IT Strategy

2021 | 2023

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1. Introduction

Foreword by the Assistant Director for IT and Digital

Advancements in technology, together with the effective use of data, presents huge opportunity for the Council. Users of public services expect to access what they want 24/7, by a variety of digital means. Now is the time to redesign our public services around the customer experience, enabled by personal mobile technology and out of the box thinking.

At the same time the Council is facing a challenging time on many fronts and it continues to undergo substantial change and continually needs to find more efficient ways of working. Information Technology (IT) is vital to the cost-effective delivery of services to the businesses and residents of Worcestershire and plays a significant part, not just in supporting the day to day operations of service delivery, but also in enabling smarter and transformative ways of working.

The importance of data in this digital age continues to increase, with information a key asset that the Council cannot operate without, and upon which good quality decisions are reliant. It is therefore essential that effective governance arrangements ensure that information underpins the business objectives of the Council and supports collaboration and challenge by our partners and the people we serve.

IT is the key that opens the door to shared services in that it delivers the technology required to work collaboratively with our partners. This agenda is important to the Council in its drive for efficiency and service improvement and we will embrace our dual role in underpinning shared service initiatives, whilst working closely with our partners to deliver collaborative working within our own service.

The following strategy sets out how IT can shape itself to best support the Council as it goes forwards into an era where service budgets have, and are continuing to be reduced, and where innovative and bold new service delivery models are being explored. The need for a flexible but robust technical infrastructure has never been greater, nor has the need to ensure that strong IT Governance is in place to direct resources and money at the key core strategic systems that support the business of the authority, and enable the achievement of the Corporate Plan.

Purpose

This IT Strategy for 2021-2023 sets in place the IT technology foundations needed to enable the business transformation the Council is committed to. The strategy will focus on objectives upon which annual IT and Digital's service plan is developed to deliver Worcestershire's service priorities.

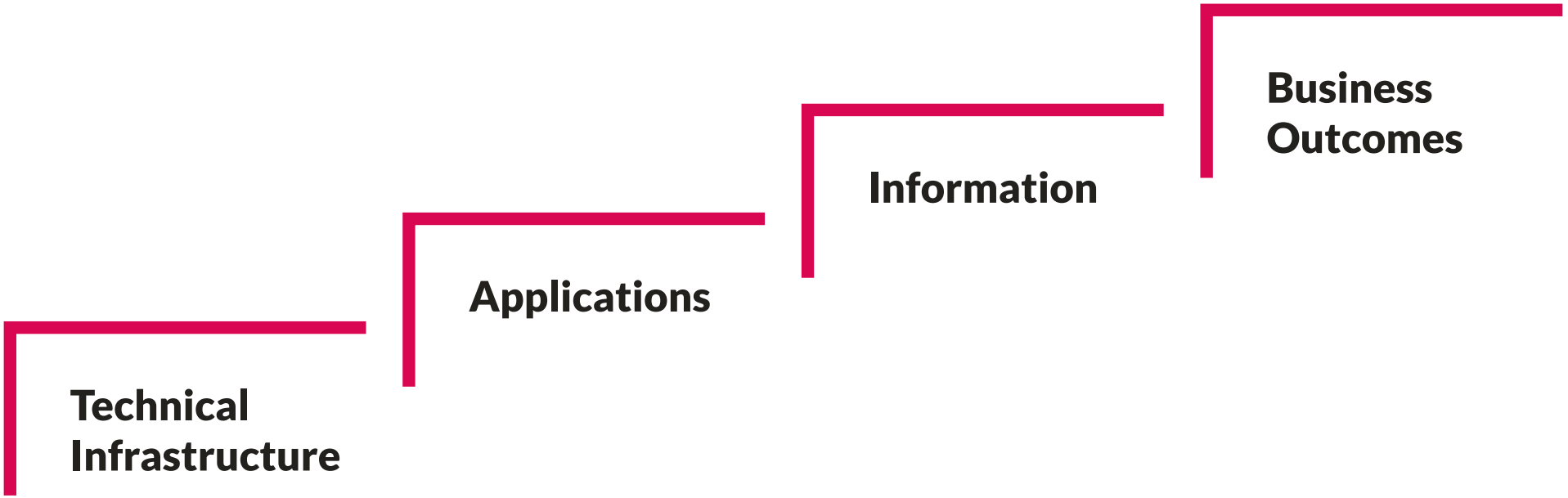
This document has been drawn up in consultation with senior managers across the service, under guidance from the Strategic Director of Commercial and Change and informed by the Corporate Plan. This has determined what currently works well, where there are problems, and what technology and systems are required for the future. The consultation identified much strength in what we already do as a Council and a digital ambition to develop the Council's website and our services in ways that match customer expectation.

The delivery of this Strategy will fall under the overall control of the Assistant Director for IT and Digital who is responsible for IT activity across the Council. Progress on the implementation of the strategy will be overseen by the IT and Digital Leadership Team.

Executive Summary

Previous IT Strategic documents have served the Council well and through them the Council has developed sound systems that support the delivery of services, and the employment of technology to support agile working. This strategy document will build on this to provide the blueprint for the things we need to do to continue to improve service delivery, help Members to serve their communities better and make the best use of new and emerging technologies.

IT is an integral part of the business and whilst IT will drive many important changes within the Council, its role is that of enabler rather than an end in itself. Worcestershire's Corporate Plan sets out the Council's service delivery priorities summarising the financial climate that the Council is working in and setting out service commitments and aspirations for the County. This IT Strategy does not therefore stand alone and is placed in the wider context of the Council's overall strategy and business plans.



The levels of technology required to support the corporate business strategies are: the underlying IT infrastructures (computers, servers, network and other hardware); use of corporate and line-of-business software solutions; together with robust information governance management and security. Together these layers provide an IT infrastructure that enables location independent working, gives staff and partners ready access to the tools and information necessary to do their jobs efficiently, exploits information as a corporate asset and will facilitate self-service by staff and customers to drive down our operating costs.

This strategy will focus on key priorities for action across all layers of the technical infrastructure to support the Council in its continued drive for efficiency and transformation.

