PETERBOROUGH TECHNOLOGY STRATEGY 2014 - 2019

PETERBOROUGH CITY COUNCIL

CONTENTS

EXECUTIVE SUMMARY

Since the first iPhone was released in 2007 the way in which people interact with friends, family, services and businesses has changed. And it keeps changing. For a Local authority, with its wide array of services, keeping pace with the advancement of technology and communication methods is very challenging. New digital technologies such as wearable devices, mobile apps and massively scalable computing power are combining with mobile connectivity and social media to transform how organisations and their customers interact.

At the same time as this global shift takes place, Local Government is undergoing major changes with reduced budgets, localism and commissioning acting as key disruptive themes. As this challenging political environment meets with digital customer preferences and behaviour, the best Local authorities are under pressure to:

- Re-think their customer strategy
- Transform their business models
- Redesign and streamline their business processes
- Allow Citizens to co-create and personalise services with Local Government
- Build a more flexible, agile and integrated technology infrastructure

Peterborough City Council (PCC) recognises that this last bullet point is crucial to all modern organisations acting as it does as an essential enabler for the first four points. In turn, this PCC Technology Strategy recognises that flexible, agile and integrated technology will only be delivered to the Council and its Citizens if the Council adopts the same leading edge models of some of the most forward thinking and efficient companies across the globe.

The following is a high level description of the Strategy, more detail is provided in the main body of the report.

PCC Technology Strategy 2014 - 2019

The Council will adopt a globally available, modern, and citizen centric digital platform at the heart of its technology and business architecture. This core platform will seamlessly connect customers with the Council's front and back-office processes, providing a personalised multi-channel experience. It will be possible to build or buy other business capabilities on this platform meaning that siloed, traditional line of business applications can be gradually retired.

Because the core platform will run from a public cloud it will require minimal local infrastructure and support giving ICT more time to focus on dynamic and rapid service improvement.

Key benefits will be:

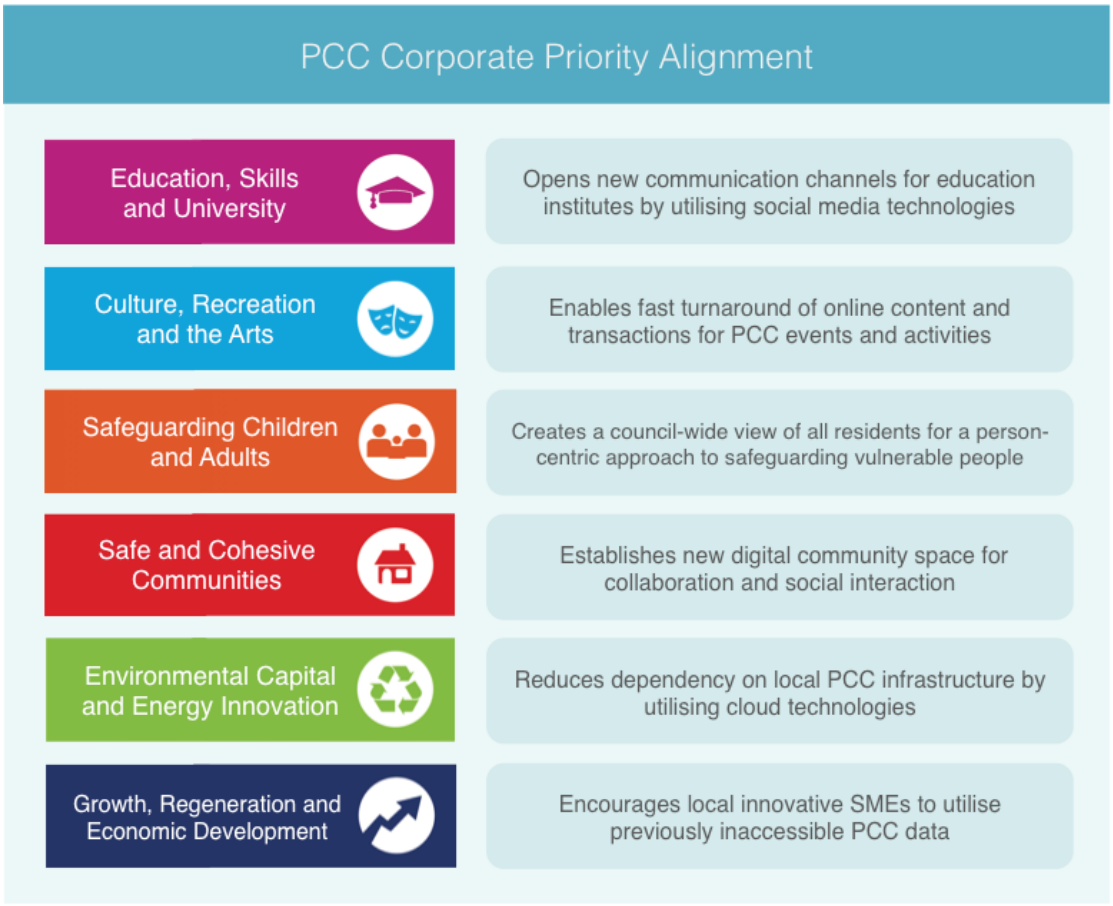
- Improved customer satisfaction
- Anytime, Anywhere, Any Channel access for Citizens
- Maximum operational efficiency
- Mobility for Citizens, Members and Staff
- Greater measurement and transparency of data
- Agility, flexibility and responsiveness

PCC Strategy Benefits

Strategy Focus	Features	Benefits
Cloud Platforms	▪ Web accessible applications ▪ Configurable common functions ▪ Scalable usage of services ▪ No local infrastructure ▪ Low maintenance ▪ Centralised platform	▪ Replace legacy applications with cloud alternatives ▪ Cost reductions in legacy licenses and support costs ▪ Reduce large up-front capital investments ▪ Reduce lengthy projects with slow delivery ▪ Release configurable incremental cloud products ▪ Enables a single view of a customer ▪ Reduce legacy supplier lock-in ▪ Supports a dynamic commissioning approach
Mobile	▪ Mobile device ready applications ▪ Accessible anytime, anywhere ▪ Remote workstations in Libraries ▪ Improved wireless internet infrastructure	▪ Staff use mobile devices to conduct work ▪ Remote staff do not require PCC locations for access to their applications ▪ Reduce office desk overheads ▪ Increased flexible working for staff
Data	▪ Centralised data ▪ Data accessible on mobile devices ▪ Publish open data ▪ Enabler for data analytics ▪ Unlimited document storage	▪ Council-wide data shared ▪ Improved service decisions and delivery ▪ Reduce FOI requests ▪ Reduce infrastructure costs
Open Source	▪ Freely available applications ▪ Alternative operating systems ▪ Alternative productivity suites ▪ Alternative low-cost hardware	▪ Reduce legacy license costs ▪ Modifiable ▪ Reduce single supplier lock-in ▪ Support communities ▪ Open standards for interoperability across platforms
Digital Change	▪ Up-skill staff in digital skills & thinking ▪ Digital-by-default approach ▪ Alternatives to communication and collaboration technologies	▪ Increased awareness of digital technologies ▪ Enables service delivery processes to adapt to a digital age ▪ Reduced dependency on email culture ▪ Increased capacity of ICT staff to support the platform roll-out
Citizen Engagement	▪ Modern & simplified website ▪ New self-service functionality ▪ Multiple device accessibility ▪ Social media channel management	▪ Reduce back-office activity by channel shift to self-service ▪ Services are accessible 24-7 ▪ Increased customer engagement

Through this core platform PCC's ability to push information out via the channel, time and location of a citizen's choosing will be greatly enhanced. This technology offers a unified solution for managing all channels, allowing a publish once and deploy everywhere strategy, including across social channels and mobile devices. Customer interactions will be transitioned seamlessly across channels and across PCC business areas, providing a transparent, consistent experience no matter how many channels are used.

This vision will support the Council's Corporate Priorities in practical ways as shown below:



A Mixed Supply Chain

Although the Council will have a single customer platform at its heart the Strategy has been designed to avoid long term lock in to single suppliers. There will be a small number of other cloud based platforms and web applications that will complement the customer platform. This will ensure that the Council can continue to exploit emerging products and services that enhance customer service and efficiency. The selected platforms will be typified by the large community of companies and individuals across the globe that build add-on and enhanced products and services on top of them.

The Strategy is “principles led” and these principles will guide future buying decisions alongside more practical principles such as cost and functionality ensuring that the Council will only select modern, web-based technologies where practically possible. The guiding principles will be fully defined as part of the council’s Enterprise Architecture document. However, in principle they will support:

- Seamless integration with other modern technology
- Implicitly mobile technology
- New internet based technologies as they emerge
- Open standards, so that sharing across local authorities is made easier and quicker

Whilst there are small number of commercial public cloud platforms at the heart of this Strategy the Council will be able to change and refresh the supply chain that develops and

maintains its technology stack according to the needs of the organisation. This is because the platforms upon which this vision is based offer, commoditised, re-usable components that can be delivered rapidly by a wide range of suppliers or by council staff themselves.

Disruptive Change

The Council recognises that whilst there are opportunities on offer from adopting this Strategy, its implementation will not always be an easy or comfortable process. Digital technology forces change across all levels of an organisation. For example, the Council will be able to build out new business processes on the platform in a matter of days and weeks rather than the current months and years.

Traditionally, Governance process are set to make decisions over an extended period of time, often with a requirement to involve many of the most senior Members and Officers in the organisation. This will need to be adapted to allow for the speed of change in citizen requirements that is unlocked by the technology.

At a more tactical level staff will need to become comfortable in using different tools with modern designs and interfaces and adaptable to changes. Outside of face-to-face and verbal approaches Email is currently the communication tool of choice within the Council. Over 15,000 internal emails are sent every day across the Council. The Strategy will bring in new choices for collaboration and sharing that remove this reliance on email. Teams will need to adopt an “internal multi channel” approach using web based tools to share and develop ideas and relying less on storing documents on closed, local drives. It takes time for this to become the new normal and it will cause some disruption as staff adjust to these new ways of working.

Training and communication materials will be developed by the programme team to equip staff with new skills and knowledge and to emphasise the benefits that they and their customers will gain from the Strategy. Where-ever possible the program will use a “show don’t tell” approach to change management allowing staff the opportunity to test out technology and offer feedback at an early stage in its development cycle. Training will also use modern tools such as videos and webinars to ensure staff can access knowledge at a time and location of their choosing.

Trust

The Council’s vision recognises that in a world of online, multi channel services and distributed personal data, trust is an essential ingredient of success. As long as it is cost effective Citizens will expect PCC to adopt modern technology to deliver better services. However, they also expect PCC to capture, use and store their data with care, ensuring that their identity, sensitive information and financial details are secure and only used for appropriate purposes.

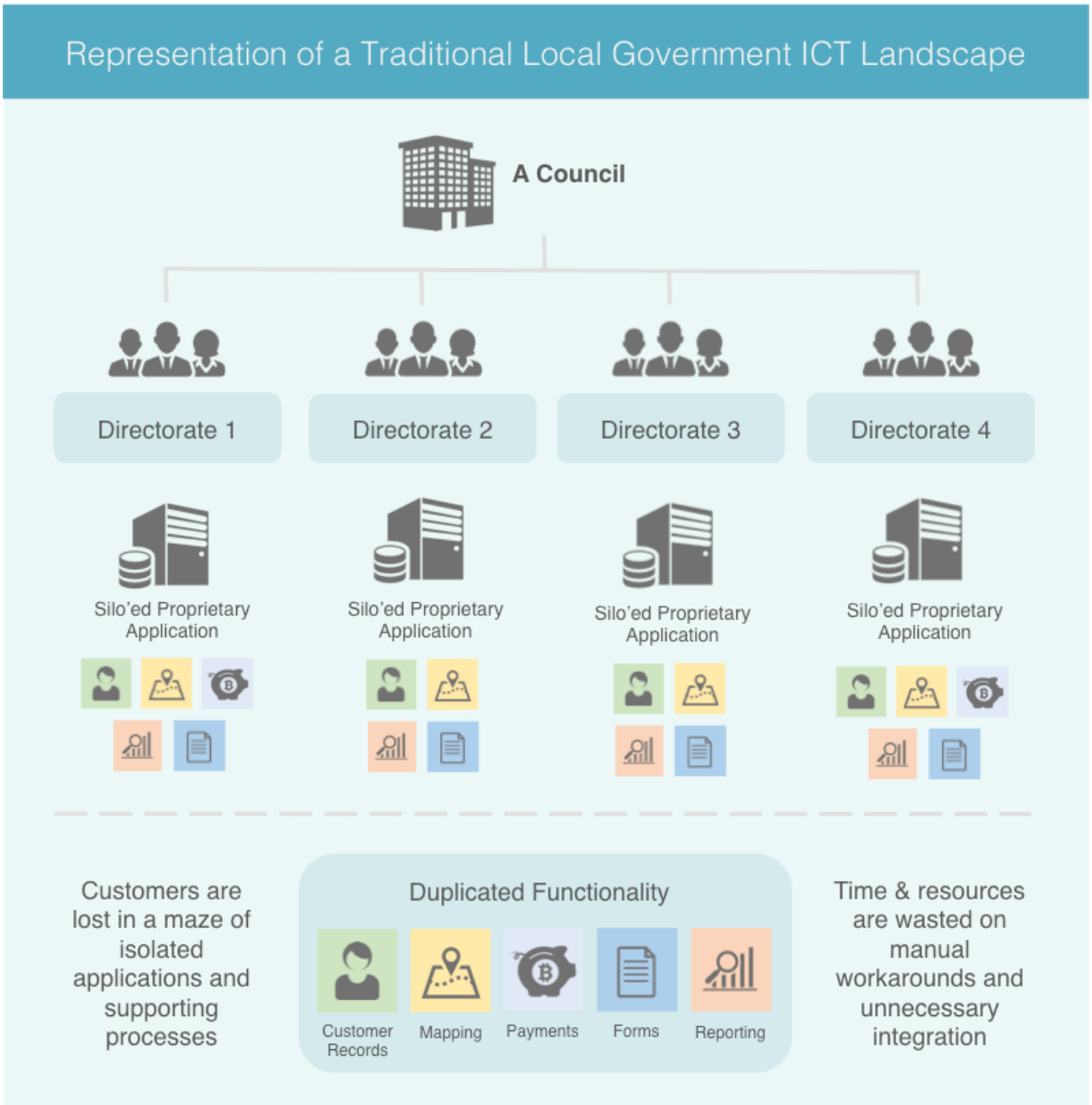
This Strategy will be underpinned by a risk-based approach to the management of data. It will select technologies that conform to globally recognised accreditation standards such as Safe Harbor registration, SAS70 Type ii and ISO27001. For especially sensitive data PCC will adopt tools that comply with or are accredited to Government security classifications.

