# ICT Strategy 2017 - 2020

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**CONTENTS**

# 1. Executive Summary

This is a brief summary of the Watford Borough Council (WBC) and Three Rivers District Council (TRDC) ICT strategy.

## 1.1 Vision

The ICT Service's vision is to:

*"Provide a stable and secure platform to support the effective and efficient delivery of services to customers."*

## 1.2 Major Principles

We have identified six major principles that are explained later in this document.

1. Flexibility – the platform should work to support all the users, from all parts of the organisation, in ways that best meet their needs
2. Stability – the platform should be resilient against disruption and change, preferring established solutions to novel ones
3. Security – the platform should protect the information of users and customers
4. Simplicity – the platform should be simple and easy to maintain, using standard products where possible
5. Supportable and Sustainable – the platform should be one we can support, technically, financially and politically
6. Business driven – ICT should inform and support the business in making changes to the way the Council operates

## 1.3 Objectives

Our primary business objective is to support and enable council services to deliver effective and efficient services to their customers – the residents, businesses and visitors to Watford and Three Rivers. Supporting this at a more granular level are the following specific objectives:

1. To provide a stable and resilient environment to support council services
2. To provide a secure environment, compliant with all legal information requirements
3. To support the councils by enabling them to provide more effective services and deliver them in ways that customers want to receive them
4. To enable council employees to work in a more collaborative, flexible and agile fashion
5. To support the aspirations of the users and provide a high-performing service
6. To reduce the total ownership burden associated with implementation and support of the ICT systems

## 1.4 Initiatives

Initiatives due for completion by the summer of 2018 are:

- Upgrade the email solution
- Upgrade the server and desktop operating systems
- Upgrade databases

- Replace the existing servers with an enhanced virtual environment
- Replace the storage area network (SAN)
- Install new routers and switches
- Install new racks
- Refresh power supplies
- Implement new Active Directory configuration
- Provide new Disaster Recover (DR) capability
- Meet Public Services Network (PSN) requirements for e.g. security and patching
- Continue improvement journey to deliver required performance levels across all areas of ICT to meet the needs of customers

Initiatives for 2018 and beyond are (subject to business case and budget/funding streams):

- Implementation of a new telephony solution and Unified Communications
- Implementation of document management solution(s) – line of business and standalone as appropriate
- Supporting services in the automation of existing processes and replacement of applications
- WBC CRM replacement
- Asset management
- Applications portfolio
- Maintain PSN compliance for 2018/19 and beyond[1]
- Migration to cloud based systems and hosting
- Migration to cloud based Office solutions, including email
- Ensure ICT service deliver the required performance levels across all areas of ICT to meet the needs of customers

## 1.5 Direction of Travel

The direction of travel for ICT to be delivered through this Strategy period and beyond, subject to business cases is that:

- All infrastructure (including communications) is offsite/Cloud-based
- Everyone uses mobile devices for everything
- The councils own no hardware at all, apart from desktop devices
- All networks are virtual
- All Council equipment reports its presence to an IoT dashboard
- The councils pay for what they use rather than what they think they will need[2]

[1] The Councils were awarded their PSN compliance certificates in August 2017
[2] Subject to being able to support this through available funding streams as increases in revenue budget are not anticipated to be viable.

## 2. Introduction

This is the ICT Strategy for the shared ICT service that supports both Watford Borough Council and Three Rivers District Council. It covers the period 2017 to 2020 and sets out how the service will provide both councils with the stable, secure and sustainable IT infrastructure required in order to be able to offer services which are agile, high-performing and are focused on the needs of the customer. It describes:

- The vision and principles under which the ICT service operates and which influence any decision-making
- The general direction followed by the ICT service in terms of technology and plans covering the period 2017 to 2020
- Commitments made by the ICT service to support both councils in providing an effective service and the objectives and initiatives that have already been agreed
- Business objectives to be achieved between 2017 and 2020 and the technology initiatives that are already underway to achieve them
- The resources available to the ICT service and the constraints under which ICT operates
- How to work with the ICT service to support new initiatives and requirements
- How to influence or change this strategy

The strategy supports Watford Borough Council's transformation strategy and vision for Watford 2020, and the Three Rivers Digitisation strategy. It was created following extensive discussions and consultations with the services across both councils, and has been approved by the joint IT Steering Group (ITSG).

This document is intended for use by any employee of Watford Borough Council or Three Rivers District Council, and we will make it available to anyone seeking to engage with the ICT service.

The ICT service has responsibility for:

- Networks, including the connection to the internet and telephony
- Servers and other computer infrastructure
- Desktop computers and devices attached to those computers and the network (such as printers and scanners)
- Mobile devices that attach to council networks
- The security of the IT systems and the information held on those systems
- Providing email, office and electronic file storage services
- The environment within which applications reside (anything associated with the business application e.g. user training, contract management is the responsibility of the service that use them)

# 3. Background

## 3.1 ICT Shared Service

In 2009 Watford Borough Council (WBC) and Three Rivers District Council (TRDC) agreed to share four of their services, including ICT, Revenues and Benefits, HR and Finance. The objective of this was to reduce costs and increase efficiency.

The ICT Service therefore provides a single service to both WBC and TRDC, although some facilities (e.g. email) are kept separate. There is a single common ICT organisation, which is managed by WBC as the Lead Authority and a single Service Desk. This delivery model enables economies of scale, for example Watford provides disaster recovery for Three Rivers and vice versa, instead of each council needing to purchase its own secondary data centre.

From 2005 to 2010, IT infrastructure support for Three Rivers was outsourced to Steria, but this was brought back in-house under the shared service. In some areas there were incompatibilities between the Watford and Three Rivers implementations and so parallel implementations developed, reducing the efficiency of the shared service.

In 2013, the ICT Service was outsourced to Capita; however, due to problems with delivery, the contract was terminated early and the service was taken back in-house during 2016. Included within the Capita contract was a refresh and redesign of the ICT infrastructure; however limited progress was made with this. A mixed service delivery model was adopted following the end of the Capita contract, with some functions delivered in-house with others delivered by partners, the most notable of which is the partnership with Amicus ITS to deliver service desk and network management functions.

A root and branch refresh of the infrastructure in both councils has taken place during 2017, following the design proposed by Capita, and this Core Infrastructure Transformation Programme is expected to continue until mid-2018. When this is completed it will leave the councils with a solid foundation on which to build new business processes and implement this strategy.

In order to inform the development of this ICT Strategy a consultancy, Freedom Communications, carried out an extensive consultation and met with service heads and other stakeholders to gather service requirements during late 2016 and early 2017.

