KCC Technology Strategy 2015-2018

Version 1.0

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1 Foreword

As all services across the council respond to 'Facing the Challenge', it is critical that our support infrastructure is appropriate and fit for purpose to support our service provider's contribution to that transformation process.

This strategy document outlines our approach to the technology that will be required between 2015 and 2018 and illustrates how this will support the Authority's key outcomes. It recognises that this needs to be achieved at a time of increased financial pressures for local government and across all public services. Core principles of the strategy are therefore resilience and security balanced by the requirement to deliver value for money on behalf of the residents of Kent.

No major change in technology platform is proposed, thus avoiding any unacceptably high cost of technology change. The technology roadmap remains as before, ensuring a continuing return on existing investment and maintaining consistency with the previous strategy. There will however be a significant shift in how technology is sourced, with a move away from on premise solutions to 'cloud' based solutions following security accreditation of these services.

The intention of this version of the council's technology strategy is to provide solutions designed to meet increasing demand while maintaining service levels. Our intention will always be to develop income opportunities that enable the cost of technology to our service providers to be minimised and thus offer best value.

Gary Cooke

Cabinet Member for Corporate and Democratic Services

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2   Executive Summary

The next few years will see significant changes across the entire public sector. The shape and size of the council will change but the need to provide high levels of service to our citizens will remain, and be set against a backdrop of financial austerity. With these challenges will come new opportunities; information and communications technology (ICT) will be able to help the Council to achieve efficiencies, providing the mechanism to support shared services and most importantly, keeping pace with citizens' changing needs and expectations.

During the timeframe of this strategy, ICT will contribute to achieving the strategic objectives of the Council in its mission to deliver high quality services to the people of Kent.

ICT is no longer just back office automation; it has become a critical service. If it is unavailable, the organisation cannot deliver services to our service users. ICT has the capability to contribute during the service redesign that is needed to address the challenges facing the Council. ICT has a pivotal role to play in improving efficiency, reducing cost across the organisation and supporting the organisation as it moves away from direct service provision into a commissioning model.

We will continue the process of standardisation and simplification based on the premise of a common technical architecture designed to enable local delivery suited to local needs.   Delivery will increasingly be through partnerships and service provider organisations in the public, private and third sectors and this strategy enables greater interoperability to underpin this model.

Demand for public services from our populace and their expectations of levels of service are ever increasing. Citizens and businesses expect the same levels of access and availability that they receive online from large private sector organisations. People expect to be able to access their services from anywhere they can get onto the internet and in a manner that suits them. Our Strategy will place a strong emphasis on providing choice in the way people access services while encouraging them to use the most efficient channel. This will ensure services are delivered to suit the requirements of individual users not at the convenience of the Council.

A key principle of the approach adopted has been to identify least cost infrastructure solutions that provide the foundation for the systems used by both service providers and citizens. Minimising the cost of this aspect of technology provision will allow priority to be given to the business systems and applications which is where most

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service benefit is derived. Achieving this objective will require all systems owners to support and maintain the standards applicable for the common infrastructure components.

Our programme of Doing Things Differently, rationalising office accommodation, eliminating unnecessary bureaucracy and administration, and supporting community based service delivery will drive efficiencies.

Where possible, the Council's use of ICT will contribute to economic success of the County, and facilitate the delivery of key initiatives including neighbourhood working and total place.

Information security is a critical focal point within the strategy given the amount of information we hold and the potential damages to individual and businesses should this be inappropriately released. We place great emphasis on protecting our systems against threats and maintain constant vigilance to protect against any new threat. We will continue to invest in training and education for our users, to raise awareness of security risks and to promote good data security practice wherever staff handle data.

3 Why a Technology Strategy

Information and Communication technology plays a significant and increasing role in people's life at work, at home and the way the Council delivers its services. No organisation or business, public or private, large or small, can succeed without embracing and exploiting technology. The council's technology strategy needs to evolve to reflect both the changes in technology infrastructure and the changing use of those solutions in the digital age.