A substantial amount of the information and data held by PCC is neither personal nor personally sensitive in nature. Data security concerns will be appropriately managed but will not be an excuse for technology choices that offer poor citizen and user experience or that are excessively expensive. The approach to data security will be covered in an accompanying Information Governance Strategy.

What is Different about this Technology Strategy?

This Strategy delivers a technology model that is fundamentally different to the current models in place across the many UK Local Authorities. There are 433 principle Local Authorities in the UK so it is impossible to generalise as if they all follow the exact same model. For example, different types of councils offer different services so they select different technology products to support that.

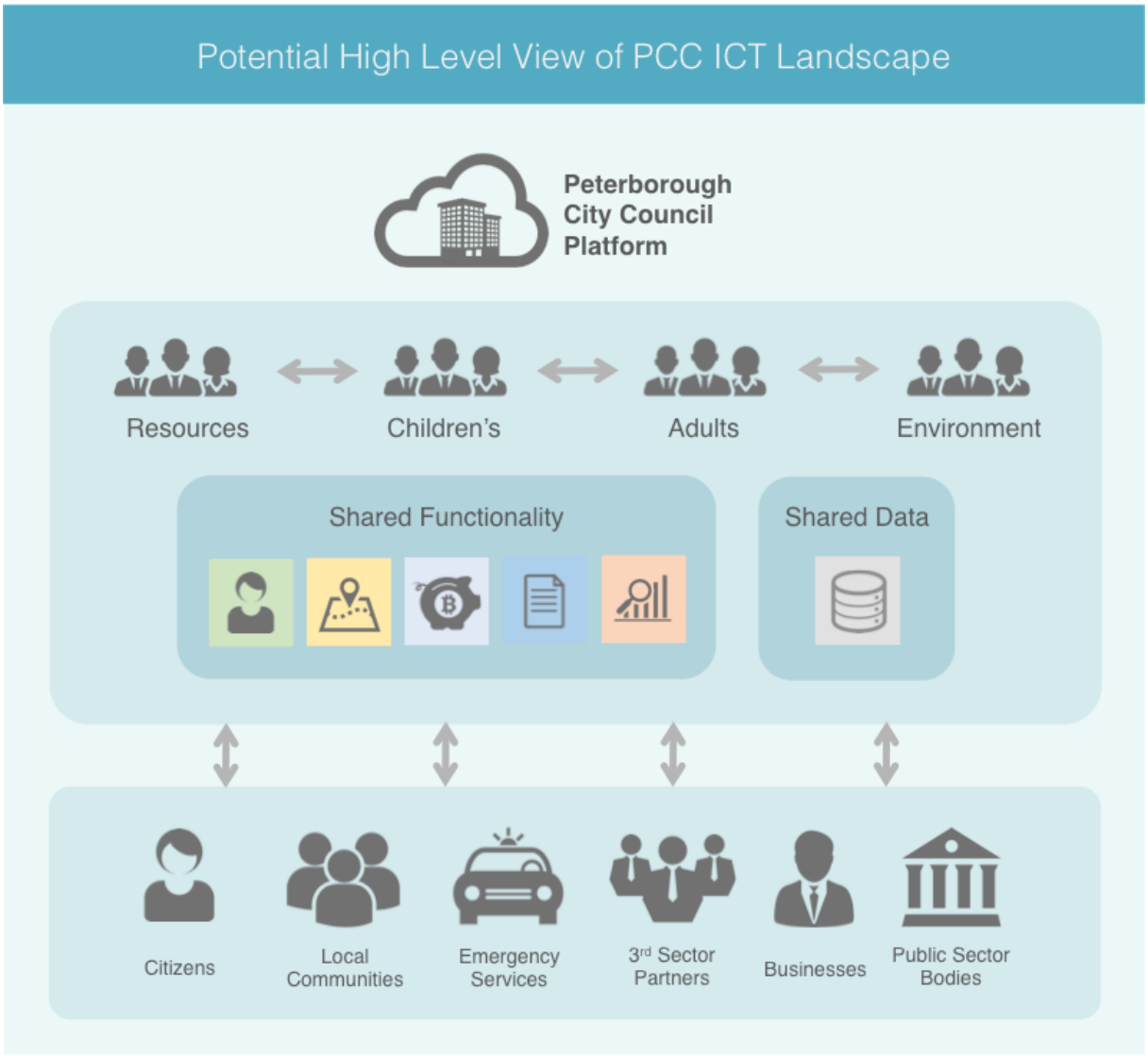
However, it is possible to generalize that much of the Local Government technology landscape is characterised by siloed and ageing applications in which both data and processes are duplicated and offer a poor experience for users and citizens alike. Social Media and new technologies are not coherently exploited and mobility is limited.



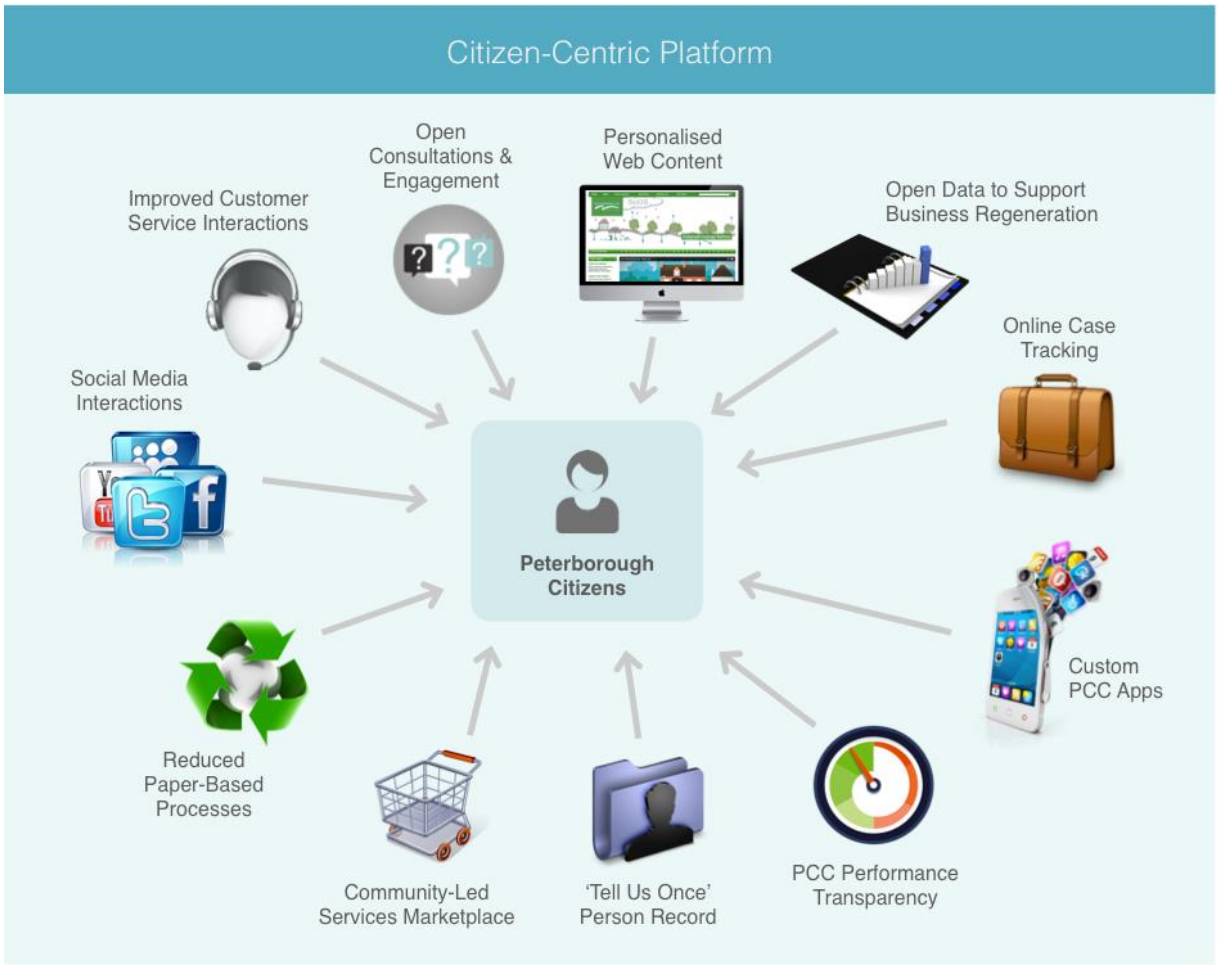
Communication with customers still takes place predominantly through face-to-face contact, the phone and email. All of these last three channels are expensive when they are unnecessary. This situation, if unresolved will hold the Council back as it will impede:

- Connecting across the overall service chain (including customers and partners) via preferred channels including social media
- Personalising interactions and information to address customer-specific needs
- The agility to launch campaigns or new Council services over different channels
- A shift to lower cost channels preferably handled by customers themselves
- Joining up processes, leading to lack of visibility into the end-to-end process, particularly at an enterprise level
- Process optimisation and improvement to adapt to changing business scenarios and continuous improvement

This Strategy will move PCC to a model as shown below:



The use of these platforms will offer PCC customers the opportunity to personalise and develop services that match their needs rather than only receiving standard services that PCC decides they need.



The Broader Context of PCC's Vision

The Council's choice of technology and enterprise wide approach is groundbreaking and innovative, not only within Local Government but also across the wider public and private sectors. This strategy looks across a wide field of best practice across a range of sectors including the global private sector, the UK public sector and non-UK public sector. Gaining insight from complex organisations such as Coca-Cola, Toyota, Stanley Black and Decker and Burberry on how they respond to customers and how they use digital tools to drive their companies is vital as the Council adapts its processes.

Private sector organisations whose business models include the use of digital tools and who show best practice in the banking industry such as HSBC and Barclays, the airline industry such as EasyJet and Virgin America and market leaders in their sector such as comparethemarket.com can provide the Council with valuable lessons in channel shift and customer experience to provide users with a seamless experience.

There are even more obvious examples of companies that have exploited cloud platforms and digital technologies to the full – Amazon, Netflix, Airbnb, Apple to name a few. But these businesses did not just take new, better technology and incrementally improve their existing processes. They adopted new business models and cultures and completely re-wrote the rules of their sectors. Amazon re-designed retail, Apple re-designed the music industry, AirBnB re-designed the hotel industry… The list is growing every month.

This strategy acts as a call to arms for non-technology leaders at the Council to ensure that their business areas make the most of possibilities offered by this Technology Strategy. In particular, it will form an essential and enabling supporting foundation of the Council's two major business change activities - Customer Experience and Adult Social Care transformation programs.

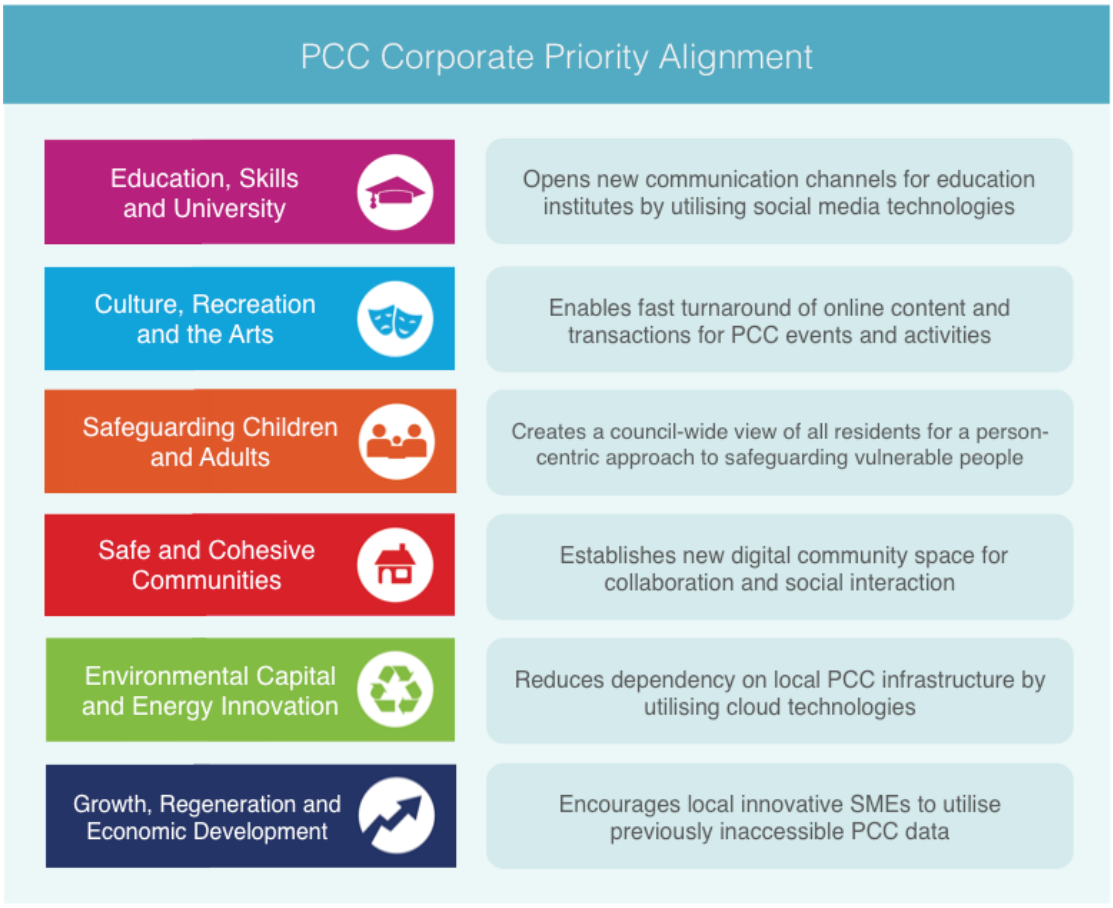
We hope you enjoy reading the rest of this Strategy. We have tried to keep it in plain English and as non-technical as possible but, inevitably with a change of this significance some detail and jargon is inevitable.

