



ICT Strategy

2019 to 2025

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1. Introduction

This ICT strategy, covering the period 2019 to 2025, provides the Council with an ICT Strategy, based on the current thinking of the Council's priorities and the likely challenges facing the service over the next three years.

Section 2 addresses the external drivers that affect the Council's approach to and use of ICT.

Section 3 lays out the four key themes that have been identified.

- Channel Shift – Customer Services
- New ways of working
- Value for money
- High availability and High Performance

The purpose of this strategy is to provide direction and guidance for the delivery of ICT for the period stated whilst accepting it is a living document that will need to be managed and changed over its life. It supports the Council's Vision 2025 and One Council agenda.

Section 4 – Discusses the Council's line of business applications and how collectively these need to be managed going forward.

Section 5 – the Business Change Strategy outlines to processes for supporting good governance if this strategy

Section 6 – Sets out the Technical Strategy with a number of technological development initiatives, which are required to ensure the integrity, resilience and reliability of the Council's ICT infrastructure.

Section 7 – Describes the ICT Service budgets and management arrangements, and how the ICT service will be resourced to deliver this strategy over the coming period.

Section 8 – describes the process that will be undertaken to ensure the ICT Service has appropriate staffing resources.

2. Drivers

2.1 UK Government

ICT has a major role to play, in public and private sectors alike, in driving down costs, increasing productivity and improving customer service. Many councils have already invested in digital transformation as one way to enable councils to meet the Government's stringent spending targets. It is vital that the Council sees ICT as an enabler to improve customer service and deliver greater efficiencies.

Central Government is looking to achieve its target of 90% of people being online by 2020. The voluntary sector, businesses and statutory organisations are working hard to meet or exceed this target.

Source:

www.gov.uk/government/publications/government-digital-inclusion-strategy/government-digital-inclusion-strategy

2.2 Digital Culture

Digital Culture will determine the organisation's ability to change to meet emerging requirements. Capgemini has developed a model '7 Dimensions of Digital Culture' for transforming to meet the requirements of a modern business. These are:

- 1) Customer Centricity – aligning to customer need
- 2) Innovation – the exploration of new ideas
- 3) Data-driven Decision Making – making evidence-based decisions
- 4) Collaboration – cross-team working between staff
- 5) Open Culture – working with external partners and networks
- 6) Digital First Mindset – 'Digital by default'
- 7) Agility and Flexibility – speed of decision making to meet changing demands

The culture of the organisation will need to adapt to these new models and they are reflected in pragmatic ways throughout this strategy.

2.3 Customers' Demands

Looking forward, there is little doubt that the pace of change is increasing, with more of our customers using smart phones and tablets, and expecting to interact with us online and digitally, much like they do with their bank, supermarket and other suppliers. Our staff already have some of the tools to work flexibly, from home, from different offices and some whilst on-the-road, but more needs to be done.

Whilst this clearly creates challenges, some technological, others cultural, the rewards can be very significant. No longer will staff need to first visit the office to collect a file before meeting with a customer out in the field. Information can also be captured at source, either by a member of the public entering their request on-line, or a member of staff entering this for them, via a mobile device.

Similarly, we need to recognise and respond to the needs of specific services on the use of mobile devices. ICT will need to be responsive to local demands, whilst providing the

underpinning connectivity and security to ensure that officers can do their job and customer data is not compromised.

2.4 Channel Shift

Channel shift is a key way of both reducing costs and improving the service to our customers, whilst not forcing away those customers who still need to use traditional channels such as telephone or in person visits. CoLC has a Customer Experience Strategy that clearly recognises the need to 'shift' but also accepts this will need to be achieved through 'nudge' methods for it to gain wider acceptance as a strategic approach. It must be recognised that the greatest level of channel shift will be through offering better, simplified and more integrated digital solutions, including 'tell us once' services, rather than just targeting cost reductions.

In order to gain the benefits of customer self-service, strong leadership will be required and culture development within the organisation will mean that services need to be fully-engaged in transferring customer interactions to more cost-effective channels. This will require educating staff (internal customers) on the benefits of online services and promotion of online services to customers.

More channels and services will be added over the lifetime of this strategy, and we will work together with partner authorities to join up service delivery to enhance the customer experience.