This strategy can trace its evolution back to 2005 when the council published 'A watershed in ICT'. The digital enablement of the UK's telephone exchanges and the emergence of broadband were identified by the council as both a key public infrastructure strategy and the platform to enhance service delivery. This approach pre dated government's first national ICT strategy and many of the initiatives progressed in Kent have now been adopted across the wider public services.

The strategy has continued to be updated in response to service change and emerging technologies, most recently in 2012 to align with more closely with customer service objectives.

The strategic view for the future of Kent is set out in the Vision for Kent, a joint document with the rest of the public sector.

The Council has articulated some core values and guiding principles as it responds to the challenge of transition to a commissioning authority.

These principles are:

- Placing the customer at the heart of service delivery
- Shaping services around people and place
- Looking again at our services, the difference they make and whether there's a better way, taking a prompt from our customers and the people working close to them
- Putting a greater focus on outcomes - being clearer on what we are trying to achieve
- A more co-ordinated approach to project and programme management

The technology strategy describes our ambition to help achieve the transformation by applying the core values and principles. It links closely with the strategic objectives set by other strategies across the Council. KCC ICT will:

- Support the Council in delivering Facing the Challenge

- Continue to support delivery of high quality services to the citizens of Kent
- to stabilise and progressively reduce our environmental footprint

We will deliver this by concentrating on the following themes:

- Focus on partnerships in Kent
- Appropriate technology for business goals
- Smarter business engagement
- Lowering the cost of technology delivery
- Aligning scarce ICT resources to strategic priorities
- Avoiding redundant and duplicate systems and applications

4   Technology Roadmap and Key Initiatives

The direction provided by the council's strategies set the boundaries for the required technical solutions. The purpose of this iteration of the technology strategy is to ensure that those technical solutions align and support:

- Transformation arising from 'Facing the Challenge'
- Transition to a Commissioning model
- Are affordable within financial constraints over the medium term

These considerations do not fundamentally alter the existing technical architecture and standards previously approved by the council. They do introduce an additional set of requirements that have to be incorporated within future ICT solutions:

- Technology choices need to be 'agile' to remain viable and value for money within a mixed economy of service provision, which might see radical change to priorities and sourcing solutions.
- Commissioning shifts the information priorities for transactional data to performance and outcome based metrics.
- Irrespective of source of provision, the overhead costs of technology need to be further reduced by 25% to 40% of current base.
- Solutions have to be open and support self-service by end users without compromising security of personal data

These requirements have been incorporated in plans to access new delivery solutions available within the global technology market. The term 'cloud service' has been used in technology environments for a number of years. In essence it is an alternative business model for the delivery of ICT services. Rather than buy or own equipment and services these are rented on an as required basis from providers with massive capacity.

Until adopted and offered at scale by companies such as Amazon, Google, IBM and Microsoft, the economic case for 'cloud' solutions was relatively weak and did not offer a good return on investment for the council when previously assessed. In part this was due to government security standards which restricted how much of our systems infrastructure could be put in the cloud. All the while extensive 'on premise' solutions had to be maintained in parallel, savings could not be realised.

This position has altered during 2014 as the major cloud providers now offer data tethering with a geography, E.g.: Europe and have signed Safe Harbour Agreements and EU Model Clauses acceptable to the UK Government.

Other benefits of adopting cloud services are cited as:

