Kent County Council Technology Strategy 2020-2023

Infrastructure Division

2020

Draft Version

Forward

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Executive Summary

This Technology Strategy has been developed in support of the Council's core strategic ambitions across business service units as reflected in the *Council Strategic 5-year plan 2020-2025*, Divisional business plans and the Medium-Term Financial Plan (2019-2022).

The significant challenges that face the Council have prompted an organisational change agenda which will determine how services will be delivered and accessed by residents in the future. Key challenges include budgetary constraints and increased customer demand, therefore plans need to consider how the Council can make more efficient use of resources and work in closer collaboration with different agencies to deliver better outcomes, whilst managing increasing demand pressures.

As technology advances and new consumer service models evolve, people's expectations in relation to when and how they can access services also change. Our services and service customers are increasingly seeking solutions which provide access to the Councils services anytime, anywhere.

The Technology Strategy provides direction and strategic priorities that will shape the Council technology environment. It provides a platform that can exploit innovation in the delivery of new service models, whilst providing a stable and resilient infrastructure which facilitates the most efficient use of resources.

Implementing this strategy will enable the Council to build on its investments to date and to drive digital delivery models that support the Council's published priority outcomes.

This Strategy will be a 'living' document updated to respond to the changing and evolving business needs.

Andrew Cole
Head of Technology Commissioning and Strategy

Introduction

Technology transforms the way in which we live our lives. It connects us in new and different ways. It puts more power into the hands of the users of services and offers new insights and opportunities for those who provide them. It creates a platform and a momentum for innovation and has the potential to fundamentally redefine the relationship between the public sector and the people it serves.

Digital solutions provide an opportunity to develop new products and services, to create, collaborate and build successful service delivery models at a scale and a speed that was previously unimaginable. Digital technology gives opportunities to reduce the costs and increase the quality of public services, change the way in which we learn, work, live and access information from the world around us.

However, with these opportunities come some additional risks. Digital disrupts traditional ways of working, puts new pressures on our right to privacy and has the potential to create new forms of social exclusion. Delivering services in cyber space also raises challenges for digital security and identity management. As such we must ensure cyber security is embedded into 'business as usual' working practices within an appropriate policy and security framework.

This Technology Strategy must be aligned to the overall business context and the Council's key priorities in order to be effective. It must allow for the fact that the business environment is not constant and must have adequate flexibility to accommodate changing business demands.

It will provide a focus for technology innovation and implementation across KCC and also link the digital ambitions of operational service delivery units within the council's overall strategic aims and objectives.

This Technology Strategy aims to set the digital direction for Kent County Council. It demonstrates how we will manage and protect the data we hold, whilst working across organisational boundaries to provide digitally enabled integrated service models.

In addition to delivering key strategic objectives, the strategy must also reflect on how new and emerging technologies will impact on future delivery models.

The Council Overview

The Council has set out its key objectives in the Draft Strategic Statement 2020. The Councils overarching strategic outcomes are;

Strategic Outcomes			
Enterprise and investment	Securing sustainable infrastructure	Connected transport and communities	A cleaner and greener Kent
	Stronger and safer Kent communities	Opportunities for children and young people	Quality health, care and support

In addition, the Strategic Statement includes cross cutting themes of:

- Accessibility, fairness and opportunity
- Quality
- Sustainability
- Collaboration with our partners
- Delivering statutory responsibilities, including social care, education, public health and highways.

There are a significant number of activities in this priority area and the implementation of innovative technology solutions will play a key role in delivery of the associated outcomes. Enabling activity recognises:

- the importance of having a skilled and motivated workforce that is flexible and proactively innovative.
- that efficiency and effectiveness can be driven by collaborative commissioning processes
- that to understand and respond to changing demand and service pressures there is a need to use accurate data and analysis to provide robust evaluation and evidence led decision making facilitating the design of new operating models to improve service outcomes
- That using automated and artificial intelligence can provide significant benefits in service modelling and delivery

- that implementing an agile and innovative property asset management strategy combined with flexible working practice will drive value for money across multiple business areas
- Regular review and replacement of key line of business systems facilitate process re-engineering and system consolidation, and that maximising new technology opportunities and new ways of working will encourage a culture of innovative change, improved business processes thereby driving increased productivity.