This strategy is based on the understanding of business requirements gathered through Freedom's engagement and other requirements that have been identified through the development of TRDC's Digitisation initiative, the Watford 2020 transformation programme and through the Core Infrastructure Transformation Programme. It has been informed by a number of similar strategies developed by various local government bodies and combines their approaches.

## 3.2 Watford Borough Council

Watford has an active strategy of developing their capabilities and see IT as a critical part of this. The Watford 2020 programme includes requirements for greater agility and flexible working, with a clear dependency on the use of mobile solutions.

The Watford 2020 Transformation Programme seeks to change Watford Borough Council into a customer-focused, digitally-enabled and commercially-minded organisation. They want to become more agile and see the use of IT as critical to providing this.

Watford has a business vision and a strategy including increased use of technology both within the Council and to support citizen services. As an example they have implemented a LoRaWAN low-power network to support the use of Internet of Things devices.

## 3.3 Three Rivers District Council

Three Rivers are engaged in a digitisation initiative, converting paper documents and processes to electronic ones in order to increase efficiency and reduce the need for storing paper. Three Rivers seek to use IT to increase flexibility and to improve their use of building space, while still delivering a stable and reliable service.

Three Rivers are also engaged in a programme of work to digitise their interactions with their customers utilising the capabilities of their Firmstep CRM product to drive channel shift by customers and efficiency in the backoffice through integration with line of business applications.

## 3.4 Local Government in the UK

Local Government in the UK currently exists in a context of decreasing resources and simultaneously increasing pressure to provide technically sophisticated services. The levels of grant available from Central Government are being reduced over the next three years, but Councils are under pressure to maintain or enhance services. Digital enablement of services is generally seen as a possible way to achieve an improved service at a lower cost and the Cabinet Office has been applying pressure on local government to move face-to-face services to web pages and services that can be accessed by mobile phones.

Historically, local government IT systems have generally either been massively centralised (e.g. mainframe applications for tax and rates) or else small desktop applications for the use of one or two people. Where possible, IT departments try to standardise on a small number of products in order to reduce their support costs. This is harder in local government than in many other areas, since each council has a diverse range of services (Housing, Planning, Revenues & Benefits, Environment etc.) in addition to the usual back office functions (Finance, HR, etc). Through this strategy we aim to increase the level of standardisation while still providing sufficient support for the range of functions required.

## 3.5 Technology Trends and Direction

Current technology trends are away from locally hosted systems and towards external hosting of both applications and data in the Cloud, since this is generally perceived to be more efficient and have lower costs. Although some councils' have gone down this route, there are concerns about privacy and security issues, and substantial pressures to apply greater levels of governance in this area. In particular, in 2018, the EU data privacy regulations (GDPR) will become law, and any new developments will need to be compliant with them.

There is also pressure to provide unified, personalised communications through a wide range of channels, particularly mobile. The use of mobile phone apps is currently dominating development and there may be pressure to follow other councils down this route. Other areas, such as the Internet of Things, suggest that over the next few years there will be a need for more robust wireless network infrastructure and that data volumes will continue to increase.

The trend within all IT departments is to monitor assets much more closely than in the past, defining their expected life and preparing to replace them on a regular basis. This monitoring all assesses the use of storage and networks, to ensure that they are being used in an efficient fashion. Where it is predicted that resources will run low this supports the taking of early steps to provide additional resources. This methodology supports a reduction in the overhead required to manage IT resources.

Moving to a more Cloud-based environment involves a transition from a largely capital-based model of payment for ICT. The Cloud model is one that is dominantly revenue-based and is dependent on the actual usage of services rather than requiring substantial advance investment in infrastructure.

### 3.6 Our Current Technology Provision

At the end of the contract with Capita the state of the ICT infrastructure was poor. Examples of this being servers that had not been maintained, systems that had not been patched, applications that had not been upgraded and data that had not been archived when it should have been. Active Directory had not been maintained and in some cases the number of user licences bore only a slight resemblance to the number of actual users. The desktop estate was failing with the majority of the estate still running Windows XP.

Since the end of the Capita contract significant progress has been made to address this situation:

- Desktop devices have been replaced across the entire estate to a mixed economy of Dell thin form factors, Dell laptops and Windows Surface Pros. XP has been completely removed and there is a mixed model of Windows 7 and Wondows 10.
- Wi-fi has been rolled out across the majority of the estate and this roll-out is planned to be completed by early 2018
- Core Infrastructure stabilisation work is ongoing through the Core Infrastructure Transformation Programme – importantly the user experience is already significantly better

Through the Core Infrastructure Transformation Programme the objective is to move to a stable and fit-for-purpose infrastructure that supports the core workings of the councils now and will be a foundation for the future direction as outlined in this strategy. This doesn't necessarily mean migrating to the latest version of certain technology (e.g. Exchange), as from the current situation that is not possible and a series of upgrades is therefore required.

In general the ICT (application) provision is currently based on conventional systems, mostly hosted within the councils' onsite data centres, although there are some remotely / cloud hosted systems. As would be expected in local authorities there are a significant number of database applications; however this needs to be reviewed with a view to rationalisation as we need to ensure we make best use of our largest systems and minimise the applications portfolio to only those that are absolutely necessary to make the environment simpler to support and to reduce cost.

## 4. ICT's Vision and Principles for Delivering Services

### 4.1 Vision

Our vision is to:

*"Provide a stable and secure platform to support the effective and efficient delivery of services to customers."*

### 4.2 Principles

Principles are short statements of direction that help us make decisions in accordance with the strategy. These do not cover all areas, but concentrate on the areas that define the strategy. For instance, all systems have a legal obligation to be compliant with accessibility legislation, even though this is not a principle.

1. **Flexibility – the system should work to support all the users, from all parts of the organisation, in ways that best meet their needs**

Rationale – The ICT shared service supports both Watford and Three Rivers, two organisations with a different approach to IT. As a result, we have to be flexible and any decision we take needs to allow for that difference in approach. We will try to consider solutions that are applicable across both Councils, and preferably across multiple services.

In addition, ICT will support the services in the development of flexible and agile ways of working. Working practices are changing and we should not lock ourselves into assumptions about how the systems will be used. Where possible, we will favour options that include mobile access and the ability to work where the problem is, rather than always from an office. Our staff have a wide mix of skills and we need to be able to adjust to different ways of using ICT that do not require traditional IT training.

We are entering a time of uncertainty for local government and we need to be able to continue to provide a good service throughout. Choosing a flexible strategy will enable us to change direction as necessary, particularly if new technical developments provide the opportunity for us to take advantage of them.