Linked Strategies and Programmes

The IT Strategy has been written to align with and complement our national, organisational and partner strategies to deliver a whole Council approach, as listed below:

- UK Digital Strategy
- National Data Strategy
- Building Digital UK (BDUK)
- Corporate Plan - Shaping Worcestershire's Future
- Strategic Economic Plan / Local Industrial Strategy
- WCC Digital Strategy 2021-2023
- Information Governance Strategy
- Adults Digital Strategy
- Highways & Transport Strategy
- Worcestershire Library Strategy
- Hereford & Worcestershire Sustainability Transformation Partnership Digital Strategy
- Integrated Care for Older People in Worcestershire Strategy
- Smart and Green - Green Alliance

In addition to the Organisational Redesign Programme, the Council has several cross cutting organisational transformation programmes currently in progress or in the early stages of development:

- Digital Transformation Programme
- Re-Imagined Front Doors & Customer Management Strategy
- Organisation Transformation Programme
- Social Care Case Management Phase 2
- Economy and Infrastructure Technology Programme
- People Technology Programme
- Worcestershire Children's First Technology Programme
- Digital Skills Programme (Public Health)
- Sustainable Transformation Partnership

2. Where are we now

The journey so far

Worcestershire County Council has embarked on a journey to bring technology to the forefront of its day to day operations, which has included:

- Completed infrastructure refresh to a 'Hybrid Cloud' model to provide a stable and secure underlying infrastructure both on and off site
- Developed a model of engagement with directorates to ensure technology decisions are understood and supported and all technology is 'right sourced'
- Facilitated an agile approach to developments to enable faster deployment.
- Facilitated a technology enabled workforce by providing the right technology for our users to perform their day to day roles from anywhere at any time.
- Upgraded key infrastructure to improve resilience, security, reliability and capacity
- Completed the deployment of Windows 10 devices to all Members and staff, rolled out Teams as a new collaboration tool for the Council and migrated to Office 365 and new cloud-based services for greater access to data on the go.

During 2020, the Covid-19 pandemic has been responsible for a dramatic shift in the way the Council delivers its services. Whether to residents and businesses, or in the way that employees are collaborating and working, everything is changing at pace. In support of this we have seen an increased need for office collaboration tools, which are now essential for most employees. Video conferencing, file sharing, and collaborative team communication tools are now mainstream for workers to do their jobs efficiently and effectively.

From a technology perspective, substantial work was undertaken to mobilise the workforce to work remotely. This included providing staff with the IT equipment and tools to work from home as well as scaling up the Council's IT infrastructure and systems to support a remote workforce. In addition, several new digital services were launched during the lockdown to support staff and our communities.

Following this, an inward review of the IT and Digital services' operating model has been undertaken. This looked at how we deliver services, ensuring our teams are fit for purpose and equipped to deliver a professional, high-quality service. To that end, we have developed the structure of the service based around ITIL4 best practice operating principles and priorities. Our focus has been on developing teams that are sized appropriately, offer the right skills, experience and expertise, and that are operating with the right tools, processes and methodologies to ensure the highest quality and most efficient service.

Our Digital Strategy 2021-2023 sets out how we will create the conditions for the next generation of local public services, where digital technologies are an enabler rather than a barrier to service improvements, and services are a delight for all to use. To deliver against this objective requires a digital technology shift, and this IT Strategy design defines the technology principles required to deliver it.

Government Transformation Strategy

This government strategy sets out how central departments will deliver fundamental back-office transformation, the vision and objectives are relevant to local government. Setting out how digital will transform the relationship between the citizen and state.

Business Transformation

Developing end-to-end services that meet the needs of users across all channels.

The right people, culture and skills

The right people, with the right skills, working in the right way.

Better tools, processes and governance

Transforming to become an organisation that is digital by default.

Making better use of data

Ensuring government data is properly managed, protected and made available and shared effectively.

Shared platforms and capabilities

Government as a platform, reducing duplication, cost and increasing efficiency across government.

Our design principles

The life cycle of information technology is becoming shorter every year. New competitors are disrupting industries by leveraging state-of-the-moment digital practices and processes. Customer expectations are constantly evolving in an accelerating race for the most advanced, hyperconnected, seamless experiences. It is important that we support leading-edge capabilities such as data analytics, cybersecurity, automated processing, and integration with third-party systems.

Whilst it is difficult to foresee how technology will evolve beyond 2023; we do know that the services today's Council provides will fundamentally change through the use of innovative, life-changing technology.

Understanding what to get right is essential. Knowing how to get it right — how to plan, sequence, invest, design, and engage the enterprise around our technological modernisation — is equally important. The following principles will guide us in these endeavours:

Putting customer value first

Ensuring technology investment benefits our end customers

Designing for security, flexibility and speed

Engaging with the workforce and the culture

Designing secure services from the customer perspective

Simplifying: IT strategies, business cases, procurement and IT architectures

Standardising: data, IT policies, methods and supplier management

Sharing: information, skills, knowledge, delivery and best practice

Embracing new and emerging technologies

Aligning our IT investments with the Council's strategic priorities

Connecting and collaborating securely with other in the public sector

Being agile and user-centric, avoiding the "big-bang" approach

Building supplier/ partnership collaborations based on shared values and trusts

Co-designing secure services with customers and business stakeholders

3. Where we want to be

Our vision

"We will use modern technologies to enable digital opportunity, fundamentally improving how we serve our customers and communities. Streamlining the delivery of our services so they can be provided in the most efficient and cost-effective way possible."

Agile at our heart

Our IT & Digital Service will be designed with Agile at its heart, streamlining processes, building "product chassis" of common components, adopting agile enabling technologies, and modifying organisational structure to support product innovation and improve speed to market. We will:

Co-design services with customers and business stakeholders so new systems are built around resident and business needs

Embed 'agile' techniques and working practices, with a view to carrying out any future developments in an interactive, customer-focused manner

Minimise the time spent on 'maintenance' activities and so make more time to exploit and develop systems

Consider in-house developments where these are the best solution because of specific local functionality or financial costs

Redesign processes before they go live rather than attempting to automate existing analogue processes

Use a software development methodology called "Agile" (an industry standard way of building better software)

Our technology priorities

Priority 1 – Cyber Resilience

The Council is constantly under attacks from cyber criminals seeking to exploit any vulnerability they can find. These Cyber Attacks vary in type from email-based phishing and spear-phishing attacks, to drive-by attacks, denial of service attacks, and many others.

The greatest threat vector to the Council is email. On average, the Council receives around 1.5 million emails per month of which only around 25% are considered legitimate / safe. The rest, including emails containing viruses, are automatically blocked by the Council's defences. Whilst these defences are doing an excellent job, a number of better crafted malicious emails may still get through and which may encourage staff to click links they shouldn't or open documents they shouldn't.

Staff, on average, make around 11 million requests per month to Internet based content, which equates to each member of staff accessing around 100 web page requests per day. The Council employs industry leading internet gateway solutions that block the vast majority of malicious content, which is further supported by central government Protective DNS service, catching any DNS requests that slip through the net.

The Council has a special responsibility to the citizen, to companies and organisations it works with, and to its partners (e.g. the NHS and Police), to assure them that every effort has been made to render our systems safe and to protect our data, much of which is considered sensitive (e.g. person identifiable or medical information), and our networks from attack or interference. We must therefore set ourselves the highest standards of cyber security and ensure we adhere to them.

Our priority is to ensure that the Council is secure and resilient to cyber threats, and confident in the digital world.

Priority 2 – Cloud

The marketplace for the provision of secure, resilient and legally compliant cloud services is mature and gathering pace as the standard platform for IT services as contracts are renewed across public services. Affordability and value for money over the life of a service is also tipping in favour of cloud thanks to increased competition. Furthermore, suppliers are withdrawing legacy on site services and only offering cloud models and newer entrants only offer cloud-based models.