ICT Vision

Our vision is *that 'technology solutions will be a key enabler for the development, delivery, improvement and transformation of Kent County Council and the services it delivers to our residents. It will provide flexible and scalable solutions that adapt to meet the challenges of today and future years'*.

To achieve this vison the council will develop a technology architecture built upon a fully integrated and interoperable ***Digital Business Technology Platform (DBTP)*** that facilitates end to end digital service delivery across all the corporate business units.

This platform will have Business Intelligence at its heart, providing corporate leadership, service managers and Council Members with the data and insight they need to make operational and strategic decisions, allowing the council to commission services based on detailed knowledge of the needs of our customers.

Much of the DBTP will be delivered using a cloud-based product suite, integrated into line of business applications.

The Components of a Digital Business Technology Platform
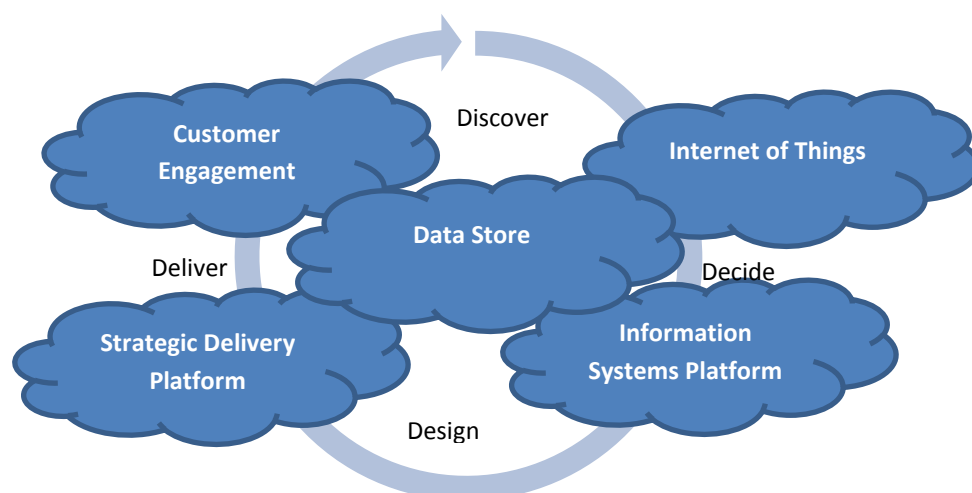
Data and Business Intelligence

Digital data will enable the council to improve, optimise or reinvent existing business models, operating processes and outcomes. By using data strategically, the council will be insight driven, innovative and predictive when designing new service delivery models.

Digital is all about data. How it is collected, governed, secured and consumed. Data can be mined, refined and processed using automation to produce dynamic insight. The Council is on a journey to establish a data strategy as a corporate priority. This strategy must deliver a data infrastructure that promotes the innovative use of data across the regional public sector. It must encourage data sharing and collaborative insight to facilitate service improvement and awareness. It must have enterprise information management, governance, strategy, and skills embedded in the corporate culture.

At the core of the DBTP will be the Microsoft Azure Data Lake and Power BI analytics tool set. The data lake will have the ability to consume data from all line of business applications along with feeds from Internet of Things (IoT) devices connected to cloud network services. The Corporate Data Framework will be published in the councils Data Strategy setting the corporate direction and associated activities to achieve a corporate data platform that will be the central repository.