As CoLC has already started to see, offering online services can produce considerable benefits for both the Council and for customers. Customers are able to receive a service 24 hours a day, 7 days a week, all-year round in a way that suits their requirements.

2.5 Scalability and Resilience

Clearly, however, this increased demand and reliance on ICT requires our systems to be highly-available. Similarly, and as mentioned, there is a need for our systems to handle much greater peaks and troughs. Whilst a Council Tax billing run may create a significant demand on the phone system over a week or more, the availability of online services often creates larger peaks with customers 'doing things' right away. These peaks of demand, may, if they impact on the customer's experience, deter take up of online services, or even create periods of time when customers are unable to use the online systems. Such outages are often known to then trigger an unmanageable in-flux of calls, enquiring, or worse complaining, about the issues the customer faces. As councils increasingly adjust their resources downwards, and as customers increasing transact online, such outages could overwhelm the resources remaining to handle calls and visitors. ICT therefore needs to provide a highly performant and reliable operation with excellent resilience and disaster recovery capabilities.

In summary, ICT increasingly underpins the entire process of delivering all of the Council's services, and fully supports the objectives contained within the other strategies and plans produced by the Councils.

3. Corporate ICT Key Themes

Vision 2020 sets out what the City Council wants to achieve for Lincoln and how we are going to achieve it.

The strategic priorities that support this vision are:

- Let's drive economic growth
- Let's reduce inequality
- Let's deliver quality housing
- Let's enhance our remarkable place

These are underpinned by a commitment to professional, high performing service delivery and supported by three core values:

- Let's be approachable
- Let's be innovative
- Let's be trusted to deliver

The emerging Vision 2025 and One Council agenda will increase demands on ICT Service provision particularly through the 'Technology' and 'Creating Value Processes' workstreams. In addition the ICT Strategy seeks to complement and support other council strategies e.g. Medium Term Financial Strategy, Asset/Accommodation Strategy, Customer Experience Strategy.

For ICT, there are a number of important areas where ICT can contribute to the achievement of the vision. For example, as we have seen over the last 10 to 20 years, both in our professional and private lives, ICT can transform both the way that we do things and the services that we receive and can deliver. There is little doubt that new advances will bring about further change which the Council can leverage.

For example, ICT can enable us to:

- Seek to shift customer interactions to electronic non-assisted; embracing new technology.
- Review the way we work; making efficiency savings where possible.
- Deliver an excellent and consistent customer service through multiple channels.
- Provide greater access and seek higher levels of customer satisfaction through channel shift: it not only provides good VFM, it meets the need of our residents.
- Redesign and modernise our services, providing an opportunity to not only improve customers experiences but also to maximise efficiencies and continue to make the Council fit for purpose well into the future.
- Create a workforce that is flexible and adaptable; able to work as equally well as they do in the office out in the field, at home etc.
- Drive down operating costs.
- Progress channel shift to change the way people interact with our services.
- Improve customer experiences – redesigning and modernising services.
- Generating new income streams by up-selling and cross-selling

- Continue working towards a fit for purpose organisation with lean working practices embracing new ways of working (agile) to release space and reduce costs and new ways of delivering services.
- Enhance employee experience, helping to recruit and retain staff

Taking this mandate, in the remainder of this section, four key themes of the new ICT Strategy are set out - both their importance and what this means to the Council and the ICT Service. Many of these themes are interdependent, with advances in one theme benefiting other themes.

3.1 Channel Shift – Customer Services

Our residents, businesses and visitors are increasingly dealing with other organisations, e.g. banks, supermarkets, clothing stores, that not so long ago saw town centre shops or more recently the call centre as the optimal way of dealing with customers.

Looking forward, beyond simply providing the mundane - a basic, secure and credible online service, the lack of a single view of our customer (and their lack of a single view of the council) limits our ability to exploit commercial opportunities, e.g. up-selling or cross-selling them services which they might welcome – extra garden waste bins etc. A self-service portal, which allows customers to engage with us quickly and easily, but then builds over time, as we present them with pertinent opportunities and they increasingly tell us more about their needs, is a win-win for the Council and its customers – business, residential and visitors to the City.

The business case for channel shift, in itself, is very compelling. As the table below shows, the cost of servicing a customer electronically, via the web-site, is a small fraction of that of seeing them face to face, or cost of them calling in. Up-selling and cross-selling will further bolster this business case, allowing the Council to generate more income (and profit – surplus) from the opportunities taken up by our customers.