During 2020, the Council completed a pilot to properly assess the pros and cons of a complete migration to public cloud. Whilst there were obvious benefits of this, the revenue cost of implementing such a strategy was not cost effective unless there was an aligned property strategy to no longer invest in corporate buildings and hence datacentres. This currently does not exist and, until it does, the Council will not be adopting a pure cloud strategy.

Cloud is undoubtedly a key component of our technology architecture, enabling us to support our workforce to work remotely as well as underpinning next-generation technologies such as AI. By hosting line of business applications with vendors we dramatically reduce the ongoing support requirements and complexities, ensuring systems are kept up-to-date and managed appropriately. The Council will continue to support a hybrid cloud environment given the scale of its operation, diversity of services provided and existing infrastructure investments. Our cloud strategy will align with our Council priorities, optimising the balance between on-premise, public cloud and hybrid-based services, whilst at the same time ensuring agility and security in our enterprise.

Priority 3 – Network

Wide Area Network

The Council's wide area network is provisioned using the Virgin WMPSN. This service is being extended until 18th November 2023 as part of the WMPSN2 and the Council will continue to use this service.

Direct Fibre and FTTC

The Council has around 100 sites connected to the WMPSN. Where appropriate direct fibre is provisioned and, due to a more competitive rate card as a result of the WMPSN2 contract extension, sites will generally be provisioned with a minimum of 100Gbps. Some sites have a relatively small number of staff working there particularly on certain days of the week. As Fibre to the Cabinet (FTTC) is becoming increasingly available, sites are being "downgraded" from expensive direct fibre (e.g. 10/10 Mbps) circuits to new FTTC circuits (80/20Mbps) resulting in a significant cost saving and, in some cases, improved bandwidth.

SDWAN

Software Defined Wide Area Networking (SDWAN) is a technology that enables wide area networking over a basic, unmanaged Internet connection. The technology provides several advantages over traditional wide area networking technologies (e.g. MPLS) namely:

- Flexibility: At present, new fibre circuits can take up to 90 working days to provision and, invariably, as these are fully managed circuits, then incur a significant cost per annum for fixed contract length (although there is some flexibility for cancelation within the WMPSN contract). Using SDWAN, single or multiple basic internet circuits can be bonded together to give an equivalent corporate connection in just the same time it would take for a home user to have a basic internet service installed. If the circuit needs to be cancelled, the only lost cost would be that of the basic internet service. Furthermore, if buildings were shared, for example with other government organisations, a single large internet service could be provisioned and multiple SDWAN solutions provisioned over the same circuit.
- Resilience: SDWAN uses software to enable the use of multiple cheap internet circuits to deliver a resilient service. If a single circuit fails, then the software will automatically use the other circuit to deliver resilience.
- WAN Optimisation: SDWAN enables rules to be configured around specific applications, both in terms of priority (i.e. prioritising critical applications) and routing (i.e. routing traffic to Office 365 directly to Office 365 rather than coming back to County Hall first. This increases the performance of the WAN and enables small circuits to be procured as less traffic traverses the WAN.

It is envisaged that a SDWAN based solution will replace the Council's existing wide area network when the existing contract comes to an end in 2023.

Public Service Network (PSN)

The Council's use of the PSN is constantly decreasing with only a single Department for Work & Pensions service now being delivered over it. Access to the PSN will be provisioned as an overlay over the Council's existing WMPSN2 WAN and decommissioned if / when access to the final service is migrated to the public Internet.

The Council will, again for the foreseeable future, continue to maintain its PSN compliance.

N3 / Health & Social Care Network (HSCN)

The Council has two HSCN connections (at County Hall and Wildwood) that are used to enable access to some HSCN hosted services (e.g. CareNotes) whilst, at the same time, facilitating access by NHS colleagues to the Council's Adult Social Care platform, Liquidlogic LAS.

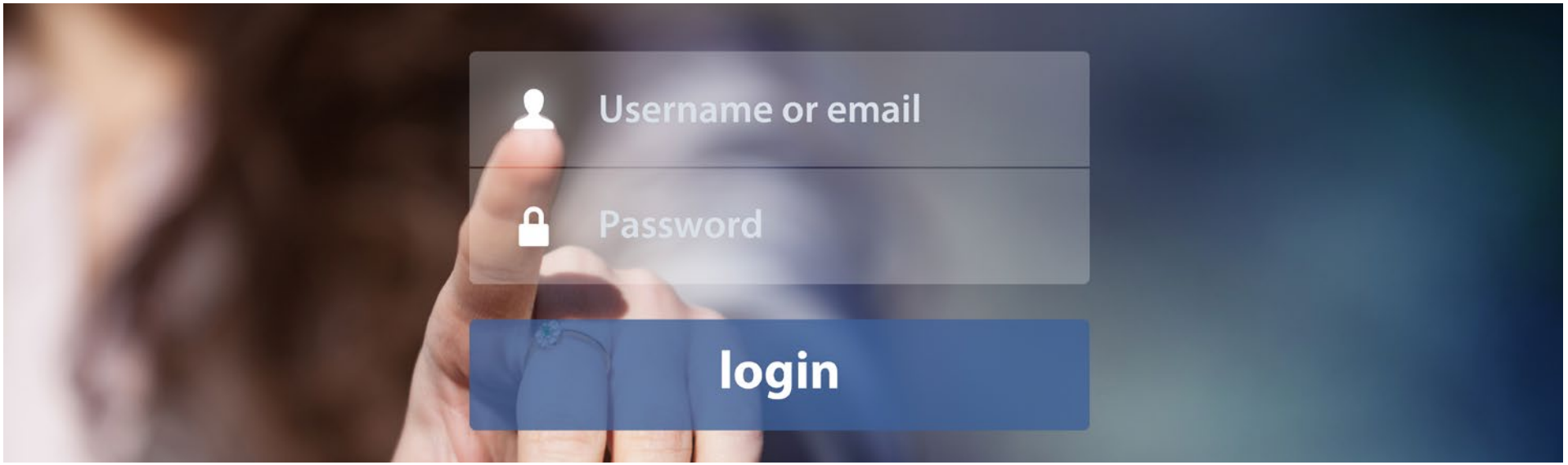
These connections will continue to be supported and exploited as part of partner working initiatives like the Integrated Care & Wellbeing Record / Patient Portal.

Wi-fi & GovWifi

The Council's Wi-Fi infrastructure is based on HPE Aruba with ClearPass and this will be continued with for the foreseeable future and expanded upon. The solution currently extends to over 45 sites where Council staff are based and whenever a new site is enabled on the Council's Wide Area Network (WAN), wi-fi will be installed by default unless there is a specific reason not to.