*We want to encourage and nurture a **culture of innovation** within KCC and with our partners, including our local Universities. We want to use new technology to transform the way we deliver services in more modern and exciting ways. We will bring our staff together to test new ideas, make better use of data and create new ways of working. – KCC Strategic Statement 2020*

This will facilitate storage and analytic capability across multiple data sets from many service units. Dynamic reporting will enable real time diagnostics and management information to be distributed across all levels of the council.

Strategic Delivery Platform

A Business Ecosystem can be described as a community supported by a foundation of interacting organisations and individuals. As a commissioning organisation the councils Strategic Delivery Platform is a critical eco-system that facilitates collaborative service design and delivery across the whole supply chain.

Our enterprise systems, policies and processes must have the technical capacity to share data across delivery partnerships. Our key business systems must interact or directly integrate with strategic delivery partner systems to enable shared knowledge and insight that informs continuous improvement within the commissioning cycle e.g. Kent and Medway Care

The Kent and Medway Care Record brings together core information about an individual's care held by different organisations on separate IT systems. These include GPs, local hospitals, community healthcare, mental health teams and social care. It does this by securely and safely linking clinical and social care systems to create a single view of key information.

Record

Internet of Things (IoT)

IoT can improve business outcomes. The IoT consists of a network of dedicated physical objects that contain embedded technology which can sense or interact with their internal state or external environment. The devices improve situational or spatial awareness from which we can make better business decisions. IoT crosses market boundaries and can be utilised to good effect in the consumer, commercial and industrial marketplace.

Although IoT is delivered through technology it is most effective when considered as a strategic enabler for delivering business objectives. IoT should be delivered with a tactical approach but in the context of a longer-term strategic delivery plan that meets wider business objectives e.g. infrastructure management.

KCC will, by design, invest in IoT technology infrastructure, exploiting the use of direct data feeds to improve estates and environmental management. We will use well established regional networks (Kent Public Service Network) to connect devices and enable data flow into a central data repository.

Customer Engagement

Our customers will benefit from digital service delivery. The ubiquity of smart phones in all walks of life mean we must consider a transformation in customer engagement from a 'one stop shop' model to a 'no stop' model, in which all services we provide can be accessed 'on the move' from digital hand held devices.

To create successful digital services, we must focus on;

......Accessible, inclusive public services that meet people's needs and the way they lead their lives are essential to quality of life. KCC Strategic Statement 2020

- Multichannel Delivery - User Centric, Personalised and Proactive
- Digital Platforms - Platforms, Partnerships and Ecosystems
- Data Centricity - Insight Driven, Innovative and Predictive

Our services must be integrated, personalised and created using Human-Centred Design for better service outcomes. We must use data and provide knowledge to providers who can in term develop Proactive Service Delivery Models that continuously receive digital feedback from service users.

We must embrace and develop Automated Service Delivery techniques using artificial intelligence, robotics and machine learning technology to provide consistent, easily accessible transactional and information services across a full range of public services. As such we will invest in a Robotic Process Automation (RPA) platform

which will support business change, the remodelling of back office processes and deliver digitally enhanced customer support mechanisms e.g. Citizen Bots.

Above all, we must empower our customers and providers to drive improvements in services using digital technology delivery models.

Information Systems

Our information systems will be a proactive agent for change in service delivery and will ensure that our staff have the appropriate skills and knowledge to make best use of ICT facilities and systems.

We will manage data and security compliance at a level that provides assurance to customers and providers that the information we hold is managed securely and governed within data protection regulations.

Kent County Council committed in their ICT strategy 2016-2020 to transition from an on-premise IT infrastructure to a cloud computing delivery model. That transition is still in progress and this strategy builds on the principles outlined in 2016. As such KCC will provision 95% of its ICT infrastructure in cloud-based services by 2023. We will decommission the on-premise data centre during 2021, reducing our carbon footprint and thereby helping to achieve the councils ambition for carbon neutrality.

Microsoft will continue to be a strategic delivery partner over the life of this strategy and will support the council in delivering the Technology Roadmap. Projects will be focussed on consolidation of key systems and using corporate technology platforms to deploy common standardised processes that facilitate automation and integration.