**2. Stability – the system should be resilient against disruption and change, preferring established solutions to novel ones**

Rationale – change for its own sake adds to the complexity of the Councils' ICT systems, increases the cost of supporting it and makes it more likely that there will be problems. A stable environment, using known quantities, is preferable to one providing short-term benefits at the risk of destabilising other parts of the system.

Where possible, our solutions should be designed in such a way as to reduce the risk of failure by providing a secondary failover capability that will restore service without requiring manual intervention. Although the initial capital cost may be slightly higher, the total cost over the lifetime of the solution will be lower since it reduces the cost of disruption to services.

Both internal systems and any hosted or Cloud-based services must consider stability, business continuity and disaster recovery when they are being designed or procured.

**3. Security – the system should protect the information of users and customers**

Rationale – the Council has a responsibility to the customers to keep their information secure and to comply with the requirements of the GDPR and similar legislation. In all cases, information must be kept securely, either by protecting it within the Council data centres, or by contracting with third parties to store it externally (hosted or Cloud) in an auditable and certified facility.

This requires the cooperation of all services in developing and using business processes that ensure ICT and the Councils are able to meet their obligations for safe storage.

Although we need to share information if we are to provide a good service to the customers, we must do this in a way that ensures the information is protected against loss or misuse.

**4. Simplicity – the system should be as simple and easy to maintain as possible, using standard products where possible**

Rationale – ICT, like the rest of the Council, need to deliver a high-value service at low cost. The complex nature of many systems, and the complications that ensue when they are run together in the same environment, means that they tend to be expensive to maintain and require a lot of attention. Where possible, we should buy services rather than systems and should favour those that can be easily automated, requiring a minimum of intervention. If we can provide a good service using something we already have, then we should do so. We will also buy products and services before developing our own.

This principle of simplicity should apply to the architecture as a whole. We will prefer solutions that are simple, easy to document and support, and which are consistent with all the other solutions in use. We will attempt to reduce product diversity, preferring existing architectures, databases and vendors over novel solutions. Where we can, we will move to shared platforms throughout both councils. We will use products where we can readily find people with the skills to maintain them,

instead of complex proprietary solutions. Where possible, we will avoid point solutions and instead use generic ones.

We will prefer solutions that are digital by design and do not require manual intervention to tie lots of different processes together, since manual stages introduce the risk of error and require additional documentation.

5. **Supportable and Sustainable – the system should be one we can support, technically, financially and politically, on a long-term basis**

Rationale – ICT is resource-constrained and technical skills are currently in short supply. Any solution needs to be one that can be supported by ICT with the allocated budget and resources.

Solutions should also comply with Council aspirations from an environmental point of view – making best use of physical and energy resources that do not damage the environment. Where the Council needs to become commercially-driven, we should be able to support that direction.

Any decisions we make are likely to affect the way we work for years to come, and we do not want to end up with a solution that we cannot support and will need to be replaced in a couple of years. We also want to avoid solutions that are dependent on particular individuals with specialist skills, since this sort of solution is likely to be fragile in case of disaster or other problems.

6. **Business driven – ICT should inform and support the business in making changes to the way the Council operates**

Rationale – the role of ICT is to ensure that the business, Council services and operations, provide the best service they can. Although ICT can present options and suggest ways forward, it is still the responsibility of the business to present their vision for how they want to deliver services.

ICT need to identify the opportunities which can be provided by technology to deliver significant efficiencies, and communicate these opportunities to the business. ICT also needs to support the Councils in their desire to become more commercial and to act in a more business-like fashion.

## 5. Our Aims and Objectives

During the business engagement the councils identified the following business objectives and the ICT service will work towards realising them. In some cases, there are projects already underway to support the objectives.

1. **Provide a stable and resilient environment to support council services**

In order to meet the councils' business objective of delivering high-performing services, we need to provide them with an environment where they can rely on the tools they work with.

A programme is under way to refresh the ICT infrastructure and to reconfigure it in such a way as to make it more resilient, as well as easy to run and support. This is a bottom-up reorganisation including network switches, storage & backup, physical & virtual servers, active directory etc. The objective is to reach a point at which it will be possible to make longer-term strategic decisions such as migration to the Cloud without risking the stability of the overall environment.

We will provide a system that:

- Is stable and performs well under normal operating conditions
- Is resilient, can be quickly and easily restored in case of failure, with a minimum of downtime in case of an emergency requiring disaster recovery
- Is kept backed up
- Is kept up to date

- Is continually monitored to ensure it does not run out of space or other resources
- Meets the needs of the users
- Follows best practice recommendations in all areas

This stable foundation represents the basic capability of ICT to provide a service. Additional services will be built on top of it.

**2. Provide a secure environment, compliant with all information requirements**

To provide certain services, we need to be able to connect to other government systems, and to do this we have to meet stringent security standards. The council infrastructure and associated application services will need to be compliant with the requirements of GDPR by mid-2018, as well as, in the near term, needing to meet various codes of connection that also require us to have secure systems (PSN, PCI etc.). Our objective is to gain PSN certification in 2017 and every year from then on. In partnership with the councils' SIROs[3], we also expect to be able to pass a GDPR health check before May 2018 when the legislation comes into force. This will require the development of new ICT processes and procedures to meet the requirements, as well as ensuring that the infrastructure is secure.

- We will help the councils to manage their information securely and process it digitally, rather than requiring manual intervention and paperwork
- We will work with the services to ensure that their information is secure and their processes are compliant with GDPR
- We will provide the capability to consolidate documents and data in order to make it easier for the services to manage their information, and to carry out document and records management
- We will monitor the infrastructure, maintaining firewalls and other security devices to ensure the service remains compliant with security constraints
- We will monitor the environment and ensure that it remains secure by applying patches and upgrades in a timely fashion

The objective of running a secure environment will sometimes conflict with other objectives, and may reduce the satisfaction of users. At such times, we will attempt to provide the best service that still allows us to meet our legal obligations.

**3. Support the councils by enabling them to provide more effective services and to deliver them in ways that customers want to receive them**

Our objective is to help the councils' services provide a better service to customers, and to make this provision more effective by enabling digital access to council services through the websites. We will support the councils in their drive to develop services that are digital-by-design, which require a minimum of human intervention and which make the best use of council information. Where possible we will support the automation of services or provide systems that can be automated in future.

We will provide electronic self-service, both for customers and for internal users, in order to improve the efficiency and speed with which services are delivered.