At present network access is primarily delivered through the use of wired / ethernet services. There is a significant benefit to be gained by moving to a "Wi-Fi First" approach where wired / ethernet services are only used when absolutely necessary and otherwise not provisioned. The Council will embark on a pilot project to prove this capability based on our existing wi-fi platform, delivering Guest, Partner, and Corporate services.

GovWifi, developed and managed by Government Digital Service (GDS), is a free service that enables government employees to have a single wi-fi login which will work automatically in any building that has been enabled for this service. The Council will continue to deploy the GovWifi service to all sites where we provide a wi-fi service, enabling colleagues from the Police, NHS, and anyone with a .gov.uk email address to register once for an account that can then be used on any device (corporate or personal) in any location that offers this service. Other partners can be registered by staff for the service and once registered, they too can connect to the GovWifi service. This means that they don't need to remember a password or sign into different networks when they move between buildings, even of different organisations.



Priority 4 – Identity Management

Single Sign On (SSO) is an authentication process that allows staff to access multiple applications with one set of login credentials. By integrating systems / services with the Council's corporate Active Directory, staff can seamlessly access core applications without having to remember a separate username and password.

Where systems / services are hosted within the Council's core network this is implemented either via Windows Integrated Authentication (where the staff member is automatically logged into the applications) or via LDAP authentication (where the staff member needs to re-enter their corporate Active Directory credentials again to access the service).

The Council's Cloud First Hybrid Hosting strategy means that an increasing number of systems / services are being hosted on completely different networks with a variety of organisations. This has an impact on the management of security within these services particularly when it comes to the management of leavers since, without this management, access to these services could remain long after the user's on-premise identity has been disabled.

To address this and to provide a great user experience, the Council has implemented Microsoft Active Directory Federation Services (AD FS) to enable SSO to these services.

AD FS is an identity access solution that provides browser-based clients (internal or external to the Council's network) with seamless, "one prompt" access to one or more protected Internet-facing applications, even when the user accounts and applications are located in completely different networks or organisations.

When the applications are accessed from devices on the Council's core network, the staff member is automatically logged in without having to enter any credentials based on the account they are already logged into the device with. If the staff member is accessing the application from a device that is not on the Council's core network then the staff member is automatically redirected to the Council's ADFS service where they enter their Active Directory credentials and a separate additional factor from a hard or soft-token. The Council will continue to migrate services to SSO based solutions as described above.

Priority 5 – Service and Infrastructure Automation

Greater use of Infrastructure automation brings agility to both development and operations through use of scripting environments, from installing an operating system, to installing and configuring servers on instances, to configuring how the instances and software communicate with one another, and much more.

We provide our customers with our myIT portal, which is delivered through Alemba Service Manager (ASM). It offers an attractive, user-friendly self-service interface that allows end users to log calls and requests, and place orders. Nevertheless, telephone and email are the predominant channels via which customers interact with IT and Digital service and further development of the portal is required.

We recognise that the key to improving customer experience while reducing call volume lies not in adding or updating channels but in a distinct shift in service strategy — in which live service interactions are specifically prioritised for high-value, urgent and complex contacts.

A range of service automation tools are currently deployed including Teamviewer for remote support, and Microsoft System Centre Configuration Manager for the management, deployment and security of devices. However, there is considerable scope for increasing service automation and driving efficiencies, and this will be an area of priority going forwards.

Priority 6 – Low Code and No-Code

Our low-code platform enables us to deliver across all areas of the business: from legacy modernisation and workplace innovation to customer experience transformation.

The platform enables us to:

- Create omnichannel applications up to 10x faster than with traditional development methods
- Design, build, monitor, and continuously improve case management applications, empowering staff to resolve complex problems that require input from multiple sources. Adding structure, context, and automation to improve productivity.
- Simplify compliance, security and reduce risk.
- Continually improve business processes.
- Break down data silos with integrations to any internal or external systems.
- Support business agility that enables the Council to adapt and respond to challenges and new opportunities using innovative, digital solutions that solve business problems.

Over 75 systems have been developed in our low-code platform, which are wide-ranging in purpose, with internal apps to support the workforce and changed ways of working, apps to move existing services to digital delivery models, as well as apps for completely new services. Internal systems developed on the platform are used by more than 2000 staff across many services. Over 50,000 external accounts have been created for our partners, businesses and residents.

Covid-19 has necessitated the rapid development of a range of applications to support staff, residents, businesses and our communities. Expectations have changed about the speed of development of digital services, with the need to get services up and running in days rather than months or years. We will therefore continue to invest in low-code technology, drawing on agile working, a more open attitude towards sharing data, a re-enthused drive for collaboration between teams and a strong sense that perfection is not always necessary or even desirable.

Priority 7 – Application Portfolio Management and Rationalisation

IT system consolidation is imperative as technology budgets come under increasing scrutiny and is concerned with streamlining the existing application portfolio with the goal of improving efficiency, reducing complexity, and lowering total cost of ownership. However, IT system consolidation requires an enterprise resource planning approach. Benefits can be expected at three levels:

- Operational: benefits are tangible at an operational level, and the likely internal champions are functional heads.
- Tactical: benefits come primarily from increased visibility into business functions
- Strategic: benefits come from aligning information systems to long-term strategic goals

The Content Management System (CMS) used to host our public facing websites is out of contract from September 2021. We are planning to replace the existing CMS so that we can support and deliver the Council's objectives to provide a single front door to our services. The website will be well designed, delivering personalised content to our customers at exactly the right moment, and have the ability to change customer behaviour through well-timed 'nudges', Amazon-style recommendations, web chat and interactive channels.

Orbus iServer is utilised to manage applications through their life cycle, from design and implementation, through management and disposal. This system provides a single version of the truth and is used by the Service Desk, IT Desktop Support, Applications Support, ICT Infrastructure and Architecture teams in order to resolve issues quickly. The tool also enables us to identify similar systems in use and allow rationalisation and hence improved support and savings across the council.

Much work has already been undertaken to rationalise systems and this will continue. As the council's major applications approach the end of their productive life or have significant concerns over their future support roadmap, they are the subject of major projects to review the business requirement and propose projects to replace or enhance these applications. Application security, resilience, change management and business continuity continue to be priorities in the management of our applications.

- Greater use of single sign on not only improves the user experience but also improves data security.
- Server monitoring and supplier management continues to improve our application resilience.
- Regular Change Advisory Boards mean that application changes can be discussed and approved as well as communicate the changes to others.
- Business continuity plans and DR testing mean we are better prepared should issues with applications arise.

Priority 8 – Information Governance, Data Management and Data Insights

The importance of data in this digital age continues to increase, with information a key asset that the Council cannot operate without, and upon which good quality decisions are reliant. It is therefore essential that effective governance arrangements ensure that information underpins the business objectives of the Council and supports collaboration and challenge by our partners and the people we serve.