Using Azure cloud Business and Operational Analytics we will ensure that our core systems are fit for purpose and integrate with strategic delivery partner networks where appropriate.

The MS Security and Compliance product suite will ensure our information and data is available to share within the constraints of a fully secure data governance framework. Automated document archiving, deletion and retention will optimise the way we store and retrieve data to ensure information is easily accessible.

Microsoft 365 power production suite will facilitate collaborative systems and workplaces that increase resource capacity, capability and information sharing across multiple delivery agencies and providers.

In order to deliver the projects outlined in the Technology Roadmap we will continue to work in collaboration with Cantium Business Solutions to ensure consistent operational technology support. Where specialist technical skills are required to implement specific transformational change programmes, we will engage with Microsoft 'gold' partners or their equivalent to provide innovative business solutions.

By using strategic delivery partners and a 'gold' partner supply chain we will deliver the following technology enabled strategic outcomes:

- Provide staff, partners and citizens with access to reliable and predictable ICT services that fully exploit the benefits of technology

- Enable new ways of working and new service delivery models

- Use our information assets to drive an intelligence based commissioning cycle that target resources where they can be most effective

- Provide secure, agile and flexible digital technology solutions that empower customers and providers to improve service delivery

- Challenge and facilitate the business to take advantage of existing and new digital technologies

ICT Strategic Themes

A Technology Roadmap 2020-2023 supporting the delivery of our priority outcomes has been produced. The roadmap has four clear strategic themes with associated enabling projects. The projects are designed to encourage innovation and use of new technology, thereby shaping the way ICT is delivered across the Council. In order to successfully develop and deploy activities within the roadmap a central technology budget fund will be created and overseen by the Strategic Technology Board. In order to make the most of technology investment the Council is committed to optimisation and consolidation of all systems and applications using Enterprise Business Capability to digitise business process and reduce overall resourcing cost.

Strategic ICT Theme 1: A Modern ICT Infrastructure that enables digital transformation

Digital Transformation is much more than providing public services online. Digital services form a regional infrastructure that is critical to the economic success of Kent and must be provided in ways that makes sense to our citizens, rather than the ways in which we have chosen to organise ourselves. We will therefore match the expansion of digital public services with reform in corporate structures and the way in which they work.

Our approach demands that we:

- Simplify and standardise ways of working across the council so that it becomes easier to use our services

- Create common digital platforms for services that will encourage innovation in the delivery of public services whilst ensuring that the platforms and technologies are both secure and resilient.

- Make better use of cloud-based solutions as a source of both cost reduction and service innovation

Outcomes, measures of Success
- Commodity cloud services as well as shared service offerings will be meshed into an overall ICT platform for business use. A single platform will be presented built from a small number of providers (internal and external).
- 95% of our ICT infrastructure will be cloud based within 3 years
- Reduce the environmental impact of technology used by the council

Strategic ICT Theme 2: Streamline Processes to create an agile and flexible digital service model

Automated Technology solutions facilitate new ways of analysing information in order to streamline processes and decision making. Using data from digital devices (sensors) that capture environmental and operational information from across the council estate, resources can be targeted more effectively, increasing capacity and reducing cost.

Outcomes, measures of Success

- Adoption of Artificial Intelligence, Robotics and Machine Learning technology to drive process change
- Create a culture of continuous process review and design to provide effective resource management.
- Develop a technology cost optimisation programme
- Review Enterprise Resource Platforms and associated functions
- Create an Internet of Things network that provides data to improve infrastructure management and reduce climate change emissions

> *…..Embrace technology to streamline and improve the way we work and…. embrace the opportunities of technology to complement more traditional forms of care and support.* – *KCC Strategic Statement 2020*

Strategic ICT Theme 3: Exploiting Information for Business & Customer Insight

> *We will bring our staff together to test new ideas, make better use of data and create new ways of working. KCC Strategic Statement 2020*

Data holds the key to unlocking innovation in public services. Better data sharing can generate new insights stimulate new ideas and deliver potential savings to the public sector. Such benefits will, however, only be realised if people in Kent trust us to hold their data securely and use it in appropriate ways. We are already seeing benefits in areas of public service from the use of open and shared data. Collective data agreements are helping to widen access and reduce the costs of key data sources across the public sector in Kent.