Channel	Cost per 'visit' (average of Deloitte & Socitm research)
Face to face	£11.44
Telephone	£2.30
Website	32p

3.2 New ways of working

The vision of New Ways of Working (NWoW) is about the use of mobility in its wider sense. Staff beeing freed up from working at a single fixed workstation and phone (fixed handset), and able to:

- Work away from their desk, within or away from the office, including the use of Wi-Fi or 4G and 5G, as coverage increases, to use the same systems and services that they enjoy at their desk.

- Work at home, on a corporate laptop, and access all the same systems and services in an efficient and effective way.

Clearly, there are a number of things that need to be improved before this vision becomes a total reality for all staff. These include:

- Technology improvements, e.g. honing of the Remote Access service.
- Information to become electronic where it is not currently (paper-based documents being held in an electronic form).
- Improved Wi-Fi and 4G/5G coverage throughout the district coupled to mobile modules and devices being deployed for line of business applications.
- Wider deployment of line of business application's mobile modules, e.g. Housing and Building Control, potentially supporting on/off line working and the introduction of specific devices for these.

3.3 Budgets and Investment

Looked at in isolation ICT can often be seen as 'a money pit', which sometimes does not deliver the benefits which it sets out to achieve; this perception needs to change, with targeted investments only being made where a good return on investment can be demonstrated.

Improved cost control and the right-placing of budgets, e.g. taking away the ability of services to demand new desktop equipment will be introduced during 2019; this coupled to improvements in the project management overall will ensure that only projects demonstrating a good return on investment will be taken to CMT. Also, the review of corporate (non-Core ICT) services, both within the current ICT structure and out in the business, will be undertaken. This will result in CoLC being able to gauge the true cost of ICT and ensure that the capital budget is being used to maximum benefit for the Council.

3.4 High availability and High Performance

As mentioned, with the need for around the clock (24 x 365) access comes the need for high availability. Gone are the days where backups and batch processing, making system unavailable for long periods of time, can be undertaken during the evening or weekends, customers are now demanding access to information and services at the times convenient to them. Given, as we have stated, that this may be out of hours when the Council is not normally contactable, then evenings and weekends become critical times.

High availability also means that that during challenging times, e.g. power cuts, local weather situations, etc., self-service capabilities can be maintained; proper Disaster Recovery (DR) facilities are also in place.

4. Applications Strategy

4.1 Overall Context

With the increasing pressures on local government – both financial and customers' demands for self-service - it is important that CoLC adopts flexible, innovative and cost-effective methods for delivering application services, which can adapt to the shape of the new organisation demanded by Vision 2020 and the emerging channel shift programme. This is likely to mean a greater emphasis on buying Software, e.g. Software as a Service (SaaS) solutions where the total cost of ownership makes sense, rather than deploying applications in-house and/or spending time customising systems. ICT will therefore need to work with service managers, exploring and explaining these options and their respective merits, as well as highlighting opportunities for new ways of working and enabling the general public to access more services online and through mobile devices.

The key objectives for the application strategy are:

- Having the ability to deliver applications in a cost-effective manner, that are relevant to the business requirements of the Council and that are fit for purpose. Sometimes, it will be ICT's role to challenge requests for functionality, which does not make good business sense.
- There will always be a compromise between minimising the number of different software suppliers and purchasing best in breed when required e.g. where licensing arrangements are beneficial or where there is a reduction in the need for interfaces and double-keying by services.
- Ensuring through future procurements that agreements are made which support joint working, where this makes sense for CoLC, with other Lincolnshire authorities (and beyond). Also, which enable CoLC to provide services to any commercial off-shoots.
- Highlighting and exploiting opportunities which would enable greater mobility and flexible working for staff; something that can still sometimes present challenges for staff. Also, which enhance Internet and mobile self-service applications to allow ease of use and flexibility to all CoLC customers.