We have a mature approach to information governance with a dedicated team, the Corporate Information Governance Team (CIGT), to support the whole Council to manage and govern information effectively. There are developed systems and processes in place across the Council to manage access to information requests, and ownership of responsibilities for information are designated to a network of Information Asset Owners and Data Owners so information risks can be are managed.

However, many areas of our data ecosystem are in need of significant improvement. At times, poor quality of data on collection is making us start from a low baseline with low data quality then persisting through its whole lifecycle.

This reduces the use of data as people do not trust it, which translates into higher costs of data processing and more effort being needed for data collection and management. Much value is then lost, data does not yield much return on investment, does not provide accurate business intelligence and we are not aligned with good practice and at risk of regulatory enforcement e.g. in terms of Personal Data with the Information Commissioner.

Our organisation holds thousands of records that have accumulated over time that are not easy to search for or find. As a result, staff may have little knowledge about what useful data is held by other teams. In other cases, the existence of the data is known, but is too hard to use as the records are in the form of free-text fields, old emails, and meeting minutes. Common quality issues include:

- Some of our records are only recorded on paper
- Some records are digitised, but in hard-to-analyse formats like PDF
- Data is recorded inconsistently, such "Smith Street" and "Smith Str".
- Not all records about the same person or thing have a common unique identifier
- Some records are unknowingly duplicated

As well as risks, poor data quality also creates missed opportunities (e.g. with respect to Supporting Business and Growth or Income Generation from Services). We are less effective than we otherwise could be, as we find ourselves prevented from using existing data to its full capacity and from taking advantage of exploiting new data sources (e.g. the Internet of Things) and new data methods (such as the Artificial Intelligence and Machine Learning) to their full power.

Priority 9 – Collaboration

Collaboration, both internally and externally, has always been key to the Council's strategy for increasing productivity. For many years the Council has supported a Flexible and Mobile Environment (FAME) which was recently put to the test as a result of Covid-19. Whilst many of the technology capabilities worked very well, limitations were experienced around the use of video conferencing and online meetings with external users, due to the version of Microsoft Lync the Council uses (2013).

The vision is to provide a set of robust and well-integrated technology tools that enable secure internal and external collaboration, whilst at the same time providing clear guidance regarding the configuration and use of those tools. To that end, the Council has recently deployed the Microsoft Teams desktop client to all staff to enable video conferencing and, following a consultant led engagement focusing on Information Governance, will deploy the full functionality of Microsoft Teams including, migrating almost all traditional file shares to Microsoft Teams / SharePoint Online.

Priority 10 – Smarter Working

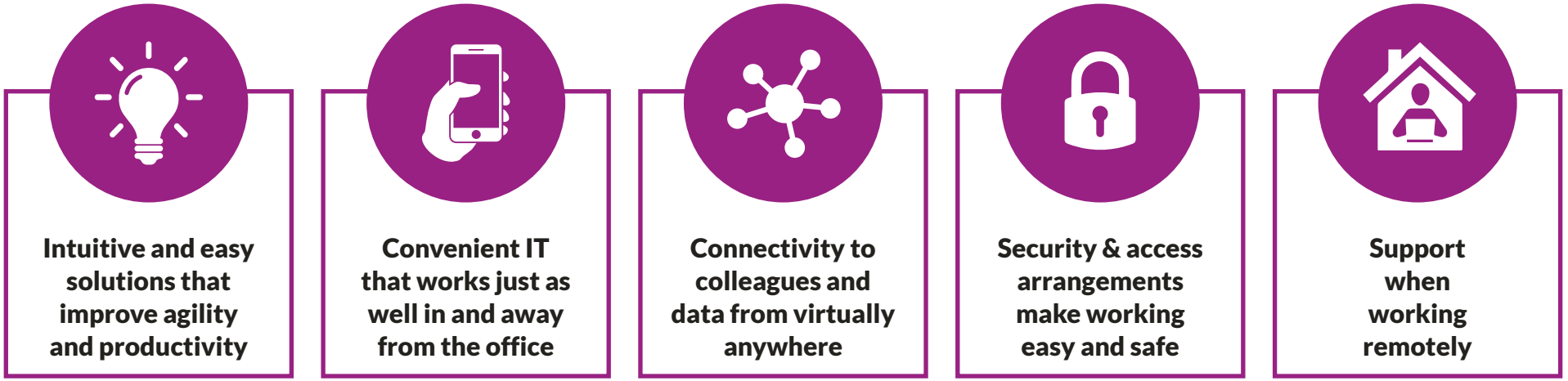
Smarter working is about so much more than just having the capability to work remotely, whether that's at home or elsewhere. It's about having the technology, workspaces and flexibility to make the best possible decisions about how, when and where to work, to best serve our customers. It's about culture, leadership and behaviours.

Much work has already been undertaken to change our approach to work, fundamentally redesigning how we organise ourselves and our work environments to drive greater efficiency and effectiveness. Key technologies that enable Smarter Working are well established: virtual meetings (MS Teams), IP Telephony (Lync / Skype for Business), social media (Yammer), Wi-Fi, a range of end user devices, productivity tools, collaboration tools and access to systems and data via remote access.

For all teams in the Council, the arrival of lockdown in 2020 meant rapid change; a reshuffling of resources and a shift in strategic priorities as well as the adoption of new working practices. There is now a significant emphasis on capitalising on the lessons learned from the lockdown, which is why the Council recently surveyed staff about their experiences. Of the 2083 respondents (70% of the workforce), 83% stated that they were successfully doing their normal job during Covid-19, with 72% stating that they found working from home easy. 80% claimed that they were well supported to be productive within the home environment. However, the experience hasn't been good for everyone and there are a minority of staff who find it difficult to work from home for a variety of reasons, and there is further work to be done to support those staff.

Now is therefore the time to shift focus again, thinking about the hybrid working model (a mix of remote and office working) that we predict will emerge in the coming months and the role that smarter working will play. There's an extended remit to look at creating great places to work and enhancing the 'people experience' while not losing sight of the original smarter working pillars (people and culture; leadership; technology; and workspaces). There's a desire to help build communities, connections and team cohesion (both physically and virtually) while also maintaining levels of social interaction.

There is therefore scope for a new discussion around processes, structures, new technologies, ways of working, choice and flexibility as well as what's required to be productive and the sort of working culture we want to create.