Our ultimate objective is to develop a service that is high-performing and works in a way that customers require it to work, including meeting their future needs. All information should be shared between systems (where legally agreeable) to reduce the need for asking customers to provide the same information repeatedly and to prevent repeated data entry with the risk of introducing mistakes

[3] Senior Information Risk Officers

each time. We will enable services to reduce paperwork to a minimum and help them to move all forms and paper-based processes to digital by 2020.

We will support the automation and integration of council processes, reducing the need for human intervention in interactions between customers and the councils. As a necessary precursor to this, we will adopt a policy of favouring the purchase of systems that can be automated or that expose an application programming interface (API).

**4. Enable council employees to work in a collaborative, flexible and agile fashion**

Discussions with the services revealed that they want to work in a more flexible and agile fashion than the way that local government has traditionally delivered services.

Subject to the provision of funding, we will provide employees with tools that enable them to work in an agile way. We will make it possible for them to use desktops, laptops, mobiles, tablets and other devices to do their jobs in the most efficient way and at the most efficient location. The use of new Cloud-based office and collaboration tools will reduce the dependency on access to the council networks and data centres. We will ensure that smarter ways of working are available.

We will implement a unified communications system that incorporates voice, mobile, text and IT systems and we will help our customers to share information more effectively with each other and with other agencies.

Where possible, and where we can ensure that data remains secure, we will support council users in working at remote sites, from informal locations or those convenient for our customers and from home.

We will ensure that internal data structures can be changed to support reorganisations and the formation of flexible working groups as these are required. We will support fluid and flexible business processes, to the extent that these are permissible within the framework of government regulations.

**5. Support the aspirations of the users to provide a high-performing service**

We will support both councils in their efforts to deliver a service that meets their vision for the future.

In Three Rivers this means supporting them to deliver their requirements to rationalise office accommodation and to work in a flexible, agile and mobile fashion moving from a predominantly paper-based environment to a digital, paper-free environment.

In Watford they also want ICT to support a flexible, agile and mobile workforce. Additionally we will support their aspiration to be a digitally-enabled organisation through the use of automation and integration between the front and backoffice to ensure their processes are digital by design.

**6. Reduce the total ownership burden associated with implementation and support of the IT systems**

Through a number of initiatives, over time we will be able to reduce the costs of maintaining and supporting the ICT estate, which will also support an increase in performance:

1. Pro-active monitoring of our entire ICT estate to ensure that risks to performance and delivery are identified as they are developing and (where possible) action taken before they become an issue, which generally would result in a loss of service and require significantly more resources to fix than preventing the issue from occurring.
2. Standardised builds for desktop devices on a standard portfolio of devices enabling a reduction in time spent building devices and improving the ability to respond when issues occur through a hot-swap type methodology
3. Ensure that systems are upgraded and properly licensed at a time when it makes economic sense to do so, rather than delaying and incurring financial penalties as a result

4. Move away from the use of on-site data centres to a cloud / off-site model of operation

# 6. Initiatives

To meet the business objectives, we are carrying out a number of technical initiatives including those which have already started in 2017 with the Core Infrastructure Transformation Programme. These include the procurement and implementation of new technology and applications, reconfiguration of legacy systems, production of documentation, and the development of new business processes.

## 6.1 Current Initiatives

The following initiatives are already in progress. Additional initiatives will follow:

1. Core Infrastructure refresh (across both Watford and Three Rivers)
    - Upgrade email solution
    - Upgrade server and desktop operating systems
    - Upgrade databases
    - Existing servers are being replaced with an enhanced virtual environment
    - New storage area network (SAN)
    - New routers and switches
    - New racks
    - Refresh power supplies
    - New Active Directory configuration
    - Provide new DR capability
    - Meet PSN requirements for e.g. security and patching
2. High level enterprise architecture
    - Document existing and refreshed architectures to increase supportability
    - Document new DR capability to support increased resilience
    - Define standards and principles for managing the IT systems and the enterprise architecture
    - Develop a Standards Register to control the procurement of new systems and to simplify the architecture

As the Transformation Programme develops at Watford, and the Digitisation programme develops at Three Rivers, there may be requirements to implement new initiatives in order to support their objectives.

## 6.2 Proposed Initiatives

In order to support the delivery of the Watford 2020 Transformation Programme and the Three River Digitisation initiative, subject to a business case and budget, we will introduce a number of supporting initiatives, including:

- Implementation of a unified communications toolset offering audio and video conferencing, presence awareness, instant messaging and a simplified user interface, extending across all areas of both councils currently using landline or mobile telephony including within the contact centres

- Implementation of a structured document management solution, including (where appropriate) the digitisation of existing paper documentation and the replacement of manual processes with automated ones
- Support services in the automation of existing processes and replacement of applications with ones that can be automated, reducing the need for manual intervention in processes and speeding up the processing of customer interactions with the councils
- Support the replacement of the existing Watford CRM system and the development of a new set of simple and standardised business processes based around citizen life events, adopting tell-us once principles
- Development and maintenance of an asset register covering all hardware, software and information assets owned by the councils
- Meet the requirements and standards of the PSN Code of Compliance, supporting our security objective
- Support the SIRO's to meet the requirements and standards of the GDPR in advance of it becoming a legal requirement
- Adoption of Cloud-based office and email (e.g. Office365), to increase the level of flexibility and enable agile working practices (e.g. transparent handoff between different devices and in different locations);
- Development of an applications portfolio in order to reduce the diversity of applications, reduce licensing costs and clarify the architecture

Technology-based initiatives are also covered later in Section 8.

For a more detailed explanation of the planned initiatives, see the ICT Roadmap (RoadmapAppendix 2) and the ICT plan (ICT Plan 2017).

## 7. What ICT will do to support the business

The feedback we have received from the services and senior management included a requirement for ICT to work in partnership with services. It is always the responsibility of ICT to support other council services; however, there are times when ICT can best do this by providing good advice beforehand, so that problems don't happen in the first place.

ICT will:

- Work with services to understand their needs and how we can best help them to support customers
- Work with services to develop a partnership approach to meeting their requirements for applications and infrastructure
- Work with services in meeting legal and data privacy obligations such as the GDPR
- Provide timely information on unexpected costs or changes in timescales that will affect the provision of ICT
- Provide guidance on how technical solutions can meet the business requirements of services, and suggest the solutions that are best aligned with our strategy and principles
- Provide advice and guidance on the management of electronic data and information, at all stages in its life cycle from creation to destruction

- Proactively reach out when there is a need or an opportunity to make use of new technology in a way that will benefit a service.