1. Software is maintained at the latest version as part of the package. New features are automatically available, and there is no lag while ICT prepares the upgrade then implements it, it just happens.
2. Speed: new services can be brought online quickly and scaled as needed. The speed of cloud provision is often identified as the single most important reason to move to a cloud service model. Included here is the capacity to scale up and down as necessary. Extra capacity can be used at intense periods and then turned off when not in use. (Wimbledon Tennis use a cloud model because for most of the year their needs are small but for two weeks they need massive capacity and the cloud allows this)
3. Collaboration. As data and service are not locked inside a particular data centre it is easier to share these with partners.
4. Integration. Cloud services have integration designed in at the start and most vendors expect customers to blend solutions from different places and have setup solutions to integrate across vendor boundaries.
5. Cost. You only pay for what you use, and it runs on a revenue not capital basis. The ability to turn things off when not needed and hence not pay for them can give rise to some savings, but this needs to be balanced with a more intense management of things like users account to remove old and no longer used accounts. In the context of transformation this avoids tie in to long term contracts.
6. Security. The major cloud vendors have spent heavily on security and have achieved high levels of accreditation with UK and US governments, the scale of the operations means that services can afford to implement excellent security at a low unit cost. Often the security on offer is superior to that which we could achieve ourselves.

With the previous security obstacles resolved a transition of our current systems to cloud based solutions as infrastructure is renewed will achieve a reduced cost of ownership. This will be complimented by continuing the internal transition to effective, lower cost technologies which exploit existing infrastructure investment:

- Thin Client

  A 'thin client' solution has been approved by council as an 'invest to save' initiative and is currently being implemented. This moves much of the processing effort into data centres, reducing support overhead and improving security. The major financial benefit will be derived from the ability to deploy lower cost personal computers, desktop and mobile.

- Managed Print

  A managed print service is being deployed. This will rationalise the local print environment significantly reducing total cost of ownership and providing the metrics that will enable improved management of print overheads throughout the council. Total print requirements will be managed downwards and what we cannot avoid printing will be at lowest cost.

- Electronic Document Management

  The other significant infrastructure programme underway is the development of improved electronic document management solutions. The mobile workforce and reduced property footprint of the council of the future demands a different approach to handling documents and paperwork. Outside of the council's case management systems, current electronic storage is rudimentary and in many instances used as a backup to hardcopy master data. Providing a general electronic filing system for documentation not currently managed as part of client records will improve efficiency and reduce cost of storage.

- Wireless Networking

  The programme to supplement physical network infrastructure across all sites managed by public agencies and enable use by all staff working for those agencies continues. Due to the vulnerabilities of WiFi solutions available more generally E.g. Coffee Shops, restrictions on direct use of these will have to remain in order to safeguard data the council is responsible for. Public service advice not to use such points of access for personal banking for example, has been promoted for the same reason.

Business Systems

Business systems requirements are predominantly driven by statutory change, service needs and efficiency. Such requirements are appropriately identified in service strategies. Over the period covered by this ICT strategy a number significant changes to business systems across all directorates are anticipated, E.g.: in response to the Care Act; adoption of commissioning structures and service transformation.

By providing a clear direction and reducing the overhead cost for the common infrastructure utilised by all systems, investment and technology improvement can be targeted at the business systems used by direct service which is where most value is to be derived. The strategy provides a framework to ensure that the systems deployed in support of the many diverse services provided by the council conform to

a common standard, avoid duplication, share relevant data sets and anticipate the business intelligence and information requirements of a commissioning council.

5   Self Service and Access

The Council offers citizens a choice in the way they access services from the Council. There are three principal channels for citizen contact, each with its own cost profile. The following estimates for the cost per interaction have been put together by SocITM.

Face to face	£8.23 per visit
Phone	£3.21 per call
Web	£0.39 per visitor

The financial case to move people to web based interaction is very strong. However to do this the offering has to be at least as good as other channels, and citizens must have a positive experience on each web visit. Failure to deliver a good web based service drives up the costs for the Council by pushing people to use a higher cost channel.

All access channels must provide a consistent set of information to the citizen. This must be matched by consolidating the view of the citizen across the multiple public services they access and contacts with the council. The principle of avoiding redundant and duplicate systems will ensure that data is consistent across various access channels and also within internal systems in the Council. Data accuracy is key to being able to offer citizens a consistent experience across channels and different services. This will help service functions design solutions focused on meeting the individual customer's needs rather than on the way the Council thinks that customers should receive services.