OVERVIEW AND PURPOSE

This Strategy sets out Peterborough City Council's (PCC) approach to technology from 2014 to 2019. It will describe how the strategic adoption of cloud platforms and digital techniques will allow the organisation to become more:

- Citizen focused
- Flexible
- Collaborative and
- Efficient

In turn, these features will enable PCC to deliver against its key priority areas. These priorities and some practical examples of how the Strategy will support them are included in the diagram below:



The Strategy is split into 5 sections:

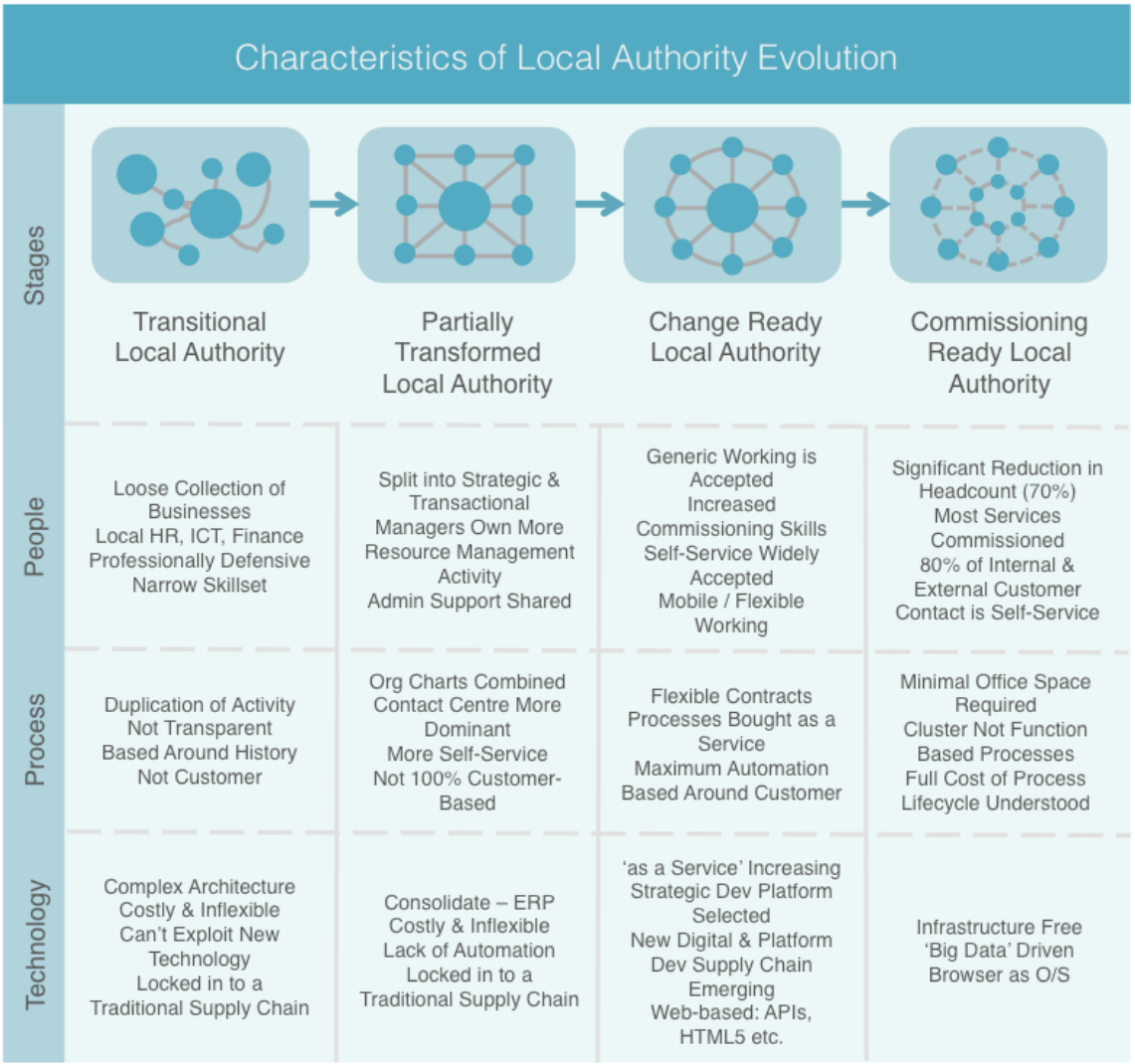
- Section 1: The Problem
- Section 2: The Global Context
- Section 3: The Strategy
- Section 4: The Roadmap
- Section 5: Beyond Technology

This Strategy has been constructed using input from Richard Godfrey, a number of Methods Digital Consultants, using their knowledge and experience combined with collateral provided by PCC including documentation, workshops and 1-2-1 meetings with key staff and stakeholders to develop and test the findings.

SECTION 1: THE PROBLEM

PCC, like all other Councils, is under continual pressure to balance budgetary cuts with business as usual operations, managing unforeseen events and changing political priorities. The on-going need to react to these pressures means that Councils have not been deliberately architected or designed, even at a high level. Understandably therefore, they have evolved; layering on more and more departmental silos, vertically focused business processes and, in the last 15 or so years, inflexible technology products and contracts. Somewhere in this evolution it has become very difficult to efficiently service the needs of the citizen and other stakeholders.

This situation has many drawbacks but the main one is that, in a world where competitive advantage is increasingly created through innovation, agility and flexibility, it sometimes feels to Members, Officers and Citizens that Councils have evolved to achieve an opposite outcome: inflexible silos of activity where innovation and change are difficult to deliver and where pace and agile thinking are stifled.



The first two columns in the figure above broadly describe the current situation of most Local authorities across all levels – County, District, Unitary, Metropolitan or London Borough. The defining feature is of functional silos of activity. The siloed approach diffuses all the way down through each professional “stack” permeating its way into staff, processes and ultimately into the technology supply chain for each of these areas. The technology supply chain comes to replicate these silos so closely that it mirrors it back to the organisation, enforcing its continuation.

Siloed Technology

This last point happens because each silo is locked into long-term contracts for specialist software. Even if the software has become anachronistic or comparatively expensive it is usually too costly and complex to move to other solutions. Even if the particular silo does secure the funds to adopt a different technology product it will choose a slightly more up to date application but one that keeps it locked within its silo. Scant regard is given to wider strategic architectural principles when these buying decisions are made.

So, for example a Local authority may procure its Adult Social Care application and its Revenues and Benefits application from different divisions of the same company. Each system will have components – workflow, case management, payment engines etc. - that are common to both, but the Authority will in effect pay for each component twice to the same supplier. Multiply the cost of buying these components many times across the 180 to 300 applications that Local authorities typically manage and the cost to Council Tax and Business Rates payers becomes clear.

As many of these traditional applications are built from the ground up on proprietary technology it is costly and difficult to integrate them, resulting in a sprawling technology architecture through which it is difficult to facilitate a positive citizen and user experience. As a simple analogy, imagine if screw heads, nuts and bolts had not been standardised. How many tools would be needed to carry out relatively straightforward DIY projects and how much frustration it would cause? In effect, this is the lot of the Members, staff and customers of Local Government.

PCC has already begun to address some of these issues through previous change activities and in particular through the transformational elements of its ICT outsourcing programme. However, as the next section highlights, the technological and new business model opportunities that are now available to PCC mean that the organisation can take a leap forward in its evolution in order to meet the growing expectations of customers and partners.

SECTION 2: THE GLOBAL CONTEXT

So far we have described technology issues from a very Local Government centric perspective. But this Strategy has been developed in the knowledge PCC cannot operate as if it exists in isolation from wider, global forces.

Some of these forces are very positive for PCC as they offer the opportunity to exploit new technology and new business models to meet the challenges of the next 5 years.

There are private sector organisations whose business models include the use of digital tools and who show best practice in the banking industry such as HSBC and Barclays, the airline industry such as EasyJet and Virgin America and market leaders in their sector such as comparethemarket.com. These can provide the Council with valuable lessons in channel shift and customer experience to provide users with a seamless experience.

However, there are even more obvious examples of companies that have exploited cloud platforms and digital technologies to the full – Amazon, Netflix, AirBnB, Apple to name a few. These businesses did not just take new, better technology and incrementally improve their existing processes. They adopted new business models and cultures and completely re-wrote the rules of their sectors. Amazon re-designed retail, Apple re-designed the music industry, AirBnB re-designed the hotel industry… The list is growing every month.

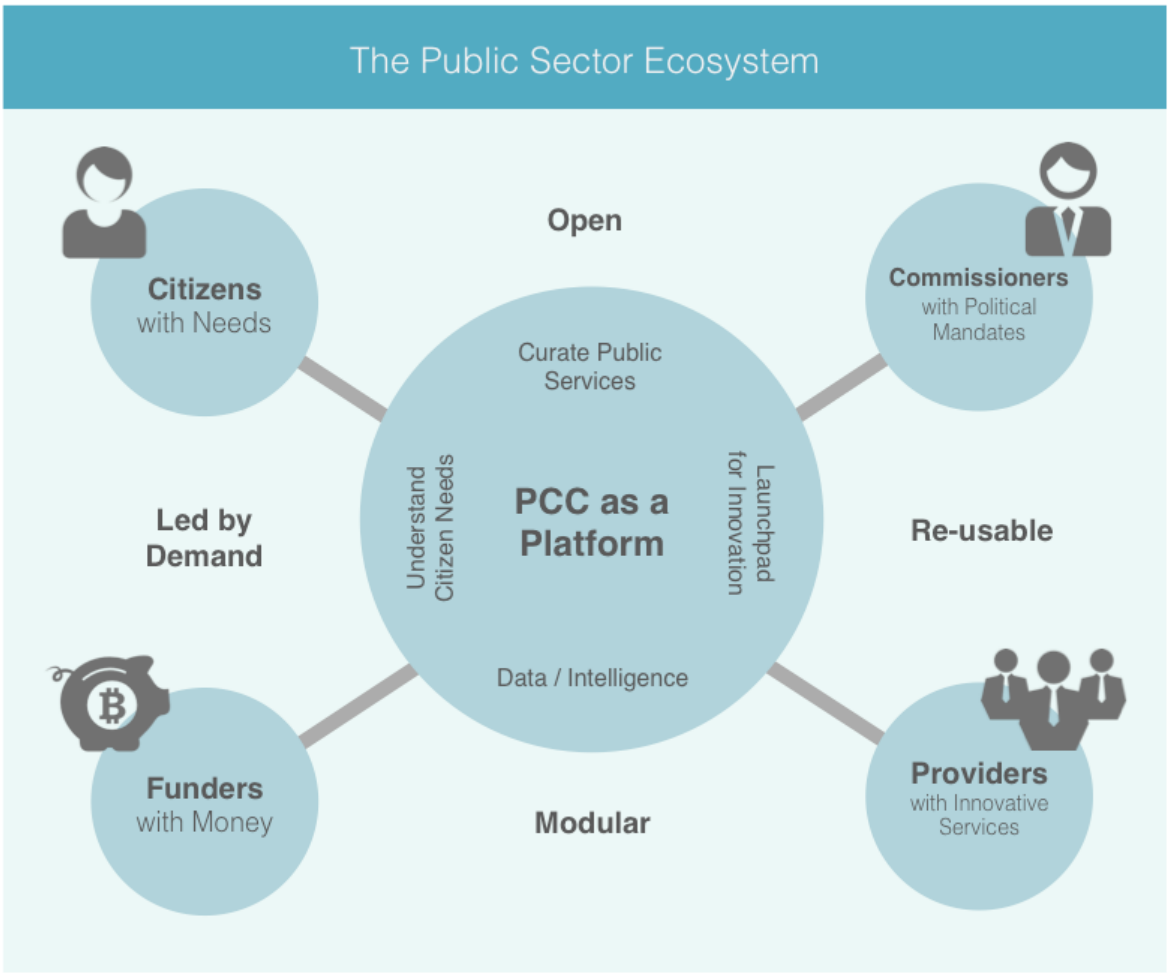
Platform Based Business Models

These organisations operate platform-based business models. Platform-based business approaches are an attempt to address the siloed and inflexible design of many traditional organisations.

In its broadest sense a platform-based business looks to exploit common components across technology, design, people and process to the maximum extent, allowing more time to be spent on the specific, bespoke activities required to serve their customers. Platform businesses accept that innovation will not come solely from those within its organisational boundaries but through communities of interest across a wider horizon.

Examples of organisations that have exploited such models are Apple and Google. They offer software developers from anywhere in the world the opportunity to develop new products and capabilities on the IOS and Android platforms respectively.