# 8. Technology

## 8.1 Technology Principles

The ICT service has a principle of simplicity and reducing the complexity of the IT systems and other technology. Where possible, we will reduce the diversity of existing technology and consolidate on a few preferred solutions.

- Our preferred technologies and technology vendors include Microsoft, Cisco, VMWare and HP. The general design model is to use a standard product and to configure it along conventional lines - we try to avoid development and custom design
- At present, our dominant model is that most systems run on-site, but with a few hosted solutions. In the future we will move to hosted and Cloud systems in accordance with our principles
- We will consolidate our use of applications, reducing the number of applications in use and using portfolio management to avoid duplicating functionality
- We will try to consolidate, where possible, our use of databases onto Microsoft SQL Server and away from both Oracle and Ingres. We will also reduce the use of smaller database technologies such as Access.

In the longer term, we want to move away from housing and supporting our own infrastructure. For instance, the development of better mobile communications standards may mean that we will be able to move away from providing our own wireless infrastructure in a few years. We will maintain an awareness of developments in the market to ensure we take advantages of these opportunities when they are viable.

In moving systems to externally-hosted data centres and the Cloud we can simplify our physical infrastructure, ultimately reaching the point of no longer needing our own data centres. This will reduce our overhead costs and simplify the task of providing the ICT service. We need to start designing for this future with our current systems in order to prepare for the changes to come.

## 8.2 Technology Areas

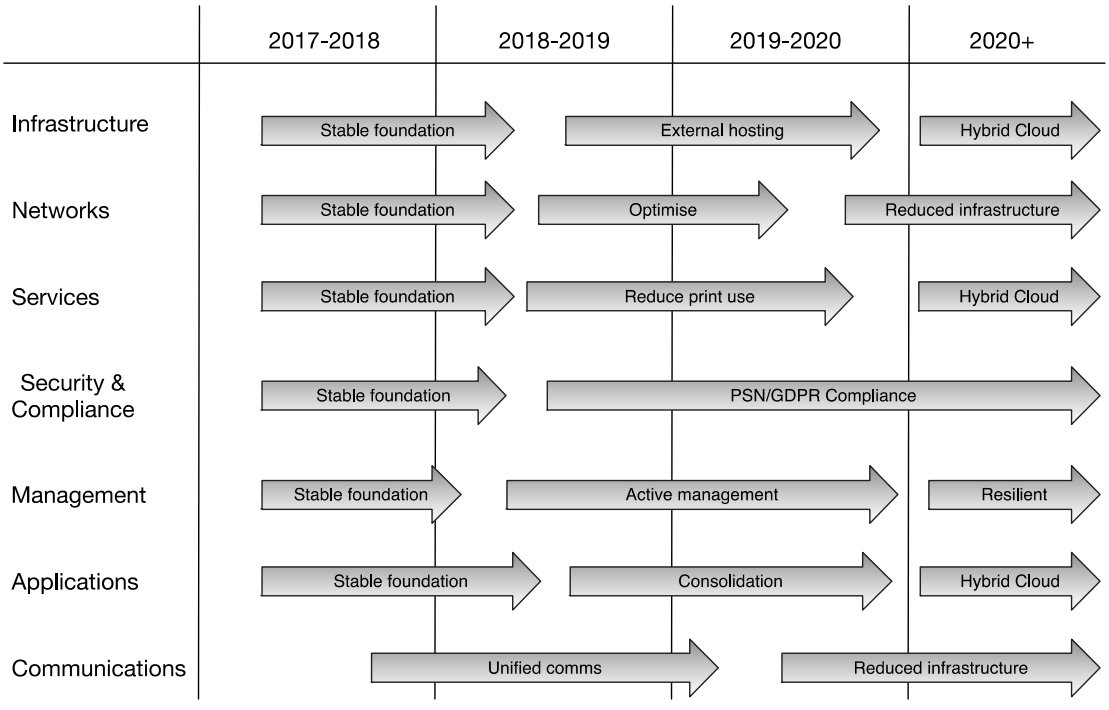
Technology areas currently under consideration include the following areas. We will need to discuss priorities with the IT Strategy Board, IT Steering Group and service heads:

- Integrating communications technologies including legacy fixed line phone systems, mobile devices, wireless (802.11x) and others (e.g. LoRaWAN) to increase flexibility and support agile working
- Consolidating onto a single Windows version on desktop PCs and laptops by migrating away from Windows 7 and to Windows 10, in order to simplify support, reduce the complexity of licensing and improve security
- Developing guidelines and plans for integrating Cloud storage into our storage strategy and information repositories to ensure greater flexibility
- Consolidation of applications and platforms to reduce diversity and duplication, simplify licensing and increase efficiency
- Improving the security of the corporate networks in order to meet codes of connection (PCI, PSN) and national/international regulatory requirements (GDPR)

- Improving the flexibility and resilience of the WAN by restructuring and implementing virtual networks (VPLS)
- Developing a Configuration Management Database (CMDB) to support the automation of IT maintenance, increasing efficiency and improving performance in ICT
- Increasing the use of self-service capabilities in a number of areas and on a variety of platforms
- Selecting and implementing an alternative to the current AppGate service that will improve agility by providing flexible remote access for all users
- Designing the new VMWare environment in a way that will allow us to migrate the hardware to an offsite hosted facility (and, eventually, to the Cloud) in order to rationalise use of space and increase flexibility
- Investigating the use of Business Intelligence tools to extract more useful information from Council systems and to improve decision-making
- Improving network resilience to reduce the need for manual intervention during temporary changes in network connectivity.
- Development of a catalogue of standards to improve the consistency of procurement and to reduce the costs associated with non-standard solutions (including ITIL, PRINCE2, TOGAF etc.) This will include the development of policies, such as requiring that all applications be no more than 1 version behind the current version. Adherence to the standards will reduce the risk of security vulnerabilities associated with using obsolete software.

## 8.3 Roadmap/Blueprint

The following diagram shows the high-level roadmap for the development of IT within the ICT shared service over the period 2017 to 2021. This is subject to change, and a revised version may be available from ICT.




A more detailed version of this roadmap is included in Appendix 2 to this document.

# 9. Finance and Resources

This section describes the high-level budget available to ICT and how it is applied. IT budgets cover a spectrum of resource allocation from day-to-day expenditure that is necessary to keep everything running, to strategic expenditure that has no immediate benefit to the organisation but is required to prepare for changes that may be a number of years in the future.