A challenge here is to embrace the variety of new communication channels that customers can use to communicate with the Council. The Council will look to communicate across a variety of channels as they reach mainstream acceptance. So this will involve the Council using social media tools such as Facebook and Twitter where these are appropriate and the customer wants to use them. These channels tend to offer a more diverse and dynamic structure than traditional routes and hence

the Council will need to adjust the way it interacts over these more immediate mechanisms.

The advent of smart phones and tablets is having a major impact on the way people access services. The Council will ensure that all its web based channels, traditional web site, social media or other new channels can be fully accessed across all device types. The Council will seek to engage citizens via the channels they choose rather than via what is convenient to the Council.

Services accessed by the internet and social media mechanisms as well as those for reporting emergencies will be available 24 hours a day 7 days a week. The Council intends to exploit the efficiencies offered by electronically and self service solutions. Delivery of faster broadband across the County is a priority that will contribute to more efficient channel take up and also promote economic regeneration in the rural environment.

Management information collected via the various access channels about customer satisfaction will allow knowledge mining to drive service reviews focused at continual improvement in service quality. The information will also illustrate customer channel choice and provide data to assist in achieving channel shift to lower cost delivery mechanisms.

6   Doing Things Differently

The DTD programme is changing the way the Council works to deliver services. The programme is delivering significant efficiencies by bringing modern work styles such as hot-desking, mobile working and reducing office space by a more efficient utilisation model. Technology plays a significant part in making this programme a reality:

Appropriate choice of mobile device

Unified communication technology to keep staff in touch with their office

Virtualised desktop for rapid deployment of new applications and mobile working

The DTD programme is ongoing and focused on continuing efficiency gains. The role of technology will increase to provide further efficiencies and improve service delivery. Cashable savings will be identified and achieved as part of the ICT commitment to the Council's overall financial targets.

Investment is being made in new technologies, thin client virtual desktops and unified communications are examples. These are targeted to equip staff with appropriate tools to deliver services in the most efficient way possible. All new ICT projects will be based on whole life costs with savings and benefits clearly identified in advance.

Considerable investment is being made to equip staff with the right technology to go out into the community and directly connect back to our central systems. Our technical architecture has been designed to support staff mobility allowing them to go to the customer where this provides good customer service, rather than the customer coming to KCC buildings. This reinforces our commitment to putting the customer at the heart of service delivery. Whilst mobility is at the core of the way we will deliver services, information security to protect individual's information that they have entrusted to us will be rigorously enforced to ensure that the information remains secure and private.

KCC ICT will continue to invest in the standardisation and simplification of the infrastructure and core technologies that support our business services. This will lead to a reduction in the resource cost to service our systems. It will also mean that systems are easier to migrate and support in new environments. Standardisation will allow the Council to access cheaper "cloud" services for our core infrastructure requirements and negate the need for future major investment in physical technology assets instead moving to a pay as you go consumption basis. Cloud based services

will increasingly be the mechanism of choice for technology services and KCC ICT is keen to use these where appropriate.

KCC ICT will move basic utility type services away from in-house sourced systems to commodity cloud services. An example would be our email system, this is currently provisioned as a service hosted and run by KCC ICT. However, for the great bulk of our email an external service such as Microsoft Office365 would provide a cheaper and more functional service. It is the intention of KCC ICT that as current services come to a natural upgrade point or their hardware becomes obsolete then the presumption would be to move these to compliant public cloud based services: Software as a Service (SaaS) for commodity type requirements such as email, and Infrastructure as a Service (IaaS) where no SaaS offering is available or does not meet our requirements. KCC ICT will as far as possible move away from ownership and support of hardware to procuring services, and this will be the expectation when new facilities are requested.

In line with this approach to buying services a managed print service will be rolled out across the Council. This will provide enhanced facilities together with good management information for a reduced overall cost. This approach of buying services will also ensure that technology is kept current and not allowed to become out of date as we "sweat the asset" to an uneconomic lifecycle.

