Commercial acumen combined with technical expertise is a necessary skill that we must develop within the agency.

As the strategy progresses we will make use of all available recruitment channels and opportunities to bring in the correct expertise and skills to help us on the journey. This will involve a combination of permanent, fixed-term, and interim resources but always with public value in the forefront of our minds.

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Reference architecture

We will communicate and share our reference architecture across the agency.



- Reference architecture contains the building blocks for solutions, providing consistency and forming the basis for sound governance.
- Reference architecture continually refined and maintained through the Technology Strategy and Business Strategy, horizon scanning and feedback from solution operations, ensuring it remains relevant, pragmatic and deliverable, and supports the needs of the organisation.
- When we deploy our new services, we always lay the foundation for our transformation and new technology. Changes to the technology estate are limited to legislative delivery (based on timescales), changes required for transformation or essential upgrades such as security compliance.

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Summary

Key drivers



We will focus our immediate efforts, planning, and delivery in support of the safe and secure transfer of the devolved benefits through the programme.

Safe and secure will be at the heart of everything we architect, design and implement, either ourselves or with our delivery partners.

User focus, usability and accessibility will drive the solutions that we introduce or implement.

We will pursue alignment with the Digital First Standard throughout the duration of this strategy and its successor.

Reuse, before **Buy**, before **Build**, will be our primary approach to the introduction of technology and solutions.

Our systems



A number of key tenets underpin how the Social Security systems and solutions will be created and implemented.

Our target architecture is designed to for the reuse of services and maximum use of commodity technology. It consists of components that can be updated or replaced over time. Our Cloud first approach for systems that underpin the benefit operations of the agency will support high availability, scalability and a cost effective operating model, which will be driven on the actual processing and storage usage.

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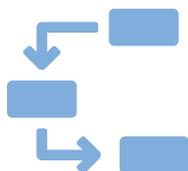
Summary (continued)

Our people



We will create a professional digital environment that enables people to make a difference and feel valued. Recognising the skills challenge, we will invest in up-skilling our staff to deliver the changes, whilst recruiting people with a focus on technical skills. All key solutions and components will be introduced and managed predominantly by our own staff.

Our process



We will adopt the most appropriate process for delivering and supporting our solutions for the agency as it evolves into a fully operational state. Our reference architecture will guide and inform new solutions and the enhancement of existing services. The Business Technical Design Authority governance processes will facilitate decision making and encourage innovation, whilst maintaining oversight and adherence to the core business and legislative drivers.



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