Outcomes, measures of Success

- Data from systems to be collated within cloud-based data stores enabling data mining to drive insights that support business decision making.
- Business users have tools to be able to navigate and draw knowledge from the accumulated data to support intelligence led commissioning.
- Data management processes are established as normal practice within business units supported by ICT services and tools to provide processes, governance and management of critical data.

Strategic ICT theme 4: Managing Risk, Security and Compliance

It vital that the council is a secure place to work, learn and do business. Getting security right is a fundamental enabling element of our digital ambitions. As we carry out more transactions and share more information online the greater the risk of our information, operations and finances being stolen, exploited or disrupted. These risks will only increase as we build and benefit from the internet of things innovation. Our reputation for cyber resilience has the potential to quickly become a determinant of future economic success. We will ensure that;

- People can access straightforward, reliable and easily accessible advice on cyber security
- We share information about cyber threats across sectors and are well prepared to manage them
- Our digital public services are safe and secure to use
- We will work with academic institutions to enable effective and coordinated cyber security research and innovation
- Cyber resilience skills are embedded within our wider digital skills ambitions

....effective sharing of information and data to protect against serious and organised crime - KCC Strategic Statement 2020

Outcomes, measures of Success

- Ensure accreditation to national information security and governance standards
- Embed good security practice in all staff behaviour
- Embrace new technologies and services where possible to bring additional efficiencies to security compliance work ensuring they are targeted and proportionate.

Resource and Governance of the Technology Strategy

All organisational ICT decisions will be governed by the Strategic Technology Board which will approve and advise the CMT and Corporate Board on technology investment, direction and issues. The Strategic Technology Board is chaired by the Director of Infrastructure and has representation from all corporate directorates.

To ensure robust governance of technology commissions for both corporate and major business initiatives, the ICT Technology Board, chaired by the Head of Technology Commissioning & Strategy provides management oversight of technology programmes and projects holding the delivery partners to account. The board is represented by both senior managers from the ICT Client function and delivery teams.

The Governance set out above will focus on:

- Priority setting and effective use of resources
- Quality assurance
- Clearly defining roles and responsibilities

The 'design authority' will reside with the Head of Technology Commissioning and Strategy who will define the overall corporate technology vision and strategic activity over the life of the Technology Strategy. Priority setting will be both a top-down and bottom-up process. Major initiatives to which ICT contribute will be set in accordance with the Strategic Delivery Plan and approved major transformation programmes. These priorities will be set out in an Infrastructure Business Delivery Plan and approved by the Corporate Management Team.

A Technology Reserve Fund managed and maintained by the Strategic Technology Board, will be developed to provide resourcing support for the growth and development of technology functions across the council. Specific projects and any additional ICT resources not provided within the constraints of this strategy will be assessed on a case by case basis with funding approved via established corporate governance channels. However, all ICT projects, regardless of the funding stream, will need to go through the Quality Assurance process to ensure strategic compliance and the governance framework. Requests for technology development will be supported by an initial business case that will be used to inform priority-making decisions.

All corporate technology spend will be centrally managed by the Technology Commissioning and Strategy team.

To ensure the council make best use of technology across the whole organisation we will develop additional skill sets within the Technology Commissioning Team including Change and Project Management, Business Process Analysts, Data Scientists and Commissioning Support.

Technology Trends

As we move into a new decade it is important to consider how current technology trends may develop and impact public sector service delivery beyond the lifetime of this strategy.