To achieve these objectives will involve:

- Undertaking a full review of the application software estate over the life of this document
- Exploring the potential for enterprise applications, where this makes sense, to reduce the number of software suppliers. It should be noted enterprise applications are not always best of breed.
- Training and developing ICT staff so they have the correct skills and competencies to support and utilise the technologies deployed by the Council, e.g. Cloud.
- Commence a planned and regular exercise (twice yearly) of consulting with both Service leads (e.g. account management meetings) and end users (e.g. surveys).
- Using appropriate industry standard methodologies (such as ITIL, PRINCE 2 and RAD) to deliver services and manage projects. Publishing timescales, tying down scope and delivering on-time and within budget.
- Promote and market the skills of the ICT team; ensuring that the value of the project work is reflected in services' business cases.

- Continue to work closely with the Customer Services team to enable the delivery of channel shift, through the developing Customer Experience programme of work.

4.2 Cloud Computing / Hosted Services

Cloud and hosted services come in a number of shapes and sizes. From a CoLC perspective, the main option is Software as a Service (SaaS), where the licencing and delivery of application software can be provided as a rented service by a third party over the Internet. Examples of this type of service are iTrent and Modern.Gov, both current CoLC applications, where there is the option from the supplier for a SaaS version; little or no CoLC applications resource are then required to update, maintain or host these products.

CoLC should also remain aware that suppliers are motivated to switch customers to on-going revenue payments versus one-off capital purchase (and smaller revenue support costs), which over a three to five-year period tend to be more expensive. The Microsoft Cloud being an example of this where Azure hosted services and the rental of Microsoft software licencing has seen significant increases. The key to a good Cloud strategy is to consider the overall picture as moving services individually and expecting a cost reduction is not viable. Cloud has to be part of a long-term strategy that sees a reduction in staff costs and core infrastructure requirements.

This strategy recognises the need to adopt a hybrid approach in the medium-term as some services have already migrated to SaaS. It also recognises the need, as part of the application review, to provide a long-term strategy and consider the viability of a significant Cloud transition.

4.3 Review of the Application Software Estate (see para 4.1)

As mentioned earlier, in order to achieve the key objectives for the application strategy, there is a need to complete the review of the application software estate. This is also good practise, as working practices and the working environment changes, application suitability will become an issue to the efficient delivery of any service. As such a constant and planned review of applications needs to take place to keep pace with these changes.

The changing environment can include:

- Changes in legislation.
- Changes to the priorities of the Council.
- The requirement to make efficiency savings (shared / joint working between CoLC and other councils etc.).
- A change in the customer-facing delivery of the service (more self-service options and access to services, new technology).
- Additional partners, e.g. commercial off-shoots using ICT services.
- New options in the delivery of applications (hosting, cloud services).
- Support of mobile working.

The review cycle needs to encompass the business requirements, identify gaps or deficiencies in the current software, joint working potential, customer access and self-service requirements. At the same time, it can be used to promote standardisation within ICT, such as a common database type (MS SQL Server) and standard server software (Windows) to optimise support and licencing.

4.4 Review the Delivery of Applications

This section sets out, under each of the sub-headings the detail of the review.

4.4.1 Procurement of any related ICT items

The ICT lead must be informed and approval given before any Service within the authority embarks upon procurement for any ICT items – hardware, software or service. The ICT lead will also, assuming approval is given, state what involvement ICT will need to have. Major changes e.g. Line of Business applications, will need to be agreed by the ICT Steering Group. The centralisation of IT budgets will impact on this. Corporate Leadership Team is the recognised “gateway” for IT procurement.

4.4.2 Single Instances of Corporate Applications

As part of the commitment to improving the cost effectiveness of ICT services, opportunities for common applications (e.g. a share website platform with LCC) between CoLC and across councils in Lincolnshire should be reviewed, looking at the best delivery model. There are potentially corporate applications which are the same across councils in Lincolnshire which currently use separate infrastructure. The advantages of using single instances of an application are:

- Cost savings on software licences.
- Reduction in hardware (servers etc.).
- Simplified upgrade process.

However, from the business prospective, there may be a need to:

- Align business processes between councils (standard workflow within the application).
- Allow for less flexibility (upgrading and maintenance are done at the same time).
- Consider the potential for a more problematic separation if there is a change in business requirements.