## 9.1 Financial Resources

The ICT service is financially supported by both WBC and TRDC in a proportion of 60% from WBC and 40% from TRDC. This allocation of costs between the two councils reflects the original utilisation of resources at the time of establishment of the shared service; however, resource changes at Watford mean that the two councils are now more equivalent in size, although there has been no change in cost allocation.

Approximate budget for 2017/18 from both councils is:

| Type | Area | Watford / £,000 | Three Rivers / £,000 | Shared Service / £,000 |
|---|---|---|---|---|
| Capital | Hardware replacement (to 2020/21) | 200 | 45 | 45 |
| | Project Management | 120 | 45 | - |
| | Business Application Upgrades (to 2020/21) | 120 | 45 | - |
| | Licences | - | 100 | - |
| Revenue | Estimated operating budget | 126 | 300 | 1,300 |

Table 1: 2017/18 ICT budgets

The following initiatives will help to support the efficient use of financial and other resources:

- Monitor asset lifecycle
- Monitor expenditure, Total Cost of Ownership (TCO), Return on Investment (RoI)
- Separate infrastructure spend ('keeping the lights on') from strategic items
- Prioritise resource allocation

## 9.2 Other Resources

At present, due to the service's history of outsourcing, and in order to support both the current restructuring and the Core Infrastructure Transformation Programme, the service is provided by a mixture of permanent staff and contractors. Although the contractors are very skilled, they tend to be expensive and there is a retention risk. In order to reduce costs and increase stability, we will move to a model in which we predominantly permanent staff supplemented by contractors for specific purposes. The restructure to deliver this resourcing model is planned for delivery within 2017/18.

The structure and skills of the ICT service will need to evolve through the life of the delivery of the IT strategy, and provision to ensure that this is incorporated and considered will be included within our plans. As identified above we aim to reduce the total ownership burden associated with implementation and support of the ICT systems; however there are a number of initiatives that will

need to be introduced, building on the foundations of a simple and supportable infrastructure, in order for this to be delivered.

# 10. Governance

This section describes how ICT works and how you can work with us to ensure that this strategy remains relevant. It also explains how to contact us in case you need to provide feedback on the strategy.

## 10.1 Strategy Governance

The 2017 exercise to develop the IT strategy found that a number of the services were asking for greater involvement in the governance process, principally the IT Steering Group. In future, the ICT service will:

- Encourage greater service participation and attendance at Steering Group meetings to ensure that everyone is aware of what is happening with ICT, and to cascade the information throughout their area of the organisation
- Institute a separate member-led IT Strategy Board to ensure that the services can also participate in the development of the longer-term strategy. This will include understanding the business needs of each service over the next 3-5 years and how these needs can be supported by the ICT service
- Update this strategy document annually, based on the requirements from each service
- Carry out a major revision of the IT strategy at least every three years to allow for any changes in the services, their strategies and in the technology landscape.

If this strategy is to be a useful document, rather than one that is left in a drawer, it needs to continue to remain relevant to the councils and the services. If the strategy no longer meets your need for IT support, you should come and talk to us.

### 10.1.1 ICT Strategy Board

The ICT Strategy Board will meet bi-annually to provide strategic oversight over the delivery and evolution of the ICT Strategy. This Board will have the following membership:

- Lead Member for Resources and Shared Services – Three Rivers District Council
- Portfolio Holder for Resources and Customer Service – Watford Borough Council
- Managing Director - Watford Borough Council
- Shared Director of Finance
- Director Community and Environmental Services – Three Rivers District Council
- Head of Service Transformation - Watford Borough Council
- ICT Section Head

Terms of Reference for this Board are:

1. Review progress in delivering the ICT Strategy
2. Make recommendations on updates to the ICT Strategy
3. Assess best practice and the changing technological world and how this should feed into future strategy

4. Assess and make recommendations on the level of resource required over the medium term to deliver the ICT Strategy

#### 10.1.2 IT Steering Group

The IT Steering Group is responsible for agreeing priorities in relation to ICT related projects, ensuring that corporate objectives are considered. Additionally they have responsibility for approving IT policy. The Board meet monthly with the following membership:

- Shared Director of Finance
- Director Community and Environmental Services – Three Rivers District Council
- Deputy Managing Director – Watford Borough Council
- Head of Community and Environment – Watford Borough Council
- Head of Service Transformation - Watford Borough Council
- ICT Section Head

Terms of Reference for this Board are:

1. To fully evaluate all requests for ICT projects and consider their impact on the current IT priorities, IT systems and operations and agree a timeframe/priority for resource allocation and implementation subject to the required funding being available.
2. Monitor progress of all IT related projects
3. Review and approve Corporate ICT policies and procedures
4. Support initiatives to improve Information Security standards and related compliance including PSN
5. Review Information Security incidents
6. Monitor and evaluate IT risks, including business continuity and disaster recovery provision

### 10.2 Operational Governance

The Shared ICT Service is managed by Watford Borough Council as the Lead Authority and is managed by the Head of Service Transformation.

The Service is ultimately governed from an officer perspective by the Joint Management Board and reports monthly to the Shared Services Operational Board (SSOB).

### 10.3 Engaging with ICT

If you need to work with ICT to support the development of Council services over the next three years, then you need to let ICT know what your needs are as early as possible. This strategy, and the technical architecture that underpins it, assume that the basic systems will remain unchanged for at least three years.

Going forward ICT will seek to have a stronger relationship with council services to be aware of their direction of travel and how IT needs to evolve to support their business objectives. We will support you in taking new requirements to the Steering Group and development of the required business case.

## Appendix 1. Watford Transformation Programme Vision

Watford in 2020 will be a customer-focussed, digitally-enabled, commercially-minded council.

- Our high-performing services will provide an excellent customer experience and will be designed from the customer's perspective.
- Our services will be digital by design, exploiting opportunities provided by existing and emerging technology to deliver significant efficiencies.
- We will be innovative, bold and entrepreneurial in continually challenging ourselves to reduce costs, generate income and improve performance.