4. Delivering Our Priorities

The priorities for delivering the IT strategy are

Priority 1 – Cyber Resilience

- We will adopt an Enterprise Architecture approach to Cyber Security whereby we understand the various services we need to deliver (and why) and then ensure that the appropriate people, process and technology components are in place to enable these services. These services broadly fall into five categories as shown in Figure 1.
- We will continue to invest in staff awareness training and testing to minimise the cyber risk, combined with the introduction of additional technical controls where appropriate.
- We will develop a proactive capability to investigate cyber security events.
- We will allocate further resources, focus and increased effort to cross-organisational, cyber resilience activity.
- We will introduce smarter security tools and trusted networks for more sensitive data assets.
- We will feature cyber resilience strongly in business continuity and emergency plans.
- We will improve the completion rates of the cyber and information security courses.
- We will review SIEM platforms and an appropriate platform will be implemented, and all Council devices integrated into this.
- We will review options for an offline backup solution to enhance our existing off-site solution, and an appropriate platform will be implemented if required.
- We will further develop our cyber security dashboard, aligning the metrics with our IT & Digital Business Plan and our partner's metrics such that we can better benchmark ourselves and provide assurance to our internal and external stakeholders.
- We will further engage with the Corporate Information Governance Board on cyber security matters.
- We will achieve Cyber Essentials Plus accreditation.
- We will continue to achieve accreditation of PSN, PCI, and DSPT security standards, to retain secure inter-working and data sharing with public sector organisations.
- We will improve the Council's disaster recovery / business continuity, seeking to ensure that all systems can be delivered from either Council datacentre in the event of disaster, backups of data / systems are themselves protected from ransomware, and systems are as reliable as realistically possible.

Protect

- Firewall Services
- Asset Management
- End Point Protection
- Data at Rest Encryption
- Data in Transit Encryption
- Patch Management
- Vulnerability Scanning
- Web Application Security Services
- Email Content Security Services
- Internet Content Security Services
- IP Asset Management
- Privileged Account Management
- Data Loss Prevention

Identify

- Cyber Governance
- Cyber Policy & Process
- Risk Management
- Supplier Chain Cyber Security
- Cyber Awareness & Training
- Information Asset Register
- Key Operational Services
- Identity & Access Management

Detect

- Security Information & Event Management
- Cyber Intelligence Feeds
- Intrusion Detection Services
- Fraud Detection Services
- e-Discovery

Respond

- Incident Response & Management Plan

Recover

- Business Continuity Management
- Disaster Recovery

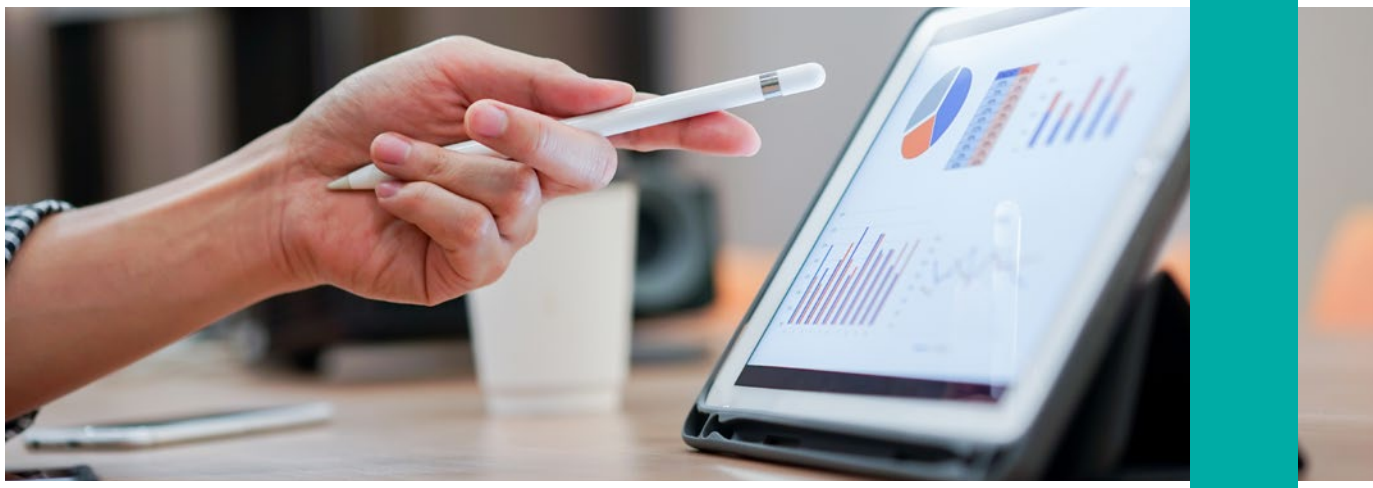
Figure 1 - Cyber Security Strategy

Priority 2 – Cloud

- We will adopt Fully Managed solutions by preference where they are appropriate for the Council.
- We will continue to utilise the Council's On-Premise infrastructure to provision all services where the Council remains responsible for any aspect of the support model or for any system / service where it is strategically sensible to do so (e.g. Active Directory).
- We will continue to use Platform as a Service (PaaS) to deliver bespoke applications where required through a rapid application development environment. Beyond developing applications, the Council will not make use of PaaS.
- We will not make use of Infrastructure as a Service (IaaS).
- We will not make use of Co-Location.
- We will virtualise by default.
- We will provide commodity-based pricing to programmes.
- We will maintain a hosting 'heat map' to indicate how systems comply with the strategy, ensuring that system owners are engaged, particularly at contract renewal.
- We will optimise the balance between on-premise, edge-based, public cloud and hybrid-based services, whilst at the same time ensuring agility and security in our enterprise.

Priority 3 – Network

- We will trial the use of SDWAN with a view to adopting it fully when the extended WMPSN2 contract comes to an end.
- We will continue to obtain compliance to PSN services for the foreseeable future as it validates our security posture / strategy and is an accepted standard by many organisations e.g. NHS.
- We will migrate to a HSCN breakout from our WAN provider depending on the future strategy for the WAN. This should reduce cost (as no requirement for dedicated circuits), improve resilience (as no longer reliant on County Hall / Wildwood) and improve scalability (as easier to scale to greater usage if required than with dedicated circuits).
- We will move to a "Wi-Fi First" approach where wired / ethernet services are only used when absolutely necessary and otherwise not provisioned.
- We will continue to consolidate / collapse legacy firewall services in favour of collaboration over cloud-based services (e.g. Microsoft Teams) and using IPsec VPN's where required. This will standardise and simplify service delivery whilst reducing cost of maintaining legacy firewalls.
- We will consolidate / collapse legacy load balancer services in favour of a single pair of well configured and supported f5 appliances.
- We will review the requirement for separate Internet Content Security services understanding the strengths and weaknesses of these over utilising existing firewall services.