Arguably, the Local Government equivalent of being a platform-based business is through transforming into becoming a commissioning organisation. This is a stated strategy of PCC. The Council will offer the “platform”, set the desired outcomes, framework, standards and measurement for citizens, suppliers, Members and other parties to interact, transact and deliver services. To do this the Council will need to offer agile technology and up to date data and management information.



Cloud and Platform-Based Business Models

Platform-based business models are not defined purely by technology but they do share a preference for exploiting public, cloud-based technology to support their business activities. This is because well implemented and adopted cloud platforms offer:

- **Flexibility**: Ensuring that systems are available to those who need them from a wide range of locations and across platforms and that they can meet changing customers needs and circumstances quickly.
- **Affordability:** Ensuring that solutions offer best value for money and that they pay for what they use.
- **Scalability:** Ensuring that computing power is capable of being scaled both up and down as the requirements of the organisation change.
- **Security:** Maintaining trust with customers that access to the network is undertaken in a secure manner and that all communications including transfer of data is undertaken in line with data security principles.
- **Mobility:** Ensuring that staff are able to work from the best possible locations from a number of various platforms as required, making staff truly mobile workers.
- **Standardisation:** Ensuring that the infrastructure and platforms across organisations are designed around a standard build ensuring value for money, increased supportability and a more efficient ICT service. Offering standard platforms allows other individuals to develop and build new services and products. For example the force.com platforms.

PCC as a Platform

Customer expectations are changing. Customers will compare their experience of PCC services to their digital interactions with consumer organisations such as Amazon and eBay, business services such as Google Apps or application developer services such as Stripe Payments.

Given this context, the transition to a commissioning model and the financial pressure on PCC in the next 5 years, the widespread adoption of flexible, scalable cloud and digital technologies will be an essential enabler of success.

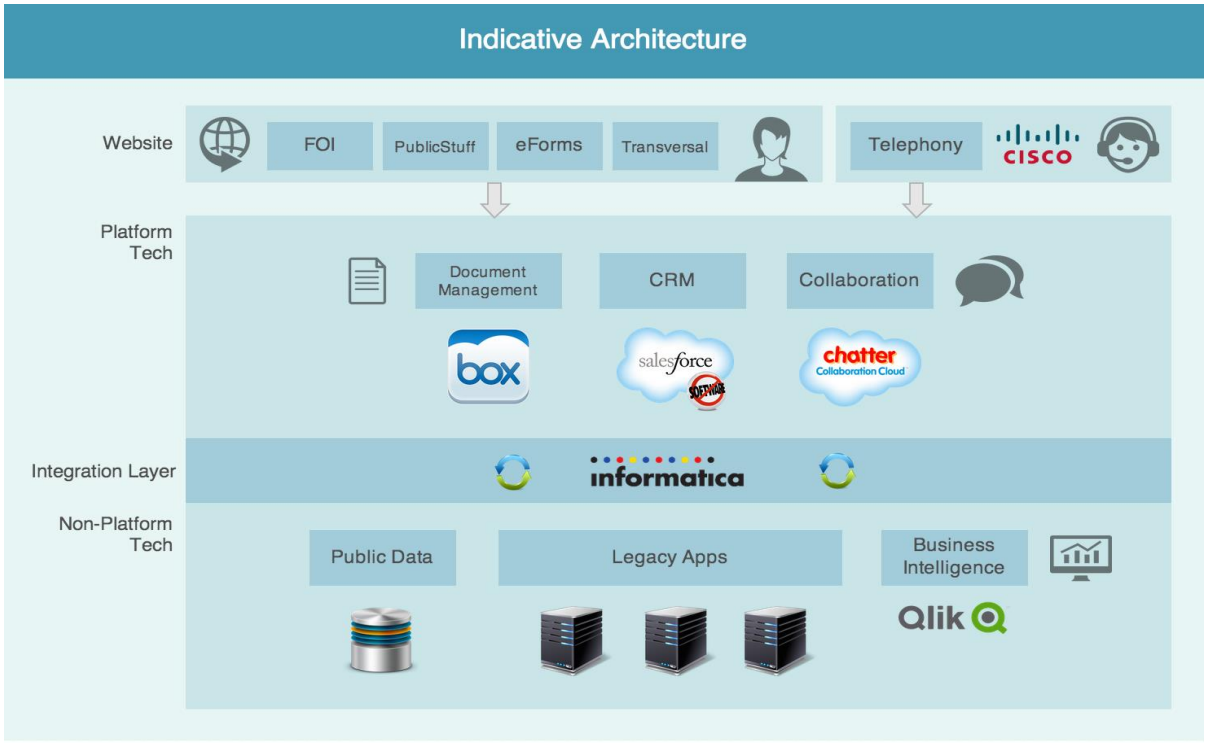
This platform-based transformation will be challenging using PCC's current technology landscape which is characterised by:

- Siloed data
- Use of legacy technology
- Over reliance on not fit for purpose legacy technology
- Low adoption of some existing business applications
- Over lapping and duplicated horizontal capabilities
- An historic "non-architected" approach to technology choices

The following sections outline an alternative approach for PCC. Emphasising the maximum adoption of appropriate and strategically selected public cloud platforms to enhance:

- Collaboration
- Agile Change
- Scalability and
- Flexibility

PCC, Serco and other partners have already been working together to understand this approach, trialing and testing cloud technologies to identify those that will bring the biggest benefit to the Council and its customers. This has been done against current and pressing PCC business requirements. Some of these early choices are shown in the indicative architecture below:



At the heart of this indicative architecture sits the world's leading customer relationship management (CRM) platform, Salesforce.com. This is central to the Strategy as it offers:

- mobile access
- quick configuration to meet changing customer needs
- easy integration with other cloud based tools.

The indicative architecture recognises that for several years to come, legacy data and tools will still need to be used to support certain customer processes. The integration layer will ensure the flow of data across the organisation, from existing systems into new platforms, so that a joined up view of PCC customers can be achieved.

More detail on the future data model will be provided in accompanying Enterprise Architecture and Information Governance Reports in the coming months.

SECTION 3: PCC TECHNOLOGY STRATEGY

New technology is only one element of creating a flexible, platform-based business and it is clear that even the most sophisticated, well-designed technology landscape cannot on its own deliver an agile and flexible Local authority. So, for example, modern technology does not create a more flexible workforce or leaner business processes. PCC will need to work hard across people, process, culture and governance to ensure it can exploit these technology platforms and digital approaches. More is included on business change later in the document.

However, when the problem is expressed from the opposite perspective the importance of technology becomes clear: Without well designed, user-centred, platform-based and increasingly open technology architecture, all other initiatives aimed at creating a more flexible, responsive organisations will fail or be severely hampered. To address this, PCC will adopt the following approach.

The Vision

As PCC moves to become a commissioning organisation, technology will be used to reduce friction in transactions for citizens, businesses, suppliers and partners. Use of modern technology will offer those groups the right tools to work flexibly to improve and develop new services and new opportunities for Peterborough. Delivery of this Strategy will enable the effective use and sharing of data and the agility to respond quickly to new threats and opportunities. In other words it will be possible for PCC to become a fully digital organisation as shown in the figure overleaf.

The Approach

To enable the above vision PCC's future technology landscape will exhibit the following characteristics:

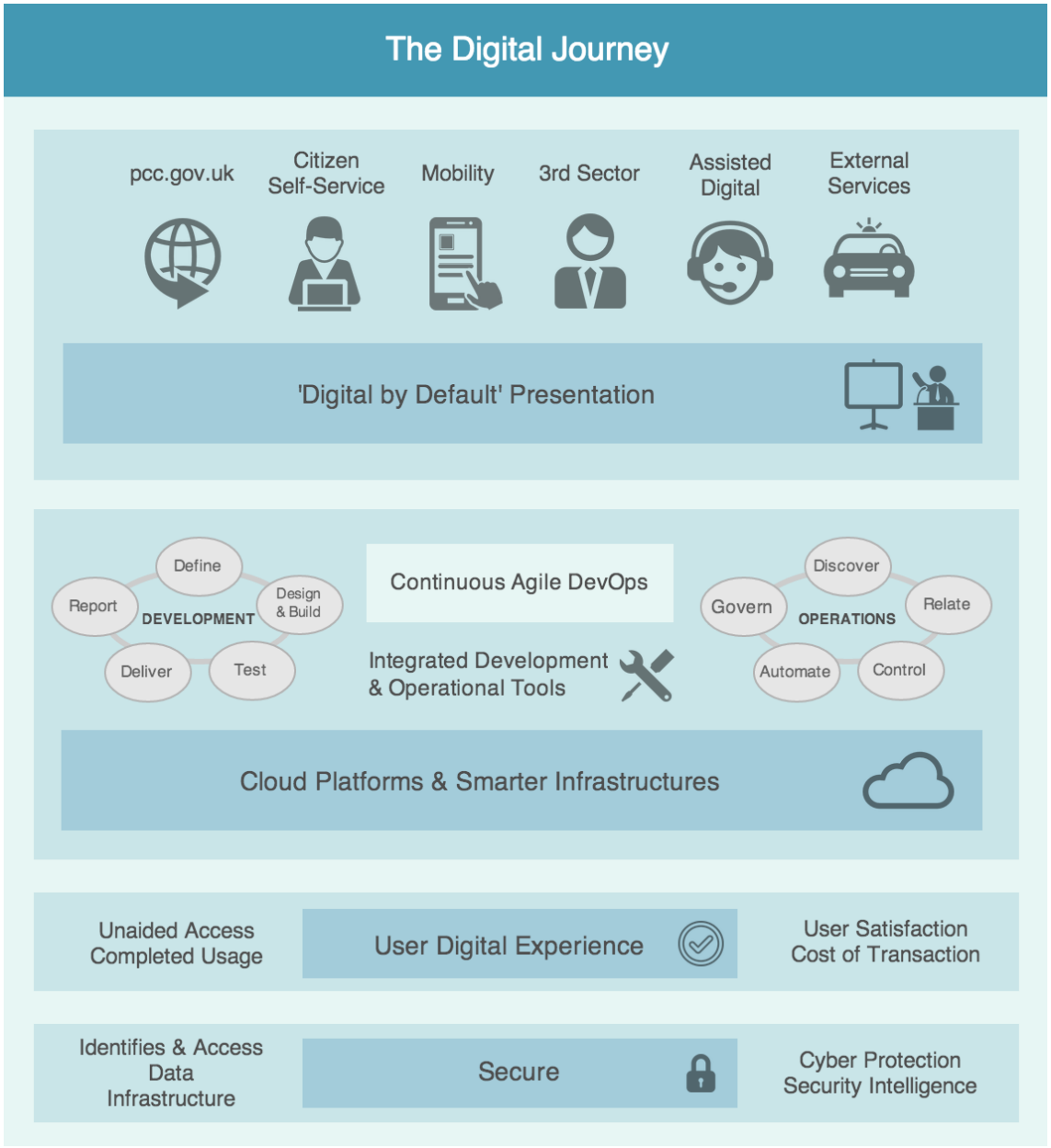
- It will be designed with the expectation of change
- It will flexible enough to cope with unanticipated change
- It will enable services that are cheaper, better and faster

To support the above principles PCC will fundamentally change the way in which ICT software and services are consumed and paid for.

PCC will adopt an organisational wide methodology to refresh the current application portfolio. The technology architecture will align itself with the business architecture, and the business should be the driving force for the change in approach.

The new approach will encourage the emergence of the following attributes to PCC technology choices:

- Citizen contribution and collaboration
- Use of social media and digital media
- Transparency in processes, practices, policies
- Lightweight web development practices
- Cloud computing architecture



To support the above, PCC technology decisions will align with the following principles:

- PCC places the needs of its users at the heart of its technology choices
- PCC technology choices support flexibility and change
- PCC will adopt technology that will enable a wide range of suppliers of all sizes to compete on a level playing field
- PCC will make technology choices with knowledge of developments in the wider market

The Cloud Platform

All of the principles listed above cannot be delivered through traditional technology products and infrastructure. In order to facilitate this architecture PCC will strategically select a limited number of cloud platforms and toolsets for building, digitizing, and exposing new services. Given that, in common with many service companies, Local authorities have customers,

contact centres and a severe requirement to reduce costs, an enterprise grade CRM with a linked development platform is an attractive option to sit at the heart of the technological architecture. The platform needs to have:

- Web-centric tools and practices for digitization and delivery
- Common approaches and technologies to improve the efficiency and effectiveness of new service delivery
- Compliance with appropriate levels of security and data standards
- A balance of the advantage of “open” with the cost of development and enterprise features
- Access to a mature eco-system of products and services based on the platform to deliver generic activity
- The ability to offer rapid development of applications and capability to satisfy specific Local Government business activities.

The CRM and Linked Development Platform

PCC have been trialing Salesforce.com CRM and its associated development platform for some time. This Strategy will place Salesforce.com at the heart of PCC’s technology approach.

The introduction of Salesforce’s platform capability will provide the toolset upon which combined Council development teams and development partners will begin to build, consolidate, integrate and rationalise the majority of its application portfolio. The resultant application platform can offer a common interface for business users for the majority of their technology requirements.

Some of the most appealing aspects of Salesforce for PCC are outlined below:

Salesforce: Mobility, Flexibility and Ease
Salesforce.com is a public cloud-based, software as a service (SaaS) product. This means it can be securely accessed through a browser at any time and at any location (subject to internet connection). Users can download the Salesforce1 app for both Android and IOS and access their data through smart phones and tablets. The application is upgraded 3 times a year with no support or professional services required from PCC. The product is used by organisations around the world and therefore is kept up to date with wider technology developments such as new social media channels and the Internet of Things.

Salesforce has a mature application eco-system
The most compelling reason for PCC to adopt Salesforce is its superior eco-system of SaaS apps: both those built on Force.com available to buy on AppExchange, and those available elsewhere with off-the-shelf deep integration into Salesforce. Put simply, Salesforce is the only CRM SaaS likely to be pre-integrated with any SaaS business app available to buy that PCC is likely to want to consume.