A key feature of the DTD program is staff mobility. ICT have already invested in tools and infrastructure to support access to Council systems when on the move. To support this a comprehensive program around electronic document management will be put in place, thus freeing staff from the need to retain or carry about large quantities of paper documents. This will increase information availability but also allow increased monitoring and security around access to information.

7   Data Security and Management Information

In the last few years the amount of information being created and captured both within the Council and from external sources has increased significantly. The internet has resulted in the Council, its' partners and citizens having access to unprecedented levels of information. This information comes in many forms, data about services, internet sourced knowledge and information provided by individuals and organisations. Data comes to the Council in structured formats and also things like social media information which are by their nature ill-defined data sources. There are a number of issues around both the control and use of this information.

Data is an asset to the Council and needs to be fully utilised for the organisation to be efficient. Hence ICT will provide tools to promote increased data transparency and sharing of information, where permitted, in a way that will allow useful insights to be derived from the data.

Data Security

Data about individuals and companies is often very sensitive and they could be embarrassed or harmed if private information came into the public domain. The Council has a legal obligation to ensure that information that it holds is adequately protected and processed in strict compliance with applicable laws and regulations. To this end the Council will work towards full accreditation of ISO 27001 and other applicable standards, such as the NHS IG Toolkit.

Increased investment will be targeted at systems that monitor and record access to information the Council holds to ensure transparency and accountability over who sees what information.

Management Information

The pool of data held by the Council contains a large amount of useful information that can be analysed to provide insights to make the Council more efficient and target resources more effectively. ICT will work to provide the latest tools to allow the Council to manage performance against outcomes and results. Information will be pooled across business areas to provide a holistic picture of Council performance but also allow access to detail where necessary to cast light on particular areas of concern.

Data integration across systems

The Council will work to unify data across line of business systems to ensure that an accurate record of information is available. This will involve reconciling the different

data sources to ensure that incorrect or inaccurate data is replaced with the latest and most up to date data.. While ICT will provide the facilities service commitment to undertake the necessary reconciliation is critical.

Data Sharing and Integration

The Council will work to ensure that there is effective data sharing and integration across different service providers. The principles of data integration across systems will be extended across provider boundaries to ensure that data flow is accurate, timely and in compliance with applicable laws and regulations.

8 Multi Partner Service Delivery

The Council works with other organisations across the public sector to provide services to citizens in Kent. With the move by the Council to become a commissioning authority the number of organisations involved in providing services in Kent is likely to increase, involving organisations from the third and private sectors in addition to other public sector bodies. To ensure efficient service delivery across these various service providers will require co-operation and integration.

Kent ICT will specify its ICT services and infrastructure provision to ensure the timely and sufficiently detailed data exchanges to ensure fully integrated service provision. The Council will also work to ensure that service providers co-ordinate their activities to ensure that services are presented as a seamless user experience when viewed by service users and customers. This will require that data and service components share common definitions that meet generally agreed standards for data and information exchange.

The Council will buy services where appropriate, sell them where it has expertise or capacity and make them where there is a market opportunity. This means that ICT assets will be available for re-use by other organisations especially other public sector organisations. In addition, where appropriate, the Council will make its surplus technology assets available to the third sector or private sector organisations where this will lead to opportunities for economic expansion or regeneration within Kent. The Council will seek to leverage its buying process to ensure that there is benefit to both the Council and other local organisations when major contracts are procured. The Council will continue to assist in the local broadband market to ensure that local businesses and citizens are able to gain the full benefit of this technology where solutions have not been provided by the market heretofore.

The Council ICT service will move away from acquisition of specific assets towards procurement of service solutions. The procurement of these solutions will wherever possible be in partnership with other public sector bodies.

9   Environment and the Green Agenda

Kent County Council is committed to reducing its impact on the environment and maintaining its ISO14001 accreditation. The investments the Council has made and continues to make in a number of technology areas have a positive impact on the green agenda.