The overall total cost of ownership and return on investment will need to be considered against these points.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Applications Review	<ul style="list-style-type: none"> • Review each application, and establish a roadmap for consolidation, retirement / replacement. • Produce definitive list of interfaces and integrations 	<ul style="list-style-type: none"> • Implement roadmap for application consolidation. • Review market offerings for applications, dependent on outcome of review 	<ul style="list-style-type: none"> • Continue consolidation work of LOB applications • Extend roadmap for additional applications • Review applications that have previously been consolidated

4.4.3 Cloud Computing / Hosted Services

It is inevitable that CoLC will continue to adopt a hybrid Cloud strategy as individual business cases may lead to SaaS / Cloud as the favoured option; some suppliers are increasingly keen to move customers away from on-premise solutions, which are less profitable and more costly for them to support.

It also seems inevitable that, with pressures from all sides, Cloud computing in its various forms is likely to play an increasing role in application delivery and that CoLC needs to be fully aware and able to adapt to such pressures.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Cloud Computing / Hosted Services	<ul style="list-style-type: none"> Fully cost a SaaS roadmap and agree if it is viable. Assess the suitability of SaaS delivery on an application by application basis. 	<ul style="list-style-type: none"> Ensure that the application roadmap includes a 5-year plan that considers the Cloud option. 	<ul style="list-style-type: none"> Cloud based strategy based on business case and deliverability

4.5 Using Enterprise Applications

With the aim of reducing the number of software suppliers, there will be a need to look at enterprise solutions rather than using 'best of breed' applications. The benefits can include potentially lower licencing costs, simplified and efficient integration between applications and lower maintenance and training costs. For the services, staff training is also simplified as you generally have one user interface or presentation layer for the entire enterprise solution. This will also help support the key theme of service integration. However, again this will be looked at on a case-by-case basis as the balancing factor will be the services' requirements.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Using Enterprise Applications	<ul style="list-style-type: none"> Review each application, and establish a roadmap for consolidation, retirement / replacement. Produce definitive list of interfaces and integrations. 	<ul style="list-style-type: none"> Move to Strategic Platforms where this makes good commercial sense. 	<ul style="list-style-type: none"> Implement roadmap and reduce dependency upon standalone platforms / point solutions.

4.6 Databases

At present the Council mainly has MS SQL Server databases, with some Oracle databases:

- Servitor (Stock control for HRS)
- IDOX Uniform (Planning)

Also APP (previously called Flare), a vendor driven data application, uses Sculptor.

Going forward, wherever possible, and due to cost in licensing and support, the Council will seek to migrate to a purely Microsoft SQL Server environment. The exception being where current applications or suppliers dictate otherwise. In future, where possible, CoLC application procurements should stipulate Microsoft SQL as the preferred database.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Databases	<ul style="list-style-type: none"> • Standardise on MS SQL Server for any new applications • MS SQL Server 2008 end of life July 2019 	<ul style="list-style-type: none"> • Identify opportunities for migration to MS SQL Server • A move to more cloud-based solutions may negate the need for database hosting 	<ul style="list-style-type: none"> • Move away from non-MS SQL Server applications (where possible). • MS SQL Server 2012 end of life July 2022

4.7 EDRMS

The approach taken going forward will be to continue to utilise DMS solutions within the main line of business applications, rather than pushing Information@Work (I@W) – the ageing Corporate EDRMS. Similarly, with new procurements there needs to be a requirement to include such functionally. The key reason being that close integration delivers significant productivity gains, e.g. the current move of Creditors documents from I@W to Agresso. Whilst 10 years ago there was a big drive towards having a corporate EDRMS, the synergistic benefits are generally low, and often offset by the lack of such close integration with line of business applications.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2021 and beyond)
EDRMS	<ul style="list-style-type: none"> • Continue to develop and improve the quality of digital data within existing LoB applications • Ensure that duplication is kept to a minimum 	<ul style="list-style-type: none"> • Minimise the costs associated with scanning paper items as very few will exist in the future 	<ul style="list-style-type: none"> • Investigate “single pane of glass” for EDRMS applications

4.8 ICT Staff Training

With the changes in technology and delivery of services, e.g. away from build in-house to buying off-the-shelf packages and Cloud solutions, training and development of staff (e.g. project

management, procurement approaches) with the correct skills and competencies is vital. The ICT team will be developed to provide an improved application support service that will inevitably result in the need for greater investment in the skills of the application specialists. To meet these changes, and the changing support needs of the services, application specialists will need to take control of product roadmaps, supplier management and gain an understanding of contractual arrangements.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2021 and beyond)
ICT Staff Training	<ul style="list-style-type: none"> Identify and undertake training to support new roles and structure Implement performance agreement and personal development plan Develop the support matrix 	<ul style="list-style-type: none"> On-going training appropriate with new demands of service, e.g. customer service, Cyber security, commercialisation 	<ul style="list-style-type: none"> Consider succession planning