Salesforce has a mature developer eco-system
Similarly, as the leading enterprise SaaS CRM/platform offering, Salesforce has acquired a large and active developer following. Salesforce wrappers, libraries and SDKs exist for a wide range of programming languages and platforms, enabling rapid development of integrations. While Salesforce development has not yet become ubiquitous, there is a large enough developer eco-system to guarantee PCC will be able to acquire the skilled resource (either in-house or in partnership with suppliers) needed to sustain its platform over the coming years.

Salesforce has well-developed point-and-click configuration capabilities
The ability offered by Salesforce to create customised workflows, objects and fields without recourse to more expensive APEX/VisualForce development is crucial to the speedy and cost effective delivery of the core CRM and platform; as well as facilitating an efficient applications development process in the medium term.

Service Cloud is well placed to meet many of PCC's common customer service capability requirements
Salesforce Service Cloud, along with its configuration options, can meet most of PCC's immediate customer service needs without significant APEX/VisualForce development.

The Line of Business Applications

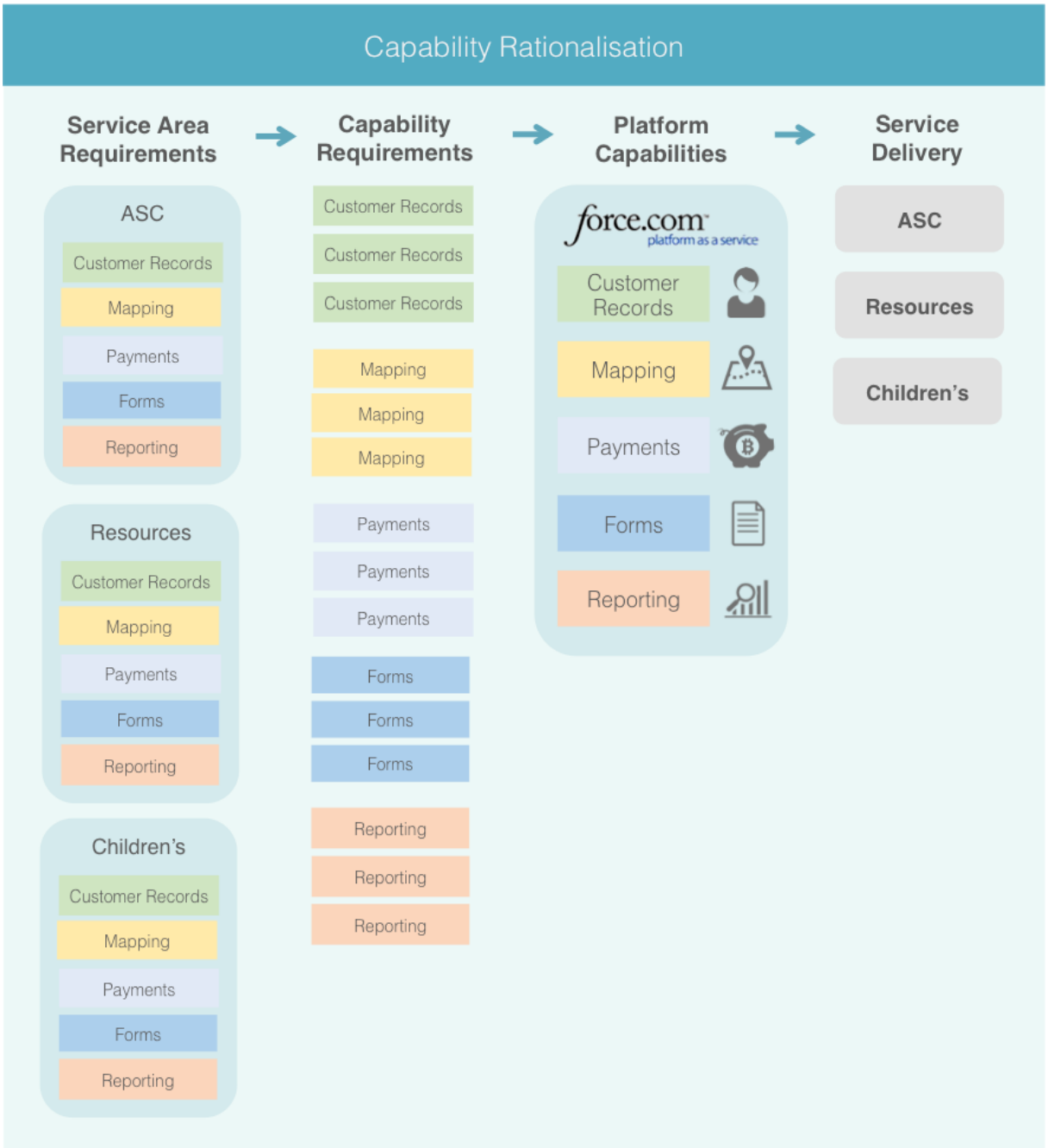
Salesforce/Force.com provides a framework through which business capabilities can be consolidated on to a common platform, reducing dependency on siloed line-of-business applications. Many capabilities can be configured using the point-and-click interface provided on the Salesforce/Force.com platform; others can be coded in the APEX/VisualForce languages on the platform; yet more can be bought or built elsewhere and deeply integrated with the platform; whilst legacy apps can – to varying degrees – be integrated with the platform, too. This is shown in the diagram overleaf.

The Supply Chain

The cloud platform-based architecture doesn't just offer technological opportunities and advantages for PCC; it also opens up PCC to an eco-system of often innovative SMEs and developers. These companies develop their products and services on the platform allowing other users of the same platform to access that capability. Under the traditional procurement and technology approaches these organisations would not have a chance to bring their innovation and functionality to PCC and, in turn, the citizen.

Although PCC will have a single customer platform at its heart, the Strategy has been designed to avoid long term lock-in to single suppliers. There will be a small number of other cloud-based platforms and web applications that will complement the customer platform. This will ensure that PCC can continue to exploit emerging products and services that enhance customer service and efficiency. The selected platforms will be typified by the large community of companies and individuals across the globe that build add-on and enhanced products and services on top of them.

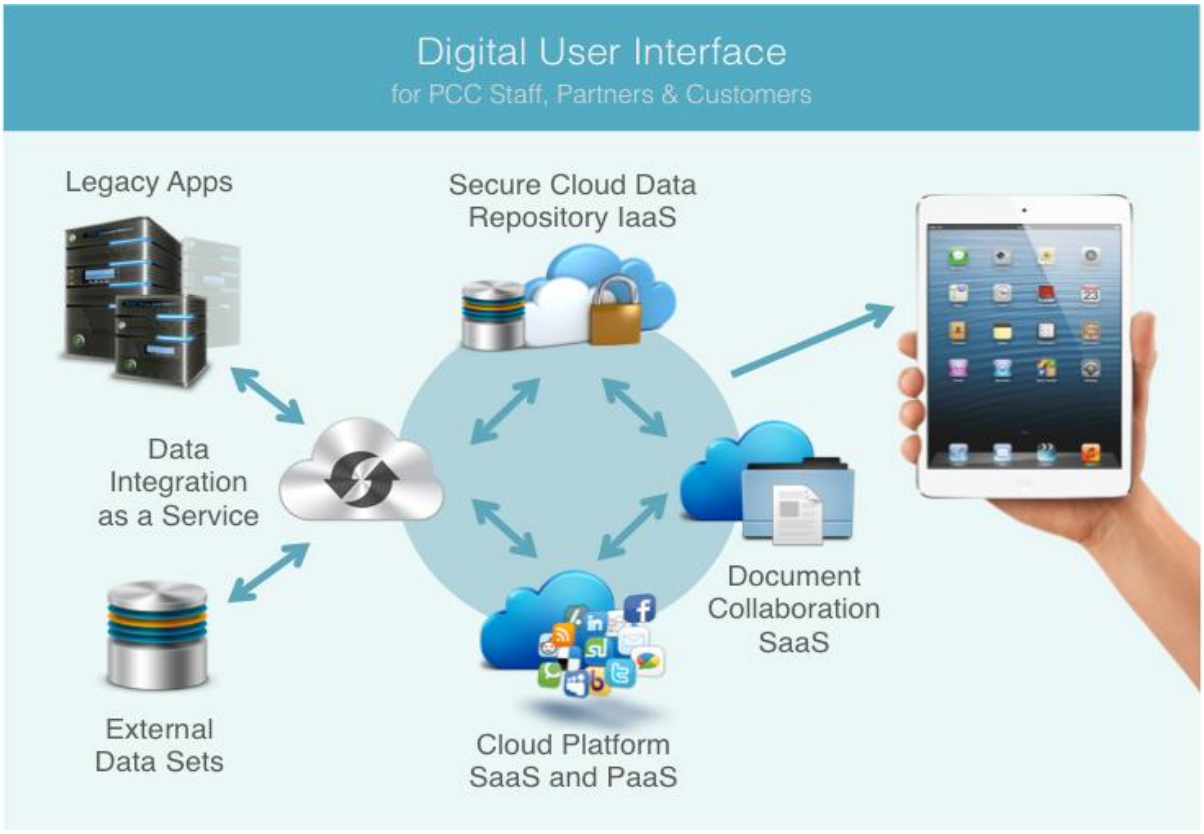
So for example at one end of the spectrum if PCC wants to survey its customers on a particular issue it might simply decide to go into the Salesforce.com AppExchange and download a customer survey application that has been built and installed there. On the other hand if PCC requires an application to support more complex and Local Government specific activity it may decide to develop that capability on the force.com platform with Serco and/or other partners.



The Architecture

Although the importance of a strategic platform for PCC cannot be overstated it must form part of an architectural approach to technology that steers how the platform will align and interact with other technology sets within the Council and with partner organisations.

A CRM linked platform will not satisfy all business requirements across the organisation. Elements of the legacy ICT estate will have to interoperate with the CRM and Platform. Architectural principles must be established at the beginning of the transition and these must be adhered to – the last thing PCC needs is for individual business areas to select different, tactical platform solutions. A separate and more detailed Enterprise Architecture is in development.



The Architectural Principles

The following principles are proposed to guide the delivery of the Strategy. These are well aligned with modern technology approaches and Government Digital Service principles:

Business focused

- Drive Service Delivery Improvement
- Improve visibility and transparency
- Enable business transformation
- Enable the delivery of the Target Operating Model

Cloud First

- Platform Based
- Infrastructure Free
- Mobile by default
- Scalable and flexible

Architecturally Driven

- Less complex and more standardised
- Categorise, rationalise and consolidate applications
- API-based messaging architecture
- Open Standards

Data and Information Led

- Information Management as an enabling and supportive function
- Labelling, classification and segregation of data
- Recording of datasets in a central register
- Transparency and public availability of data
- Partner access to data within the secure platform

Secure and Compliant

- Demand highest levels of compliance in the most sensitive systems
- Allow greater levels of flexibility in more general technology - only the most sensitive systems will be subject “restricted” classification
- Sensitive data will be stored separately from other data
- Security should never be an excuse to reduce service provision

Green and environmentally sustainable

- Environmental impact will become a formal part of technology selection process
- Infrastructure free – outsourcing via different ‘as a Service’ approaches to ensure maximum efficiency of our infrastructure
- Thin client – reduce energy consumption through thin client and virtual
- PCs with the ultimate aim of chrome book style devices for most users

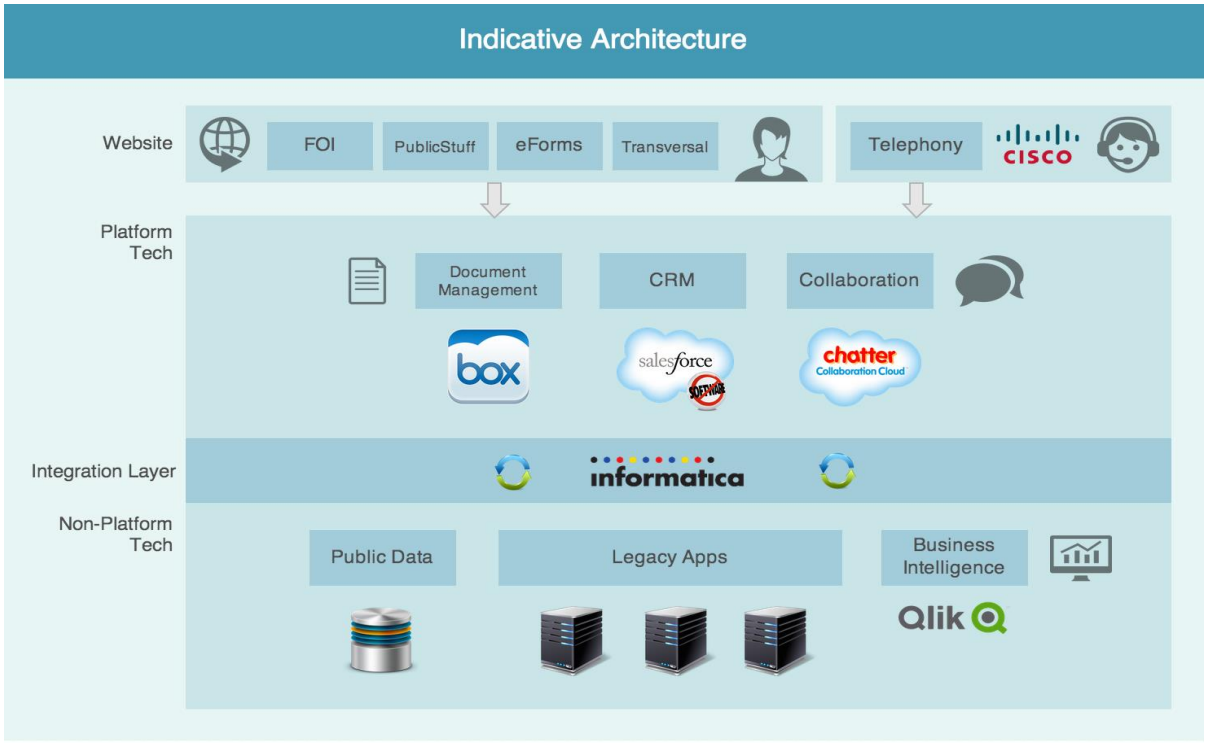
Driven by Total Cost of Ownership (TCO)

- Utility and commoditised ICT solutions will be the first choice for PCC
- Adoption of an enterprise-wide view of technology – supporting business capabilities rather than specific systems
- No departmental software budgets
- Services should be built in accordance with the Government Service Design Standard: https://www.gov.uk/service-manual.