Data Centre Efficiency

The Council's data centres have been rebuilt to provide a more efficient environment. Servers have been virtualised to achieve a high degree of utilisation ensuring that low utilisation machines have been removed thus reducing the amount of energy used to deliver services. Our desktop environment is moving to a virtual desktop infrastructure allowing the use of very low power consumption devices at the user desktop.

Energy consumption is always a factor in the selection of new technology assets: energy costs are a significant factor in the whole life cost of ownership particularly in the context of large technology components and the Council seeks to reduce these costs.

The investments in mobile and flexible working to support staff working wherever is most productive will lead to reduction in travel mileage. The Council will implement the new roaming service being introduced across the public sector to allow staff to access their base office network from any public sector building. Staff will not have to attend a distant Council office but can use local facilities: local offices, libraries and partner offices. New investments will focus on improving communication facilities to encourage audio and video conferencing to reduce unnecessary travel to meetings. The investment in EDM referenced above will also provide advanced collaboration tools for virtual team working and document collaboration, the need to be in the same room to work together will be significantly reduced.

Mobile working technology continues to bring new opportunities at a rapid rate, the Council is committed to utilising new technical developments where these offer service benefits and can be afforded. Whilst it is not possible to foretell what products will come to market in the life of this strategy it is anticipated that new products will have a significant impact on the way technology is used to deliver services with concomitant benefits to the environment.

Cloud services

In many cases cloud services are provided from large data centres employing the latest in energy efficient technology. The Council's move to use services from these facilities will reduce our energy footprint in addition to the other benefits associated

with cloud services. Cloud services also contribute to the mobile agenda by increasing workforce mobility and reducing the need to work in specific locations again reducing our energy footprint.

The Council will fully implement its managed print service allied to online document management over the lifetime of this strategy. These two initiatives will reduce the number of pages printed by employees significantly reducing the amount of paper and printer consumables used by the Council.
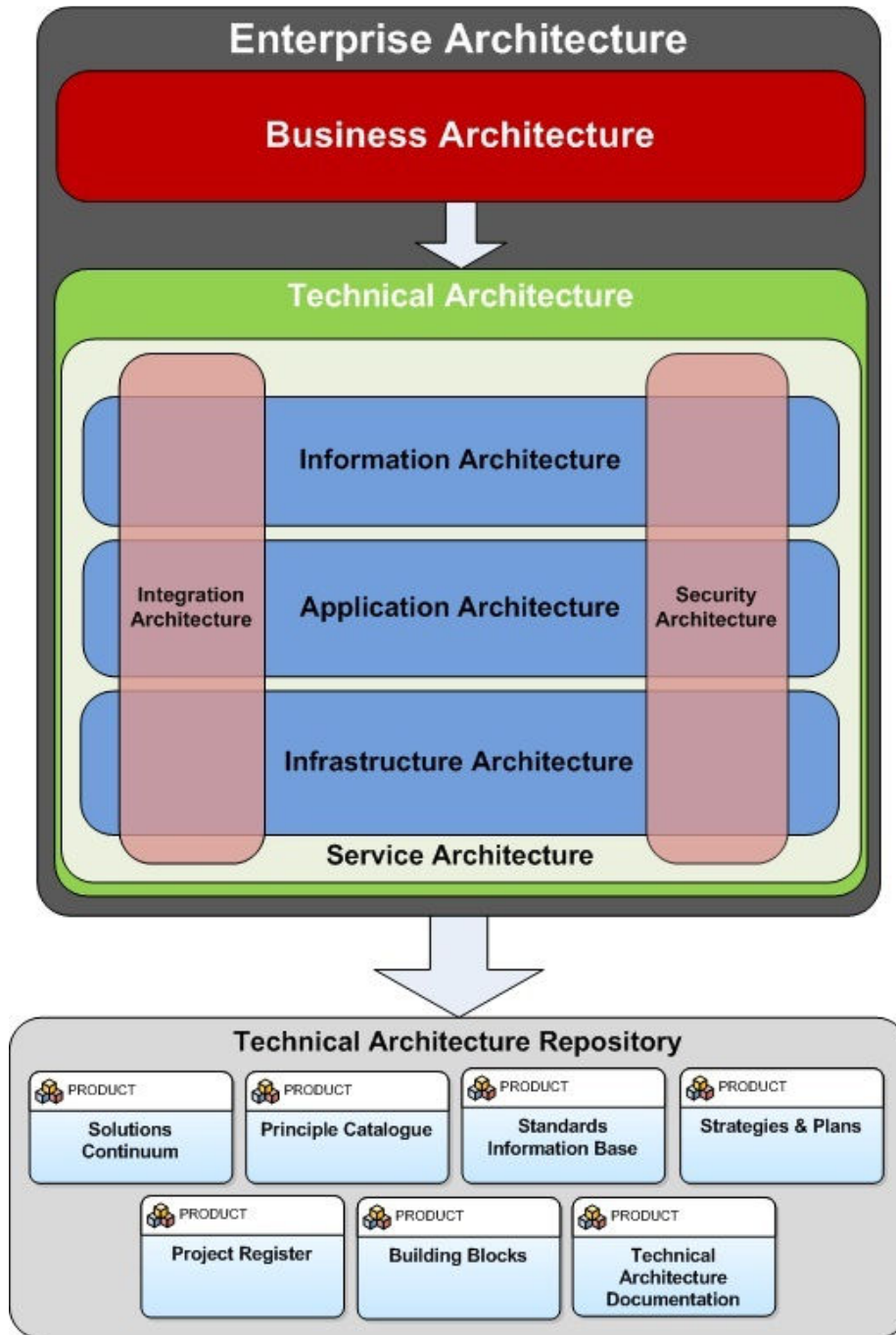
Appendix A