# Appendix 2. Roadmap

| Infrastructure | | | |
|---|---|---|---|
| **Area** | **Short-term (2017-18)** | **Medium (2018 - end 2019)** | **Long (2020 and beyond)** |
| Data centres (Server rooms) | Refresh TRDC server room<br>Replace racks<br>Service/replace UPSs | Remove unused legacy equipment (e.g. old 10Base5 cabling). Run down server room and move off-site to hosted/colo option | Run down use of server room(s) (and consolidate onto one/none, using hosted external site). Prepare to move hosted servers to Cloud |
| Server h/w | Replace outdated servers with new equipment.<br>Decommission old servers | Replenish only with VMs or Cloud-based servers. Start moving h/w out to a hosted solution | Only replace systems with virtual/Cloud-based alternatives. |
| Server OS | Upgrade all unsupported servers from windows 2000/2003 to supported versions (2008/2012) | Consolidate on single solution (preferably Windows Server 2012 or 2016).<br>Commence preparatory work and investigation with vendors, ready for migration off Windows Server 2008 by Q3 of 19/20. (Windows Server 2008 not supported from end-2019). | Monitor marketplace and upgrade/migrate as necessary |
| Storage | Replace existing NetApp SAN with new Nimble SAN | Investigate hybrid Cloud-based storage. Move SAN to hosted solution | Majority of storage offsite |
| Backup devices/Tape library | Upgrade backup to supported/licenced versions and move backup infrastructure to ComVault | Investigate hybrid Cloud-based backup. Move tape library to hosted solution | Cloud-based storage with Cloud-based backup from separate vendor |
| Virtualisation & Cloud | Create new virtual infrastructure using VMWare and migrate existing VMWare ESX VMs | Create hybrid virtual infrastructure with hosted/Cloud-based servers | Migrate majority of servers to Cloud-based, keeping only high-security systems on-site |

| Infrastructure | | | |
|---|---|---|---|
| **Area** | **Short-term (2017-18)** | **Medium (2018 - end 2019)** | **Long (2020 and beyond)** |
| Desktops & User devices | Upgrade all unsupported desktops (e.g. Windows XP) to supported versions (mix of Windows 7 and Windows 10) | Standardise desktop builds. Consolidate all desktops on a single Windows version where possible (preferably Windows 10).<br>Commence preparatory work and investigation with vendors, ready for migration off Windows 7 by Q3 of 19/20. (Windows 7 not supported from end-2019).<br>Upgrade user desktop hardware | Upgrade desktops to current (or current -1) version.<br>Reduce dependency on desktop-based solutions where possible, replacing with tablet etc. |

| Networks | | | |
|---|---|---|---|
| **Area** | **Short-term (2017-18)** | **Medium (2018 - end 2019)** | **Long (2020 and beyond)** |
| LAN | Replace old Cisco switches with supported versions | Monitor network capacity, upgrade as necessary | Monitor network capacity, upgrade as necessary |
| WAN/Internet | Improve resilience/remove single points of failure | Explore options for virtual networks<br>Monitor network capacity, upgrade as necessary to support h/w hosted offsite | Monitor network capacity, upgrade as necessary |
| Wireless networks | Replace old wireless routers | Investigate private wireless networks with dynamic handover over 4G. | Move towards increased use of 4G/5G, deprecating 802.11 (wi-fi) infrastructure |
| Directory services | Design new AD schema | Implement new Active Directory schema<br>Migrate from AD 2003 to 2012 | On-going optimisation |

| Services | | | |
|---|---|---|---|
| **Area** | **Short-term (2017-18)** | **Medium (2018 - end 2019)** | **Long (2020 and beyond)** |
| DR | Ensure storage is mirrored between sites<br>Agree DR contract for equipment replacement<br>Agree mutual use of Council offices in case of DR<br>Agree formal DR plan<br>Carry out DR exercise | Ensure failover of HA VMs between sites on a fully dynamic basis<br>Regular DR exercises<br>Consider DR to offsite hosted/colocation | Extend DR to Cloud services.<br>Regular DR exercises |
| Remote working | Replace existing AppGate service with CISCO AnyConnect | Majority of employees supported on (and using) remote solution | Dynamic service (everyone works remotely) |
| Printing | Consolidate on MFDs, remove remaining individual printers | Deprecate printing, reduce need for hard copy | Remove last printers? |

| Security & Compliance | | | |
|---|---|---|---|
| **Area** | **Short-term (2017-18)** | **Medium (2018 - end 2019)** | **Long (2020 and beyond)** |
| Device encryption | Migrate onto standard desktop encryption product (Eset)<br>Select mobile encryption strategy | All mobile devices using standard encryption, monitor using Mobile Device Management | Migrate to next encryption standard when necessary |
| Malware protection | Upgrade Eset to current versions | Monitor marketplace and upgrade/migrate as necessary | Monitor marketplace and upgrade/migrate as necessary |
| Filtering email/web | Upgrade solution – WebSense currently in use. We have a 3 year purchase on this – to 2019. | Consider moving to Cloud-based filtering solution | Monitor marketplace and upgrade/migrate as necessary |
| Firewall | Replace firewall | Migrate to next generation firewall<br>Explore new security options such as virtual networks | Re-configure security according to current standards |
| PSN connectivity | Ensure ability to meet PSN Code of Connection | Fully PSN compliant | Monitor changes to requirements and meet |
| GDPR | Support the business to work to meet GDPR standard<br>Identify DPO<br>Document lawful processing basis for data<br>Amend business processes<br>Identify individual's rights requirements (e.g. RTBF data removal)<br>Identify any data relating to minors<br>Define strategy for e.g. cleansing backups | Compliant with GDPR at go live<br>Update processes as law evolves | Fully compliant<br>Monitor changes and update processes/solutions as necessary |

| Management | | | |
|---|---|---|---|
| **Area** | **Short-term (2017-18)** | **Medium (2018 - end 2019)** | **Long (2020 and beyond)** |
| Patching and provisioning | Implement patching for all servers via remote tools | Implement centralised configuration management database<br>Automated provisioning? | Automated self-patching/self-healing configuration? |
| Monitoring | Implement additional monitoring | Live dashboard monitoring all servers, VMs and Cloud infrastructure resources | Automated monitoring including applications |
| Service Desk | | Implement self-service solution with user access to service desk | Optimise self-service |
| KPIs | Develop automated KPI measurement | Monitor performance and revise as necessary | Monitor performance and revise as necessary |

| Applications | | | |
|---|---|---|---|
| **Area** | **Short-term (2017-18)** | **Medium (2018 - end 2019)** | **Long (2020 and beyond)** |
| General | Review application portfolio and develop plan to reduce duplication<br>Upgrade all Line of Business Applications to supported versions | Remove unnecessary applications, replacing with generic solutions | Minimal applications portfolio. Majority of users on hosted/SaaS solutions |
| Productivity | Upgrade to current versions and ensure correctly licenced | Hybrid model with some users on Office 365, others on conventional Office | All users on Cloud-based Office |
| Exchange | Migrate from Exchange 2007 to supported version of Exchange (2013)<br>Implement resilient configuration | Commence migration to Office365 version | Cloud-based email |
| CRM/Customer Support | Replace legacy Lagan CRM<br>Replace legacy Proactive CRM | Develop digital by design business processes<br>Integrate new CRM with other systems | Automate CRM business processes to reduce human element |
| Line of Business | Optimise use of IDOX and add additional capabilites<br>Upgrade all Line of Business Applications to supported versions | Optimise use of IDOX and add additional capabilities<br>On-going maintenance plan in place to ensure that applications remain within supported versions | Migration to Cloud-based alternatives |
| Other: Business applications already agreed to be replaced *subject to change | Local Plan Consultation Software | Dependent on service planning | Dependent on service planning |
| Databases | Upgrade SQLServer 2003 to SQLServer 2008<br>Analyse use of databases and document | Consolidate on (preferably) MS SQL Server<br>Remove other databases where feasible | Master database shared by majority of applications |