The Foundations

PCC have already begun to trial, test and use products that meet the architectural principles. These are show in the indicative architecture diagram below and will be use to deliver the first phase of key functional capabilities;

- Account Management
- Activity Management
- Case Management
- Reports and Dashboards
- Internal Social Media and collaboration
- Mobile app
- Knowledge Management
- Integrated single sign-on (SSO)
- Document Management & Unstructured Data Collaboration
- Appropriate IaaS
- CRM Centric PaaS
- Integration as a Service/ESB/MDM
- SaaS commoditised software capabilities from the wider platform eco-system

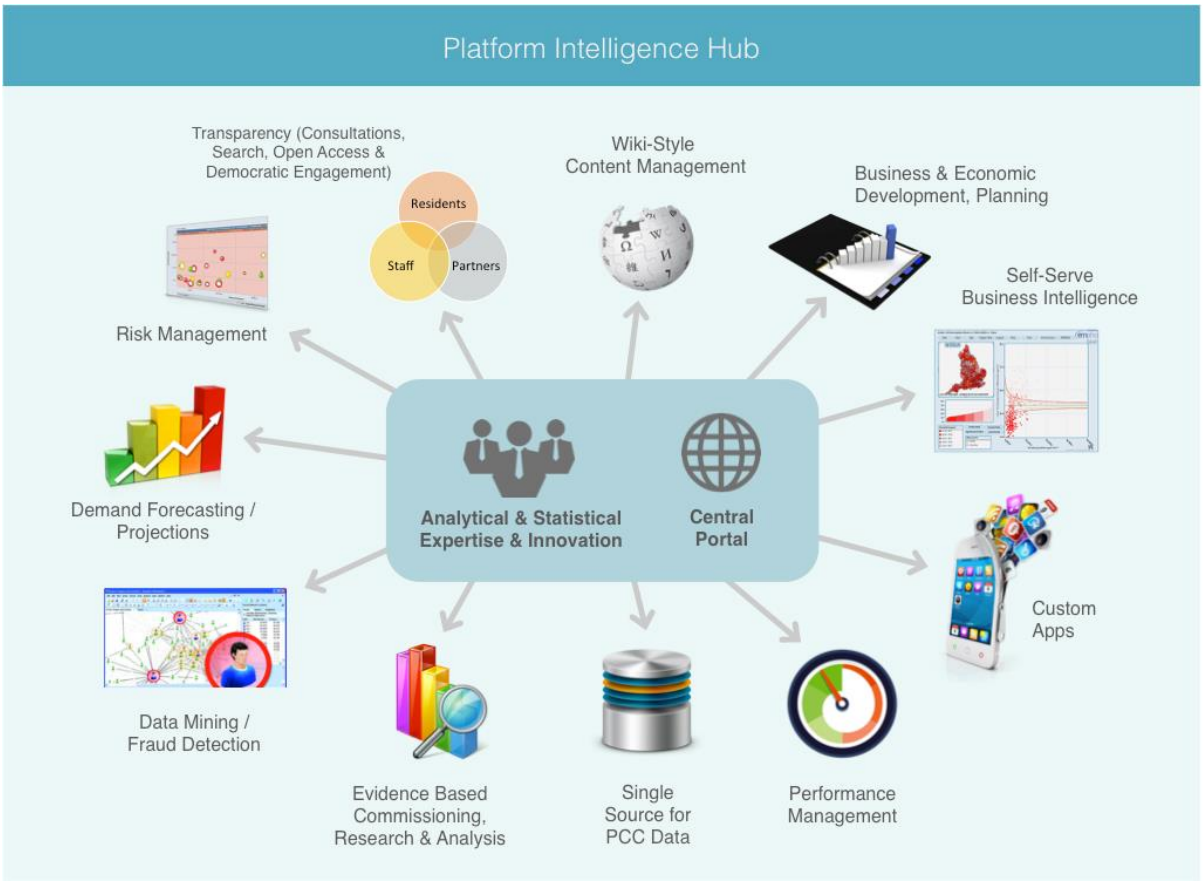


Data migration of relevant, and ideally cleansed, partner companies, Individuals, Service Requests and contacts from existing Line of Business systems will provide an initial population of data into the core platform. The core platform will become the master system of record for all Accounts, Contacts, Cases etc. following implementation.

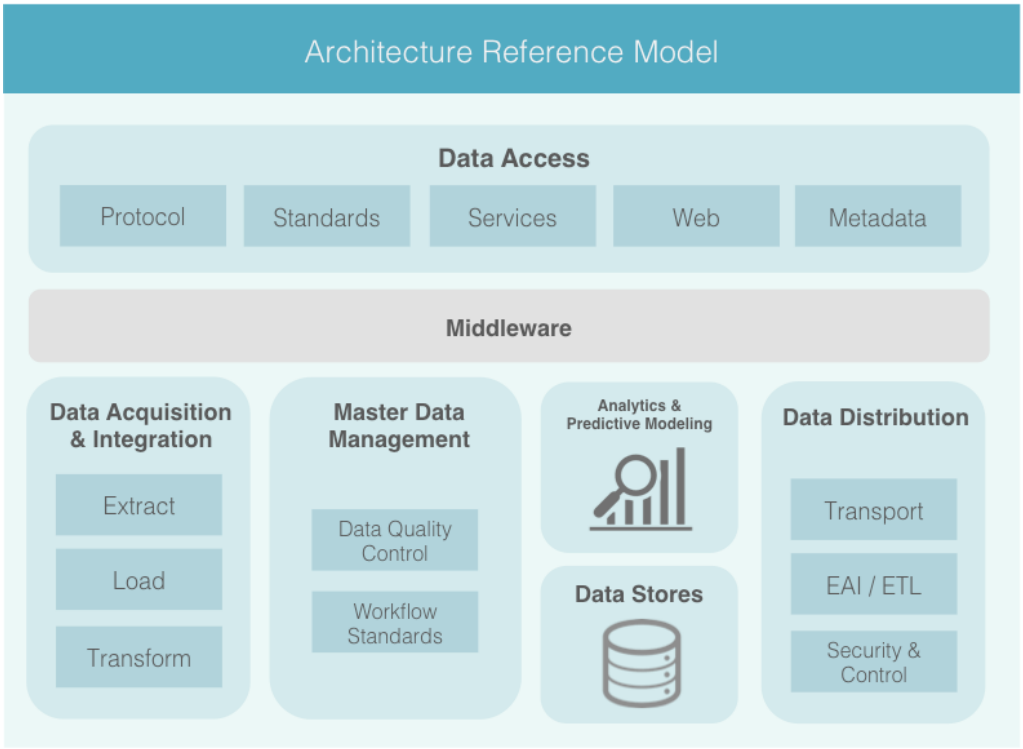
An integration as a service engine will be implemented as part of the core platforms capabilities. This engine will enable views of relevant data to be surfaced via the platforms dash boarding and reporting capabilities from retained corporate systems probably in the ERP space.

The Data

One of the main goals of using a small number of modern cloud platforms to support PCC business is to finally release the potential of the data that is held by the Council. The benefits of this can be tactical - offering a joined up view of a citizen through to strategic - guiding decisions on where to invest in the local economy. The figure below shows some of the data related capabilities that PCC may wish to exploit through its cloud architecture:



The architecture reference model below is intended as a tool to help make data strategy decisions. It defines the workflow and building blocks required in order to make decisions about managing data.



Data Acquisition and Integration

This is the most important part of the decision process. Here PCC need to define where data originates and to where it is distributed. The key is to understand the information flow required in order to deliver each capability.

Master Data Management

If it is not possible to arrive at an architecture where single components can be assigned ownership and responsibility for ingesting, standardising and storing each type of data, some level of MDM will be required to reconcile and synchronise records across systems.

Data Stores

The foundation of each capability in the digital architecture will be the storage and retrieval of data. It is important to consider where and how different types of data required by the business will be stored, the interfaces through which these will be accessed and the formats and standards used for interchange between components in the digital architecture.

Analytics and Predictive Modelling

Clear data mastering and defined interchange standards enable data to be readily accessed and used for analytics, leading to insights and predictive power, which can in turn drive business decisions.

Data Distribution

The means by which stored and computed data can be distributed, whether internally, or to customers, partners or the wider public audience. There should be a particular focus on ensuring data are treated as assets and that they are made available using open standard interfaces, such as those promoted by GDS.

Middleware (Integration as a Service)

Enables coordination and translation of data between systems as needed. Data should flow in standard formats, however this component can help to translate data where components either do not have open standard interfaces, or cannot be changed to accommodate updates to the interfaces of the components they interact with.

Data Access

This is the external interface to PCC, where customers, suppliers and partners will have access to PCC data, products and services. It is of particular importance that Internet standards, formats and protocols are carefully followed at this layer, informed by GDS recommendations, in order to provide the best value.

Further detail will be provided on the activities and concepts above in detailed Enterprise Architecture and Information Governance documents that will support this strategy.

SECTION 4: THE ROADMAP

Phases

The PCC Strategy Roadmap provides a sequence of high-level activities that will take PCC through planning and iteration of the Digital Architecture and Data Model, to the target Cloud Platform state.

Whilst much of the Strategy will be developed through adoption of an Agile methodology explained later in the report, at the outset PCC still require a high level structure and phasing of activities.

The phasing provides an outline structure for the technology transformation stage, highlighting major aspects such as:

- Implementation of the new data model
- Establishing transition support components
- Implementation of a CRM-linked development platform
- LoB capability delivery from core platform

The details of capability delivery and existing component retirement will form a future component of application roadmap planning.

The phases of Digital Transformation can be summarised as follows:

- **Prepare**: programme set-up, information gathering, analysis and validation.

- **Architect**: refinement and iteration of the architecture and data model, based on the outcomes of the Prepare phase.

- **Select**: selection of infrastructure, platforms, products, components and technologies to fulfil the capabilities required by the refined architecture and data model.

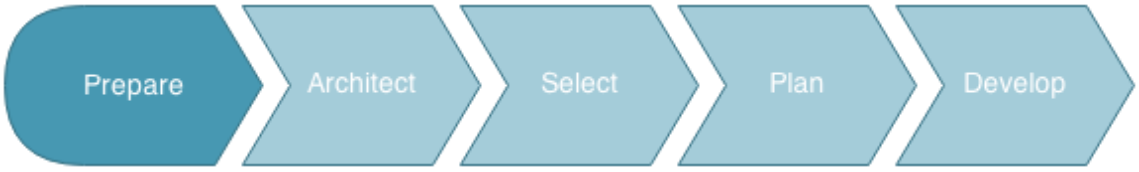
- **Plan**: a review and iteration of the architecture and data model, based on chosen technologies, leading to detailed planning to determine the specifics of transition steps and the order in which each capability can be delivered in the new architecture, taking into account system dependencies and technical realities.

- **Develop**: Initiate the development of the new architecture, and decommissioning of existing systems, through to completion of capability delivery, retirement of tactical transitional components and legacy technology decommissioning of LoB systems.

The phases emphasise iterative refinement of the Digital Architecture and data model throughout. This is significant because the end designs cannot accurately be determined from the outset. The detailed understanding which will be gained through this process will enable an accurate picture to be determined. It therefore makes sense to revise and update the designs as understanding increases, decisions are made and uncertainty decreases. It is valid to start with a draft architecture and data model and refine these through the phases. This enables and supports the principles of “learn by doing” and allows PCC to begin the transformation without excessive preparatory analysis.

The necessity and discipline of revision through the roadmap phasing encourages the result to be flexible and responsive to on-going change. This feature is vital because on reaching the end of the phases, customer needs and expectations will continue to evolve at a fast pace, as digital expectations increase in the customer base. Designing a change-ready flexible Digital Platform Architecture is vital to on-going survival and success.

Prepare



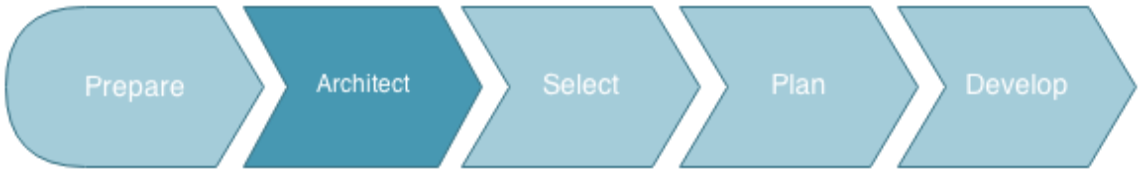
The Prepare phase of the roadmap is principally about context, research and planning. The activities in this phase are targeted towards fully understanding the existing situation within PCC, reviewing the information that feeds into the new design and planning for the activities required to transition capabilities to the new Digital Platform and planning to decommission existing legacy ones.

The key input to this phase are the emerging requirements from customer focused gathering sessions from service areas, alongside an understanding of existing PCC systems and their capabilities. Defining the Digital baseline at this stage is important as it allows the capability map to be reviewed and updated in light of the current thinking.

The key point in reviewing the capability map is to revisit and validate the mapping of customers to services to capabilities based on the outputs collated.