ICT Target State Architecture 2014-2017

KCC Managed Devices

UC Telephones	Zero Clients	Light Laptops	Full Laptop	Tablets / Hybrids	Smartphones	Printers

End User Compute Components

Device Support		Operating System Support					Application Support	
HP	Microsoft	Teradici Zero	Windows 7	Windows 8.1 / 10	IOS 7/8	Windows Phone 8.1	MS Office 2013	Internet Explorer
Lenovo	Apple							Chrome Browser

Device Service Delivery Model

- KCC Delivered
- Managed Service

Business Services

Mobile Services	Virtual Desktops	Applications	File / Content Access	Email	Unified Coms	Follow Me Print	ICT Account Self-Service	Flexible User Connectivity

Technology Service Components

PSN Security (Walled Garden)

Mobile Device Management	Virtual Desktop Infrastructure (VDI)	Electronic Document Management	Email	Unified Comms	Managed Print Service	FIM / Oneview	Connectivity Services
		Productivity Platform (SaaS) – O365					

Technology Service Delivery Model

- KCC Delivered
- Managed Service
- PaaS/SaaS

Infrastructure Services

Server Hosting	File Storage	Application Hosting	Database Hosting	System Services	LAN Services	WAN Services

Infrastructure Components

Compute Platforms		Database Platforms		Microsoft System Services		LAN Infrastructure	KPSN
KCC Private Cloud Vmware, Cisco, EMC	Microsoft Azure Cloud (IaaS)	Oracle	SQL	SCCM2012	AD 2012 R2	LAN Infrstructure	KPSN

Infrastructure Service Delivery Model

- KCC Delivered
- Managed Service
- IaaS/PaaS

KCC Milestones

- ## Internet Connectivity

2000	256k	1
2002	2mb	8
2006	38mb	152
2014	10gb usable	40000

- ## Storage – central

2004	1.23 tb	
2006	2.77tb	
2010	90tb	
2014	400+tb	

- – Note that in 2004-6 lots of systems did not use the central storage system so the growth is skewed

Appendix C

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