| Communications | | | |
|---|---|---|---|
| **Area** | **Short-term (2017-18)** | **Medium (2018 - end 2019)** | **Long (2020 and beyond)** |
| PABX + Lucent handsets | Gather business requirements and tender for telephony solution | Replace with unified comms + VOIP handsets/headsets? | Entirely mobile, virtual PABX. Deprecate and remove handsets |
| Unified Comms | Select Unified Comms solution | Implement Unified Communications solution with presence monitoring | Converge on integrated mobile solution |
| Mobile | NA | Migrate to 4G/mixed handover environment | Everyone on mobile for everything. Dynamic wireless access – devices "just work" |

| Other | | | |
|---|---|---|---|
| **Area** | **Short-term (2017-18)** | **Medium (2018 - end 2019)** | **Long (2020 and beyond)** |
| IoT | Basic LoRoWAN setup at WBC. Develop applications | Extend IoT penetration<br>Monitor devices using standard dashboard | Extensive population of devices with automated management |
| Digitisation | Implement electronic document and records management<br>Scan records (TRDC)<br>Implement file storage schema | Develop metadata schemas and automate file storage<br>Implement data governance | All file storage/retrieval/life-cycle events automated |

## Appendix 3. Performance Indicators

In order to determine our progress towards delivering our objectives, we will measure our performance using the following indicators:

| Objective | Measure |
|---|---|
| To provide a stable and resilient environment to support Council services | Measured by a reduction in the number of incidents and hours lost as a result of incidents |
| To provide a secure environment, compliant with all legal information requirements | Measured by continued compliance with the PSN Code of Connection, PCI connection and GDPR compliance |
| To support the councils by reducing the costs of providing services and delivering them in ways that customers want to receive them | Measured by (i) a reduction in the IT costs associated with service delivery, and (ii) increased satisfaction |
| To increase collaboration, between Councils and between employees | Measured by increasing volume of traffic used by collaboration tools |
| To enable Council employees to work in a flexible and agile fashion | Measured by (i) an increase in the number of service employees able to work remotely, and (ii) an increase in the usage of flexible processes |
| To support the aspirations of the users to provide a high-performing service | Measured by a general improvement in service performance indicators |
| To reduce the total ownership burden associated with implementation and support of the IT systems | Measured by a reduction in IT support costs and TCO |

## Appendix 4. Objectives of the IT Strategy

The following statement lists the original requirement for this IT strategy as defined by the Managing Director of Watford Borough Council.

The ICT Strategy will:

- Set out the background to the council's ICT service and the journey it has been on
- Describe the corporate and transformational ambitions of the councils, the gap in ICT provision and how ICT will enable the ambitions to be delivered
- Identify the key objectives of the ICT service and how they will be delivered. This will include (but not be limited to) setting out how:
    - The ICT team will take a 'business partnering' approach to delivering the service.
    - Electronic self-service will be provided to our customers (fully integrated self service provided towards external and internal customers).
    - The ICT Service will enable smarter and more efficient ways of working across the councils e.g. use of mobile technology to support flexible working, secure Wi-Fi, document management / collaboration, which systems should be in the cloud etc.).
    - The ICT Service will provide a Fit for purpose, robust and reliable infrastructure (including infrastructure to deliver councils ambitions, telephony / unified communications, Bring Your Own Device).

    - Information will be managed securely (ensuring issues relating to PSN are addressed)
    - The ICT Team will deliver a best practice service
- Applications will be consolidated and rationalised (as well as identifying opportunities this will also identify expected financial savings)
- Set out investment cycles for hardware and applications (i.e. identifying when they need to be replaced / upgraded, annual funding requirements for future years)
- Set out ICT workforce and budget requirements
- Identify costs for delivering the ICT Strategy and significant financial savings that will be made through its delivery
- Provide a road map / action plan to deliver the ICT strategy. This will include timings and expected costs.

# Glossary

| | |
|---|---|
| AD | Active Directory |
| API | Application Programming Interface |
| BC | Business Continuity |
| BI | Business Intelligence |
| CMDB | Configuration Management Database |
| CRM | Customer Relationship Management |
| DDA | Disability Discrimination Act |
| DPO | Data Privacy Officer |
| DR | Disaster Recovery |
| EDRM | Electronic Document and Records Management |
| EU | European Union |
| GDPR | General Data Protection Regulations |
| HA | High Availability |
| HR | Human Resources (department) |
| ICO | Information Commissioner's Office |
| ICT | Information and Communications Technology |
| IoT | Internet of Things |
| IP | Internet Protocol |
| IT | Information Technology |
| ITIL | IT Infrastructure Library |
| ITSG | IT Steering Group |
| KPI | Key Performance Indicator |
| LAN | Local Area Network |
| LoB | Line of Business |
| LoRaWAN | (a brand of LPWAN) |
| LPWAN | Low Power WAN |
| MFD | Multi-Function Device |
| PABX | Private Automatic Branch eXchange |
| PCI DSS | Payment Card Industry Data Security Standard |
| PSN | Public Service Network |
| RoI | Return on Investment |
| RTBF | Right To Be Forgotten |
| SAN | Storage Area Network |
| TCO | Total Cost of Ownership |
| TOGAF | The Open Group Architecture Framework |
| TRDC | Three Rivers District Council |

| | |
|---|---|
| UPS | Uninterruptible Power Supply |
| VOIP | Voice Over IP |
| VM | Virtual Machine |
| VPLS | Virtual Private LAN Service |
| WAN | Wide Area Network |
| WBC | Watford Borough Council |

## References

1. ICT Plan 2017
2. Transformation Programme – Programme Definition Document
3. Watford Borough Council Corporate Plan 2016-2020 (https://www.watford.gov.uk/downloads/download/39/watford_borough_council-_corporate_plan_2016-2020)