The outputs from this phase are therefore updates to the capability map and a transition plan for building new Digital Platform capabilities and shutting down existing ones.

Architect



This phase of the roadmap focuses on documenting business rules and reviewing and updating the architecture and data model for the new platform. The activities in this phase are targeted towards iterating the understanding of the new platform, based on the updated capability map.

The inputs for this phase are therefore the capability map and transition plans defined in the previous phases. The key point in reviewing the architecture and data model is to revisit and validate the mapping of customers to services to capabilities, all the way to platform-serving technology.

The revised target architecture should include each of the domains of business, data, application, and technology and help understand the gaps between what is currently in place

with existing systems and the desired target architecture. This will help to identify the capabilities needed by the target architecture and determine whether any existing functionality can provide a baseline for documenting business rules. The architecture should be solution agnostic, supporting guidance and governance of decisions about whether to build bespoke components or reuse commercial or community ones to provide the new capability. Where specific PCC functionality needs to be built, the architecture should inform agile development teams about the nature and interactions of the required capability without prescribing implementation technologies.

The revised data model should take into account the set of capabilities and business rules and ensure these are supported with data structures that are as naturally suited to their purpose as possible.

The outputs from this phase are therefore an updated architecture and data model and documented business rules.

Select

This phase of the roadmap is about selecting appropriate technologies for PCC. This includes selecting community or commercial components to fulfil architecture capabilities and selecting product families for bespoke development. Activities in this phase are targeted towards populating the architecture with implementation choices.

The inputs for this phase are therefore the updated architecture and data model.

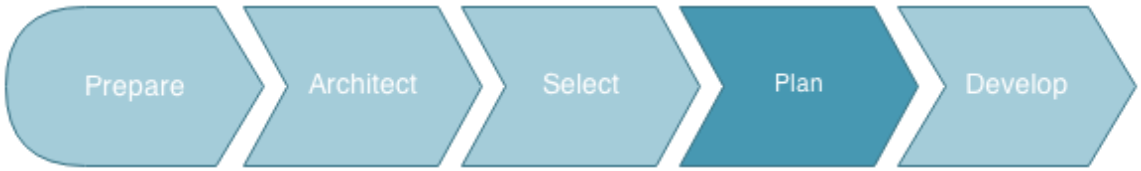
A key outcome in this stage is to maximise the proportion of the architecture which can sensibly be fulfilled by pre-built functionality. The criteria will typically be:

- Is this capability a generic business capability, or is it specific to PCC?
- If generic, does a suitable component exist which can either meet the need, or be reasonably adapted to do so?

Where specific functionality is required, an appropriate family of technology options should be identified.

The output from this phase is therefore a selection of community and commercial components, combined with a set of technology families, which together can fulfil each capability on the roadmap.

Plan



This phase of the roadmap is about detailed prioritisation for the implementation. The inputs for this phase are the updated architecture, the technology selection, the data model and the transition plan.

The key output in this stage is to determine a workable order of implementation which appropriately manages risk and service interruption whilst seeking to deliver significant early value for PCC.

A substantial element of this phase will be:

- the creation of a plan for building the new core asset
- the orderly creation of the new architecture and data model and decommissioning of existing systems. The plan will need to decide the best approach for each section of the core asset.

The end goal of this plan is pragmatic view of how the new architecture will be built and how all existing systems will have their capabilities presented by the core platform.

It is critical that transition is fully completed, including significant post-transition effort to de-clutter the system from transitional components such as abstraction layers. Failure to do this will ingrain inefficiencies into the new architecture from the outset, jeopardising hard-won agility.

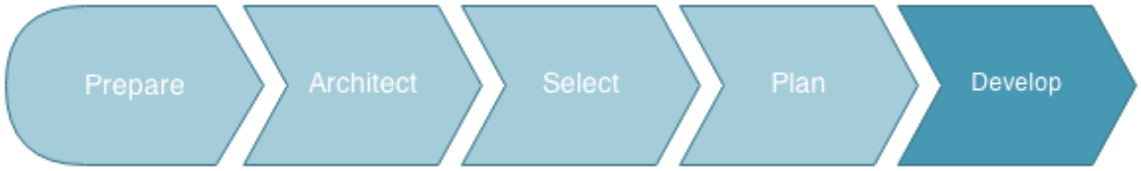
The transition plan should be revised and deepened with detailed analysis of the steps needed to create a more detailed view of transitional components which need to be built. An assessment of changes that will need to be made to existing applications where function needs to be maintained in the interim should also be carried out.

Furthermore, the plan can also use the technology selection to set the order in which new components can be configured, customised and built as underlying sections of the core asset and supporting capabilities become available. The plan should also explicitly specify the points at which existing systems will be switched off, through to the point where the mainframe is no longer in use.

Addition of timings to this plan will enable a more accurate application Roadmap to emerge identifying where existing contract notice for termination needs to be given. If a hard end date for the contract needs to be determined, this will need to contain a risk margin and preferably not be determined until a measurement of velocity (agile term) can be determined based on actual results from initial steps completed. This will avoid under-estimating the end date, leading to an escalation of cost and risk.

The output from this phase is therefore a plan which describes the sequence of steps (activities related by dependencies) which will result in the construction of the new architecture and decommissioning of existing legacy systems.

Develop



This is the main delivery phase of the Digital Strategy Roadmap. It is about building new architecture and decommissioning existing legacy systems and capabilities.

The input for this phase is the plan of activities and dependencies.

It is key that the new data model and architecture is built to deliver significant early business value. It is therefore imperative that systems can be delivered with the appropriate level of velocity on the new platform, so that changes can start being adopted and accepted.

Establishing a new Digital Platform will allow for the delivery of configured or customised community/commercial components and the development of any specific PCC functionality. Based on components completed, speed of progress, issues encountered and increased forward visibility, previous phases may be revisited to update the capabilities, architecture, data model, component and technology selections and the ordering and priority of implementation of the new architecture.

The output from this phase is the completion of technology transition from the current legacy technology state to the future target digital platform. This should provide the technology foundation for operating the business in an agile and digital world, based upon agile approaches, digital technologies and appropriate design.

Additionally, the learning accrued through the delivery process and the transformation required throughout the organisation in order to facilitate delivery of the roadmap will provide a foundation on which to continue growing and changing as a digital organisation.

SECTION 5: BEYOND TECHNOLOGY

This Strategy and related digital transformation is not purely about technology. It is an opportunity for PCC to think radically differently about how it delivers services. The following section will refer more to digital than it does to cloud. Digital transformation will define the way in which PCC people and partners work together to deliver efficient, cost effective and high quality services.

To get the most from the Strategy business change will have to take place across the 4 layers outlined below. Only two of the layers relate directly to Cloud technology.

Clients, Communities and People	"Expectations"
Organisation and Delivery	"Execution"
Platforms and Interfaces	"Eco-system"
Infrastructure and Technology	"Enable"

The Disruption of Change

PCC recognises that whilst there are opportunities on offer from adopting this Strategy, its implementation will not always be an easy or comfortable process. Digital technology forces change across all levels of an organisation. For example, PCC will be able to build out new business processes on the platform in a matter of days and weeks rather than the current months and years. Traditionally, PCC Governance process are set to make decisions over an extended period of time, often with a requirement to involve the many of the most senior Members and Officers in the organisation. This will need to be adapted to allow for the speed of change in citizen requirements that is unlocked by the technology.

At a more tactical level staff will need to become comfortable in using different tools with modern designs and interfaces. Outside of face-to-face and verbal approaches Email is the communication tool of choice within PCC. Over 15,000 internal emails are sent every day across the Council. The Strategy will bring in new choices for collaboration and sharing that remove this reliance on email. PCC Teams will need to adopt an "internal multi channel" approach using web based tools to share and develop ideas and relying less on storing documents on closed, local drives. It takes time for this to become the new normal for staff and it will cause some disruption as staff adjust to these new ways of working. It is possible that as these new tools and approaches are adopted both within PCC and more widely, that core business tools today, such as email, will be removed entirely.

Training and communication materials will be developed by the programme team to equip staff with new skills and knowledge and to emphasise the benefits that they and their customers will gain from the Strategy. Where-ever possible the programme will use a "show don't tell" approach to change management allowing staff and citizens the opportunity to test out PCC technology and offer feedback at an early stage in its development cycle. Training will also use modern tools such as videos, webinars and even hackathons to ensure staff can access knowledge at a time and location of their choosing.

The Changing Role of ICT

The Serco ICT function will pay a huge role on the transition to the future architecture.

However, by the end of the Strategy, 2019, the PCC/Serco ICT function will bear little resemblance to its current state.

Key roles will emerge and greater importance will be placed on them than in the past. Through the use of cloud-based solutions, ICT will be enabled to work continuously with the business to help them move from focussing on products and processes to thinking about information and service re-design.

This change is summed up at a high level in the following points:

ICT will move from keeping the lights on to keeping the business running. PCC ICT would no longer just be responsible for providing applications and infrastructure. With the rise of automation and cloud consumption, they will be increasingly responsible for business process services, too.

ICT will move from delivering IT support to change projects to delivering business transformation. PCC ICT would no longer just react to changing business requirements. They will. be at the very centre of business transformation initiatives, identifying opportunities for PCC to improve its organisation and services

ICT will move from aligning IT and business strategies to enabling business innovation. PCC ICT won't just ensure that IT strategy is aligned with that of the Council, but it will expand possibilities for business innovation through the use of Technology. Informing Board and strategic conversations at an early stage through offering insight on the art of the possible.

Leadership

Senior Officers from across PCC will play a key role in the success of this Strategy. Senior officers must not only support and encourage innovation, but lead innovative service redesign and instill digital ethics and agile practices within their teams and adopt such exemplar approaches in their own daily work practice. This type of approach takes time, education and an understanding of the organisations capacity to absorb change and individuals need to develop a digital and agile culture.

To deliver a Digital Strategy requires Digital leadership, this type of leadership being more about a style of approach rather than having a deep technical understanding. The focus should be on the people and the process, the technology, although the essential enabler of the successful Digital Strategy, is secondary to that of the Business Change.

For example, Leaders will need to consider:

- Devolving decision making further down the structure of the department so that staff can react to customer more needs more quickly.
- Incentivising teams based on local performance and impact.
- Providing more transparency to those teams as to their progress so that achievement can be readily recognized across the organization.
- Establishing cross functional groups, across all grade levels to tackle particular issues.

Big Vision, Small Steps

The best analogy for the manner and methodology in which a Digital Strategy is successfully delivered and the manner in which Digital and Agile practices are successfully instilled is to compare it to the most successful type of weight loss practice, use the 'Little and Often' approach. Deliver small incremental service change on a regular basis, the change is small so the impact on the business to both understand and absorb the change is achieved with relative ease. Digital is right at the heart of technology-enabled change, it is the focus on people, their cultural working practices, their process or ways of working.

This is not to say that a long-term vision, target architecture to support the business target operating model (TOM) is not important, they are. However to avoid 'analysis paralysis' it's important to start, to iterate and adapt. The short term phase is focused on addressing identified problems that can be fixed now, or at least within a short term horizon, the mid-term and long-term change plans can begin in parallel with the short-term phase.

The large-scale ambitious change goals should not be shied away from, it is the approach to change that must be adapted to transform PCC services and deliver a Digital Strategy. PCC will begin the process of change and make small changes incrementally.

Technology will enable the digital innovation and provide a platform for service change and improvement, those responsible for its delivery must be ready for change so that they can respond to the needs of the business as it seeks to deliver services based on customer need.

Project Management and Resourcing

The platform implementation, by nature of the cloud-based technology proposed, allows a relatively straightforward approach in terms of deployment. The proposed iterative, agile approach to incremental solution development does not mean that a tight project governance framework should not be established. Governance will ensure the additional moving parts of the PCC platform, such as data, testing, training and adoption are brought together at the right time, to deliver an end to end working product. More detail on overarching Governance will be supplied in the Enterprise Architecture document.

The delivery of the Strategy will be run in accordance with the Agile Scrum Methodology, which for clarity, has been explained below:

In the SCRUM methodology a sprint is the basic unit of solution deployment/development. Each sprint is preceded by a planning meeting, where the tasks for the sprint are identified and an estimated commitment for the sprint goal is made, and followed by a review or retrospective meeting where the progress is reviewed and lessons for the next sprint are identified. During each sprint, the team creates finished portions of a solution/product.

Using the SCRUM methodology will allow for the rapid deployment of a useable system that will meet the minimum user need in a short timeframe. This methodology will enable the incremental continual improvement and integration of the platform into PCC and ensure that what is being built and delivered is at all times relevant to the business needs and user requirements.

The SCRUM methodology uses real-world progress of a project, not a forecast or estimate report to plan and schedule releases. The project is divided into "sprints" which will generally be two-four weeks in duration. The end of each sprint will see the project sponsor, SME's, Solution/Product Owners and Solution/Product Managers assess the progress of the project

or product and plan the next sprint. This allows for reasonable changes to be made at the end of each two/four week period and for the entire project team to assess the project's direction and re-adjust if necessary or continue along the path it is already following. It also ensures complete transparency as all the project can only be judged on the real world solution deployment/development of what has been developed which is clear for all to see and assess every two/four weeks.

The SCRUM methodology will only work if a simple set of roles, responsibilities, actions and meetings are adhered too. For those that have not worked in the agile manner in which SCRUM operates these meetings and responsibilities add a clear stability to the way in which the project will operate, this will also help to embed Agile principles and practices into the work environment again demonstrated in the 'learn by doing' approach described earlier. The agile practise will be adopted and become second nature.