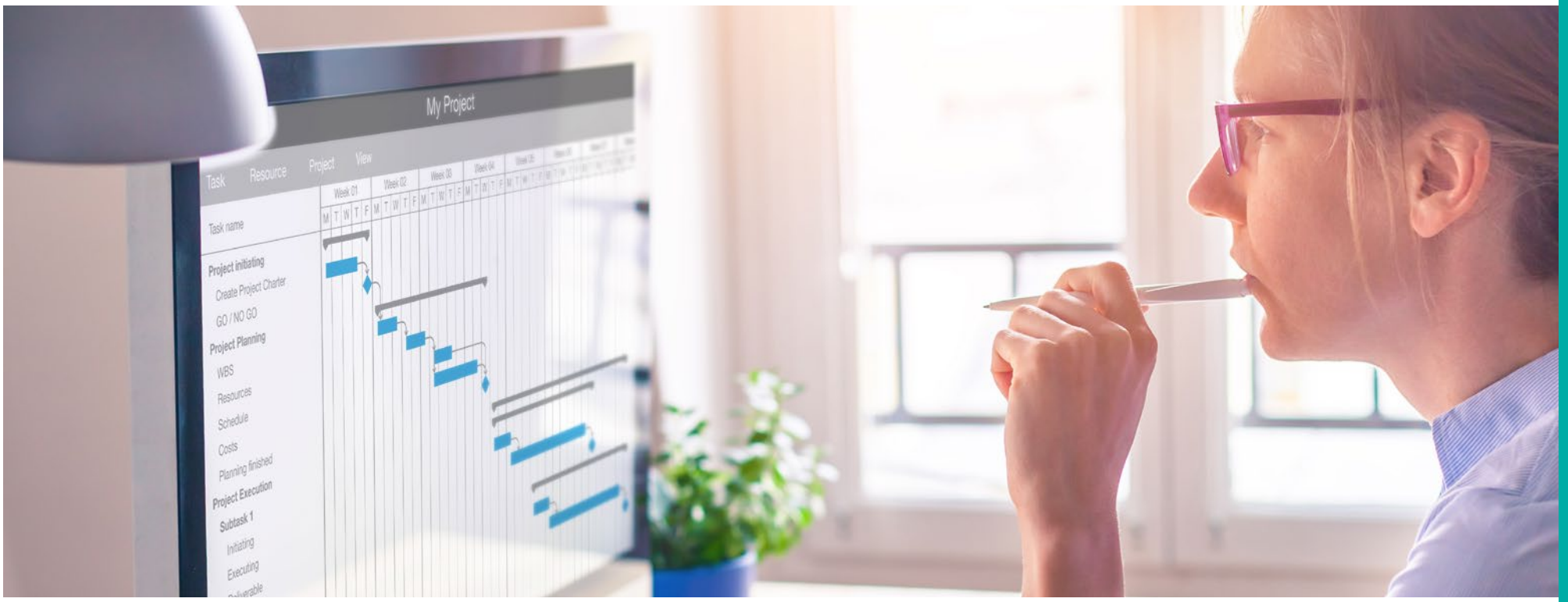


Priority 4 – Identity Management

- We will mandate that all systems support single sign on either now, or at contract renewal to ensure that productivity and security is increased whether hosted on premise or in cloud.
- We will review Cloud Access Security Broker (CASB) solutions with a view to further govern the Council's use of cloud-based services.
- We will continue to invest in our on-premise Active Directory Federation Services solution whilst enabling more solutions via Azure Federation to remove the dependency on this on-premise infrastructure.
- We will implement Windows Hello for Business to replace passwords with strong two-factor authentication on end user devices. This authentication consists of a new type of user credential that is tied to a device and uses a biometric or PIN.
- Where passwords are still required, we will migrate all staff to a new 15-character password that expires annually, supported by our existing Self-Service Password Reset solution.
- We will maximise our investment in Microsoft licenses migrating our existing two factor authentication solution to Microsoft Authenticator.
- We will introduce support for GOV.UK Verify as a solution to enable our customers to prove their identity online and thus enabling access to services / data that require this additional level of assurance.

Priority 5 – Service and Infrastructure Automation

- We will provision end user devices efficiently, providing the right equipment and digital mobility to enable our staff to serve our citizens.
- We will apply automation to our infrastructure to ease the tasks associated with managing and provisioning resources to deliver services with greater speed and reliability.
- We will investigate the automatic patching of servers and implement where feasible.
- We will utilise discovery tools integrated with our IT service management system (ASM) to maintain an inventory of all of the IT assets, including hardware and software.
- We will utilise myIT to enable users to provision services themselves.
- We will enable staff to be able to self-serve software installation via the use of Software Center.
- We will enable data owners to self-serve the management of access to resources that they control rather than requiring staff contact the IT Service Desk.
- We will fully exploit ASM as the IT service management solution, focusing on customer service, self-service, automation, data quality and integration.
- We will update service descriptions and levels of support in line with new ways of working in a multi-vendor, cloud-based environment.
- We will improve our service management tooling and processes, providing self-serve capability and a streamlined issue resolution system to enhance the day-to-day experience of all Council staff and users.
- We will exploit security event monitoring and automation tools to ensure compliance with security standards.
- We will adopt a self-service dominant strategy that prioritises resolution, not channel choice; prevents self-service abandonment through confidence-building design; and improves the customer experience.
- We will use TeamViewer to enable remote support of mobile phones, which currently is complex to achieve and time consuming.
- We will find opportunities to implement AI technologies to improve IT support operations.
- We will implement robust Starter, Leaver and Mover provisioning, applying automation wherever possible.



Priority 6 – Low Code and No-Code

- We will continue to utilise a low-code technology platform to underpin the Council's digital agenda.
- We will create an agile culture for service delivery and continuous improvement.
- We will utilise the agile approach in software development to reduce development costs and time to deliver in order to respond to business priorities and deadlines.
- We will continue to streamline services to better serve our residents, partners, businesses and visitors.
- We will implement lean processes to reduce reaction times, give responsive off-site support, rapid deployment and fulfilment, and flexibility in capacity.
- We will improve efficiencies and reduce waste through the use of technologies.
- We will turn innovative ideas into solutions, making best use of the latest technologies, including Artificial Intelligence (AI) and Robotics.
- We will align our technical infrastructure with our business objectives to enable cost reduction and improvement.
- We will utilise Microsoft Power Apps, Teams apps and workflows to build digital tools, automate process and simplify work.
- We will look to implement our low code technology solutions first and purchase off the shelf solutions as appropriate to meet business needs.

Priority 7 – Application Portfolio Management and Rationalisation

- We will optimise our software licenses.
- We will seek opportunities to retire applications by merging applications into corporate systems.
- We will review similar applications and choose best fit for the business enabling reduced support costs and greater efficiency.
- We will optimise data storage.
- We will manage our enterprise architecture through the iServer tool and allow access across IT and the business, in line with TOGAF best practice.
- We will retire aged and low-value applications.
- We will identify and eliminate redundant applications that overlap in function and deliver minimal to no business value.
- We will standardise common technology platforms.
- We will refresh and improve the process for managing all IT software systems contracts for upgrade/renewal and maintain an up to date list of requirements and expiration for future procurement and ensure application procurements start in a timely manner to allow for the procurement process and implementation to be completed.
- We will adopt a full application lifecycle management approach, not just configuration management.
- We will measure results and demonstrate a return on our efforts.
- We will provide a single route for requests for application support but allow matrix delivery of application support across the Council.
- We will develop common standards for the delivery of application support across the Council.
- We will focus on application security and ensure only users who should have access do have access and where possible manage access through our Active Directory.
- We will ensure all applications are protected from a Disaster Recovery perspective.
- We will ensure we support all business areas to ensure their Business Continuity plans are fit for purpose from a technology perspective.
- We will manage changes to applications through ITIL best practice.
- We will use Agile, Lean and Prince 2 methodologies as appropriate, for the replacement, development and configuration of applications.
- We will provide resilient applications and resilient support model to maximise application availability, including out of hours for critical applications.