Artificial Intelligence (AI)

AI is already changing the way we interact with technology. Voice controlled activities are available for the home and

> '….we recognise that there will be significant technology breakthroughs which will bring opportunities and challenges. These include future mobile, electric and autonomous vehicles, wider adoption of artificial intelligence (AI), big data analytics, virtual reality, and the Internet of Things. We will support our businesses to be ready to embrace these opportunities and be future ready.' - *KCC Strategic Statement 2020*

business. The Internet of Things (IoT) and connected devices provide opportunities to improve the lives of our citizens and the business processes with which they engage. Within the next ten years AI is likely to be an integral part of our daily lives. Wearable devices will share information about lifestyle choices, health, the space we occupy and how we use it. This data will be available to commissioners and providers so that they can collaborate on the design and delivery of public services of the future. As a forward-thinking local authority and to fulfil our leadership role in Kent we must embrace AI and Robotics in order to prepare corporate leaders for the likely change to come.

The Internet of Things (IoT)

IoT already has a key role to play in the delivery of this strategy. As internet enabled devices proliferate within the public service delivery ecosystem it can be expected that things, as well as people, become consumers of public services. It is likely that 'autonomous devices' will be deployed across public spaces to monitor, measure and provide feedback loops into commissioning processes enabling agile process and service review and re-design. Buildings will become SMARTER, facilities managers will have direct feedback from estate management system to proactively manage the spaces we use for work and recreation, reducing environmental impact and improving our green credentials.

Wearable technology and home based devices will help vulnerable people to live independently in the knowledge that their welfare is actively and dynamically monitored in real time.

AI does pose some challenges and we must ensure that services are provided equitably and by automating processes we do not disenfranchise sections of society or create bias in decision making.

> 'Innovation needs to be supported by digital connectivity, future mobile and broadband provision and upskilling to optimise the potential of new technology. We want to leverage additional national investment in 'smart countryside', not just 'smart cities' by taking advantage of Kent's proximity to London as one of the world's largest digital economies. To do so we need to support the Government's Future Telecoms push for universal connectivity and lobby for a fair share of the UK Shared Prosperity Fund to support rural innovation and tackle digital isolation.' - *KCC Strategic Statement 2020*

Mobile Network Infrastructure

It is expected that 5G networks will be well established across the region during the life of this Technology Strategy. However, we must work with delivery partners to ensure that our residents and businesses make full use of faster mobile networks to improve service delivery across Kent. Wider coverage and faster connectivity will help to make our service staff more mobile allowing staff to deliver services in locations previously unavailable due to poor network coverage. It will facilitate improved access to services by our customers and reduce transaction times.

Blockchain

This technology primarily enables the tracking of assets or transactions as they pass through various actors in the process chain. Although Blockchain (distributed ledger

technology) has made inroads into the finance sector, it is still to find its niche in public sector service delivery. However, when all the relevant elements, including tokenism and decentralisation, are deployed we can expect that Blockchain will start to become more prevalent in local authority process design and delivery.

Summary

Kent County Council is on a digital journey. The roadmap for delivery started in 2016 with an ICT strategy that clearly set out a set of principles based on cloud computing, mobility, flexibility within a well-defined security framework that enabled data sharing across multiple delivery providers.

With this Technology Strategy 2020-2023, the journey continues, building on the platforms developed thus far and developing them using technology solutions that have emerged in the last 5 years.

Technology advances and maturity in the cloud computing marketplace will enable KCC to take advantage of cloud data storage capacity and analytics to develop digital feedback mechanisms that will enhance our commissioning process and create customer service models based designed to be proactive and personalised.

Using autonomous devices connected to and interacting with their environment KCC will be able to improve infrastructure management and reduce the environmental impact of service delivery. It will be able to develop service models that improve the lives of vulnerable people and allow them to live more independently.

This Technology Strategy supports KCC's Strategic Delivery Plan and other key strategies that are working towards improving the lives of those who live, work and learn in Kent.