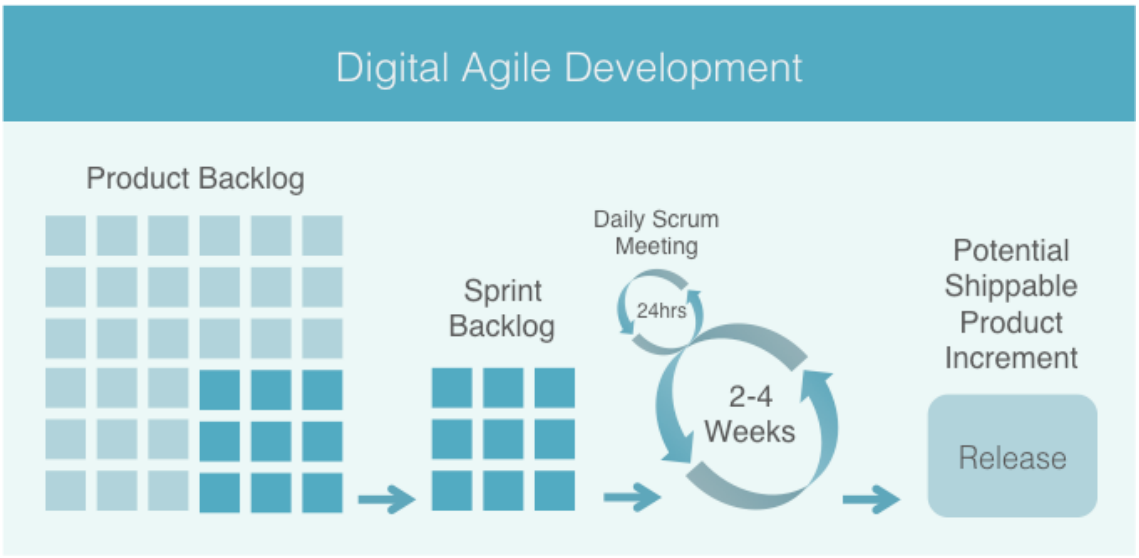
Whilst the SCRUM methodology only usually has three main roles (Product owner, Scrum master & Team member) experience has demonstrated that running projects of this nature in large historically waterfall based organisations requires the process to be adapted slightly and the roles expanded to ensure that everyone in the project understands where they are operating and exactly what they are responsible for.

This table adds clarity to the roles within an agile project:

Role	Responsibility
Engagement Lead	Oversee and ensure delivery
Product Manager	Leads the project, responsible for delivery
Developer	Develop & Configure Solution component in line with user needs
Product Owner	Provides business requirements and makes final business decisions
Technical Architect	Oversee the creation of the platforms application, data, technology and security architecture
Subject Matter Expert	Provide accurate internal business information and business requirements

The delivery of a Digital Strategy cannot successfully be completed by any external organisation alone and requires a substantial amount of PCC stakeholders time to ensure that platform is built and delivered at every stage, remains fit for purpose to the business and is kept up to date and adapts to any shifts within the business.

The diagram below depicts a basic agile delivery process:



The product backlog is the bucket into which all the platform delivery components are poured. Once all of these components have been developed into/onto the platform then the Long-Term target architecture state has been reached. The sprint backlogs produce the incremental short – mid-term capability requirements in an iterative fashion until the product backlog is empty. This avoids a 'boil the ocean' type approach to technology delivery that generally fails to deliver.

Ongoing Development of the Architecture

Cloud and Digital Architectures are not static. The platform will continue to evolve by exploiting the wide eco-system of rich capabilities.

For example, during the strategy it will be extended to incorporate Social Marketing platforms. This will enable PCC to proactively engage with its customers, engaging by listening in to social sentiment messaging on external, existing and emerging social channels.

An Integrated multi-channel knowledge base will be a clean and sophisticated font of service knowledge, implicitly addressing customer service need.

Integration with other collaboration systems such as CTI integration and self-service communities/portals will automate Service Users requests, allowing the creation and tracking of cases (Service Requests) and access knowledge base articles to service their own requests.

The introduction of advanced BI & Analytical capability will be added to the core platform to augment the single customer view, enabling reports and dashboards to be produced that add analytical value to data to provide insight to any service improving decision-making.

Real-time lookup functions will be added through open API integration with external data sources to provide different perspectives on service delivery by mashing numerous data sources together and representing them visually.

To achieve sustainable, on-going platform development the following will be applied:

Platform Design Principles

Key design principles to be applied in the delivery of the PCC platform components.

1. Configuration not code. Wherever feasible solution options should prefer mapping to standard capabilities and objects thus avoiding the development of custom capabilities involving technical components.

2. Incremental improvement. Features will be released early and improved by subsequent development iterations in agile sprints.

3. Data migration of essential information only. Over-populating the core platform with out-dated, inaccurate or irrelevant information should be avoided.

4. All aspects of the design must promote future extensibility. It is imperative PCC ensure that the platform implementation has a long-term strategic view, a target architectural state.

5. The platform build quality must reflect implementation best practice.

Finance and Procurement

Capital and Operational finance has previously been secured to begin delivery of this Digital Technology Strategy and the Technology products and the capabilities they provide. However additional products and services outside of those discussed previously will be evidenced in terms of need against a valid business case, these will be brought on a case by case basis for further approval.

Digital transformation is best supported by the use of flexible procurement approaches, allowing sensible buying of commodity or utility services. The establishment of framework agreements for use by UK Government, such as G-Cloud and the Digital Services Framework provide this by enabling the procurement of pre-competed Infrastructure as a Service, Platform as a Service and Software as a Service products.

As digital services are delivered iteratively they should be supported by finance and procurement protocols that recognise this.

Digital Platform Release Management

This section outlines the release methodology and change management process that will underpin the platform development, test and release of new capability onto PCC's platform.

Environment Strategy

The Platform Technology will provide sandbox capability, development & test environments. Sandboxing will enable one or more teams to work in parallel on different components of the platform solution without impact on other work streams. Once the capability is completed, passed through UAT, through the user training process for that capability component, the configuration can be promoted through change control process and released into the production platform environment.

The proposed environment strategy provides a fit-for-purpose approach for configuration-centric Digital Platform projects.

Release Management Methodology

This section outlines the proposed release methodology to be applied during the iterative, agile, sprint-based solution development process. Within such an agile process, a discrete set of the highest priority capabilities are designed, built, tested and released within a short-term, focused sprint. The key principle of this agile approach is to deliver business utility quickly and incrementally. The intent of the release methodology, is to ensure changes are synchronised efficiently across the PCC environment in a disciplined manner within the deployment/development sprints.

Change Control

The deployment of a digital platform requires a best practice approach to maintain a Change Control log and Audit log where all changes applied are recorded. The Change Control log should maintain an accurate view upon which environments changes have been applied to. The audit trail should record the detail of every configuration change made to the platform and retained in accordance with local mandate.

Technical Change Management

A review of existing change management processes to assess whether a simple change management approach is in place, it is proposed that simple governance processes will align most appropriately to an agile deployment methodology.

The following points outline the key aspects of the proposed, simple change management process.

1. A Change Approval Board (CAB) is introduced with members drawn from the main project stakeholders and senior delivery team.
2. Deployment classification. Internal deployments are those between sandboxes and do not require CAB approval.
3. Deployment classification. Production deployments are those that target the production instance and do require formal CAB approval.
4. A release manager is nominated with the delivery team; this individual is accountable for the successful synchronization of change across all environments.
5. For production deployments a Deployment Request Form (DRF) is completed; this document summarises the changes to be deployed, identified risk and testing processes completed.
6. DRF documents are circulated to the CAB members for approval; in some cases this is for information purposes and only a subset of the CAB must actually approve the release. The DRF will clearly identify the required action for each CAB member.

Future Digital Technology Decisions

Although PCC have already selected a number of cloud products and platforms to fulfil existing required capabilities it is inevitable that new requirements will emerge over the period of the strategy. The Enterprise Architecture document will be used as a guide in identifying suitable solutions but the question is then how do PCC decide which technology vehicle is the most appropriate to meet that requirement.

Sometimes it will be obvious how but this should also take the approach of using practical testing to inform strategy decisions. It may be helpful to run discovery projects on each platform option (IaaS, PaaS and SaaS) to understand their benefits and drawbacks for different types of capability within the context of PCC.

Some of the principal advantages of each of IaaS/PaaS/SaaS are as follows:

Infrastructure as a Services (IaaS): This is the most flexible option, which is an advantage in terms of specificity of implementation, but a disadvantage in terms of effort required. For example, one can install, manage and migrate databases and data on a granular and scalable level, and fine-tune system performance, but the trade-off is that this requires in-depth technical skill. This option increases velocity of infrastructure delivery and eases operational costs compared to on premise infrastructure, however it does require in-house skills to manage at the operating system and server software level.

Platform as a Service (PaaS): The key benefit of Platform over Infrastructure is that it provides an additional level of implicit management. This trades an amount of granular flexibility for decreased management overhead and typically provides improved operational features, such as one-click resource scaling and efficient deployment workflows.

Software as a Service (SaaS): The key benefit of SaaS over Platform is that it provides a complete solution, able to deliver value without requiring technical input to manage the underlying platform. The trade-off is that the chosen service cannot, by definition, be made business-specific beyond the features and configuration options offered by the vendor. This is the best option to minimise development and maintenance cost. The suitability of this option is determined by the degree to which business needs align with the features offered by a particular software offering. This option is therefore attractive for standardised capabilities.

Information Governance and Security

The need to protect the confidentiality, integrity and availability of information has traditionally been perceived as a factor that blocks the delivery of Digital services. Effective Digital services have protection that proportionately mitigates the risks posed the threats against them.

Digital organisations are characterised by a pragmatic balance of Information Governance and risk, with emphasis placed on how to enable and support the business and ICT in the interpretation and application of risk-based principles. The shift in the focus towards appropriate information assurance security allows Digital organisations to successfully unlock the potentials of Digital whilst maintaining an appropriate level of data protection.

Greater detail will be included in the Information Governance report being developed to support this Strategy.

Workforce Capability

PCC does not currently have extensive cloud and digital transformation skills in house to support the delivery of this strategy. This is partly through a lack of hard technical skills in the latest and emerging development platforms, tools and products. It is also a cultural issue whereby people's experience of Digital organisations and other ways of doing things is limited.

Inevitably in such a context custom and practice may have developed in ways that are not conducive to exploiting new ways of working available through Digital technology. This issue needs to be addressed through a number of initiatives:

- The PCC Human Resources team will develop appropriate tools and approaches to drive Digital across the organisation, such as new job descriptions, inclusion of digital objectives in performance reviews and job re-evaluations.

- A communications resource will be assigned to the strategy in the early phases. This person will communicate the progress of the strategy but also develop “show not tell” tools to encourage engagement. This will include showcases, videos and online training courses.

- The ICT Strategy Group will develop a plan and approach for increasing Digital Skills across the Council to support this Strategy.

APPENDIX A: CLOUD AND DIGITAL TERMS

Terms such as Digital and Cloud mean different things to different people so in order to provide clarity to the reader the following section describes the definitions. The objective here is to agree on a common language for the purpose of this Digital Strategy and ensure that messages are clear.

Agile - agile is a business value and outcome led approach. It is about shortening feedback cycles by delivering early and using on-going measurement of delivered value to iterate towards a result which may not be fully known at the outset. It addresses two areas of difficulty for projects: understanding the goal at the outset and the speed at which that goal moves, both during the course of a project and after the project completes. Agile is a product of the software industry but is now applied to projects that don't necessarily involve software development.

Agile – Agile software development is a group of software development methods based on iterative and incremental development, in which requirements and solutions evolve through collaboration between self-organizing, cross-functional teams.

Cloud – this is a service-based approach to computing. It seeks to make ICT available as a utility. Cloud services are commonly delivered on three levels:

- Infrastructure: raw virtual or physical machines
- Platform: access to deploy custom code to a managed environment, whether an application server, e.g. Heroku, or a customisable software stack, e.g. Salesforce
- Software: access to services delivered using web applications and APIs

CRM - Customer Relationship Management is software used for managing interaction between an organisation and its customers. This can include areas such as customer support, marketing and social media. It also provides a broad range of integration points for systems such as telephony, email and custom functionality.

Digital - Digital is an umbrella term for organisational values and practices which capitalise on the opportunities presented by the paradigm shift of the Internet age. Whilst technology is typically the enabler for these opportunities, Digital is not principally about technology. Successful Digital organisations tend to have operating models clustered around speed and adaptability, exemplified by maxims such as "show, don't tell" and "done is better than perfect." The thinking which enables organisations to work well in this way can contrast strongly with accepted best practice. Digital transformation therefore requires redesign and reengineering on every level - people, process, technology and governance.

Enterprise Architecture – is the discipline of designing an ICT landscape that enables the work of an organisation. This typically involves the use of consistent standards and approaches for expressing the capabilities required to support business activities, ultimately translating these into a set of technology components and integrations to provide the necessary capabilities. An enterprise architecture should cover each of the domains of business, data, application, and technology.

IaaS - Infrastructure as a Service is an alternative model to purchasing data centre space, servers, operating system software and network equipment. Customers typically lease these resources as a metered service. IaaS is normally billed on a utility basis according to the amount of resource consumed, e.g. Amazon Web Services

PaaS - Platform as a Service is the delivery of a computing platform and solution stack as a service. It facilitates deployment of applications without the cost and complexity of buying and managing the underlying hardware and software stack, e.g. Heroku.

SaaS - Software as a Service is a model of software deployment whereby a provider licenses an application to customers for use as a service on demand. SaaS software vendors may host the application on their own web servers or download the application to the consumer device, disabling it after use or after the on demand contract expires, e.g. Salesforce.

Scrum - Scrum is an iterative and incremental agile software development framework for managing product development. It defines "a flexible, holistic product development strategy where a development team works as a unit to reach a common goal".

Sprint - This is defined as an increment (or potentially shippable increment, PSI) of software development. It is the sum of all the Product Backlog items completed during a defined sprint period.