Priority 8 – Information Governance, Data Management and Data Insights

- We will ensure the Council is compliant with legislation, such as Data Protection, Freedom of Information and Environmental Information Regulations.
- We will ensure that personal data is processed in a safe and secure way.
- We will create an information and knowledge sharing culture to allow us to work more effectively with partners both within and outside of the Council.
- We will increase the overall data literacy across the Council and equip the workforce with the skills to engage with data and use it more effectively in their work.
- We will ensure our compliance with security standards for data exchange with health and central government.
- We will proactively reduce volumes of paper managed in the Records Office, through the redesign of business processes, and robust and proactive disposal management.
- We will utilise the power of data analytics to improve processes and provide insights into future behaviour and need.
- We will use customer information and intelligence to commission better services for our customers and deliver better outcomes.
- We will innovate with data and collaborate with our partners to create better insights and information.
- We will implement a Master Data Management approach, enabling us to share that data across multiple systems.
- We will ensure information underpins the business objectives of the Council, supporting collaboration and challenge by our partners and the people we serve.
- We will develop a strategic approach to the use of Power BI across the authority.
- We will expand our publishing of data as Open Data, striving to achieve our ambition of most of our data being openly and regularly published – promoting re-use of our data by external organisations and ourselves.
- We will build a modern data capability within the Council and support and encourage Information Managers to create powerful insights from data.
- We will review our information governance policies and supporting guidance to ensure their contents are meaningful, accessible and approachable, reflecting best practices recommended by the Information Commissioner and relevant professional bodies.

Priority 9 – Collaboration

- We will enable the Council to access files even in the event of a catastrophic multi-datacentre failure. This could be particularly crucial in the case of, for example, disaster recovery documentation that needs to be accessible to enable the rebuild of any infrastructure.
- We will enable, with appropriate security controls, access to files from mobile devices and devices that are not part of the Council's network such that we can collaborate with partner agencies. Windows 10 further enhances this experience in that we will be able to access the same file shares from within Windows, on the web or via mobile.
- We will label collaboration sites as "Official – Sensitive" if the site in question processes (either through storage or otherwise) person identifiable information (PII) or information that is deemed by the data owner as being sensitive. Sites labelled as "Official – Sensitive" shall be configured to only be sharable with approved domains e.g. nhs.net on a site by site basis.
- We will check each enablement of a new domain with the Council's Information Governance section to ensure that an appropriate information sharing protocol exists to support this sharing.
- We will control access to collaboration sites labelled as Official – Sensitive with two-factor authentication unless from a trusted network location.
- We will ensure that authorisation (access control) to each collaboration site shall be owned and managed by the data owner.
- We will complete the implementation of Microsoft Teams aligned to the Council's Collaboration Strategy.
- We will ensure usage of Microsoft Teams, OneDrive and all cloud solutions meet required information governance standards.
- We will continue to validate external email domains to ensure that sensitive information is never sent unencrypted via email.

Priority 10 – Smarter Working

- We will empower employees wherever and whenever they work with the right tools.
- We will ensure users are provided with the most appropriate devices.
- We will provide employees with productivity tools, collaboration tools and access to systems and data.
- We will accelerate use of self-service alternatives in parallel with digital service design.
- We will provide hybrid meeting facilities to combine the best features of both face-to-face and virtual meetings: seamlessly integrating in-person communication with virtual meeting elements, enabling attendees to connect and share information.
- We will improve efficiencies and reduce waste through the process redesign and the use of technologies.
- We will remove the need for manual processes and intervention through more integrated cross-service applications.
- We will enable staff to use their own devices where possible, connecting easily over the open internet.
- We will seek opportunities to utilise the internet of things (IoT), Artificial intelligence, robotics and machine learning to automate tasks, for example in buildings and asset monitoring, roads and IT equipment, customer service desks, health care and waste management.
- We will focus on enabling an increased productivity of all staff through the implementation / development of tools, information, systems and training.
- We will develop learning and training materials on OurSpace to support staff in their use of the technology tools we provide.
- We will nurture cultural change to empower the workforce to work in smarter ways.
- We will implement lean processes to reduce reaction times, give responsive off-site support, rapid deployment and fulfilment, and flexibility in capacity.
- We will support teams to get more from the digital tools they are using, including more training and peer support to bring everyone into the loop.

Work takes place at the most effective locations and at the most effective times

Simplified collaboration and connectivity virtually everywhere

Space allocated to activities, not individuals.

A Flexibility First approach is the norm rather than the exception

Balancing the freedom to choose with the responsibility to meet business needs

Processes are continuously challenged to make sure they are fit for purpose

5. Delivering Change, Monitoring Progress and Measuring Success

Investing in People

IT and Digital support the development of our employees and recognise their achievements and the invaluable contribution they make in delivering services.

All employees undergo an annual review meeting where priorities and objectives for the year ahead are agreed and put into an action plan that is regularly monitored.

Large projects will require a specific Training Needs Assessment to identify gaps in the knowledge, skills or abilities of impacted stakeholders compared to levels required to support and sustain the changes implemented.

Training methods will be selected based on the options available. To maximise learning and ensure learning is retained, a blend of training delivery methods will be used. This will include:

Instructor-Led Training	**e-learning**	**Mentoring**	**Coaching**
Skills transfer	**Apprenticeships**	**Webinars**	**Conferences and events**
Technical forums	**Leadership programmes**	**Workshops**	**Focus groups**
IT Support resources	**Internal and External training courses**	**Acting up arrangements**	**Secondments**

Resourcing the Delivery

Funding for the IT Strategy 2021-2023 will be incorporated within IT and Digital's revenue budget and capital programme and drawn down based on costed business cases.

It should be noted that whilst we are in a climate of reducing budgets, the demands on IT and Digital is growing as the Council becomes increasingly reliant on technology to enable savings and efficiencies.

Additional resources and investment may also be required if the pace of delivery required by the business is greater than our current delivery capacity.

Monitoring and Reporting Progress

It is essential we monitor progress and ensure that the work we are doing is delivering a tangible difference to our staff, members, residents, visitors, communities and businesses of Worcestershire. Therefore, this strategy will be supported by a robust implementation plan which will evidence the delivery of our priorities and will set out key milestones and achievements.

Progress in implementing the strategy and delivery plan will be reported to the IT and Digital Leadership team on a monthly basis. Progress will be reported to the Cabinet Lead for Commissioning, Finance and Transformation on a periodic basis, with the opportunity for ad-hoc progress reports as required.

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