4.9 Provide further Self-Service applications for the Customer

The proportion of customers that are comfortable and knowledgeable in using the Internet, on-line services and mobile devices continues to rapidly grow. As such, the opportunity for CoLC to use these channels to provide services on a self-service basis will increase. This will allow staff to focus on the delivery of the Council's services and reduces overheads, compared with telephone or face-to-face services. A knock-on benefit of self-service is also the ability it affords to the Council to gather information about its customers. This intelligence will better inform service delivery and targeted promotion of new services and information to our customers. ICT will continue work with both Customer Services and the departments to enhance their online services.

The Council already provides a range of self-service options for a wide variety of services. However, there are still some gaps in this provision and some services can be further enhanced and promoted to gain maximum benefit for both customers and the Authority.

An important project for ICT over the next year, will be deploying a new website CMS and establishing the need for delivering online services in different ways, for example:

- Customer Portal – allowing customers to sign-on and access information and services (including cross and up-selling) pertinent to their needs.
- Single customer database – to allow us to service our customers better, e.g. by mining the data to identify new needs and commercial opportunities.
- Support for social media – to make the Council more accessible; acknowledging that different people have different channel preferences; some may prefer Facebook, others Twitter or Instagram.
- 'End user' configurable forms and process generation to speed up the time to market for new online services.

Other options could include:

- Buying off-the-shelf pre-defined but customisable district/borough processes could accelerate significantly the whole process of making online service available to customer.
- Support for social media, e.g. Twitter, Facebook, and enabling services for mobile devices – smartphones and tablets.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2021 and beyond)
Take forward the Customer Experience strategy	<ul style="list-style-type: none"> • Set channel shift targets • Define and execute programme of work • Define needs and as appropriate 	<ul style="list-style-type: none"> • Implement new functionality, for example, single account etc. 	

5. Business Change Strategy

Projects will be authorised by appropriate leads. Larger projects and the programme plan will be approved by CLT/CMT working with ICT. It will be necessary to manage the overall demand and match it to available resources, budget and the ICT team's capability.

5.1 Governance

ICT Projects will be required to adhere to new processes and procedures. The council has adopted a robust project management model (LPMM) all projects no matter their size should be managed using this process. These include:

- The inclusion of projects on high level workplans providing an indication of the 3-year plan for each department. See Appendix A
- The completion of appropriate standard LPMM project documentation and governance for each project.
- The appropriate approval to commence each project on the workplan.

Once in progress the monthly ICT Programme Board (likely to be CLT) will have oversight of projects on a quarterly basis (or as required). The overall workload across the whole CoLC ICT programme needs sense checking at a high level for at least the first six months.

5.2 Composition of the programme

The programme will be developed further in consultation with CLT from four main sources:

1. Support to Vision 2025/One Council objectives
2. Consultation with the Service Managers.
3. Infrastructure plans that are known to the ICT team.
4. Business Process projects identified by the BD team

5.3 Procurement & Contracts

Further governance arrangements will inevitably be required to comply with Procurement, legal and Financial standards. ICT needs to be fully aware of standing orders and challenge the procurement strategy of business-led projects as required.

5.4 Risk Management

CLT as the ICT Governance Board will also oversee management of ICT and Cyber Risks through regular reporting which will be developed as part of the implementation of this strategy.

5.5 Compliance

ICT Services will seek to comply with Government and other guidance on best practice surrounding ICT Security and joining to other public sector networks and services.

6. Technical Strategy

The technology headlines for the next 3 years will be:

- The refresh of the core infrastructure including the building blocks upon which new ways of working and improved performance/resilience can be delivered.
- A new direction for the desktop including the method of desktop delivery and device type to enable a more mobile workforce.
- The integration of telephony with the desktop, probably through the deployment of a new type of telephony solution with desktop integration.
- Managing the move to cloud hosting and working to a long-term plan with goals and objectives.

The infrastructure work plan provided in Appendix A outlines the key projects to be undertaken over the period covered by this strategy document. The delivery of this plan will require significant investment from the ICT Capital Reserve and a review of how CoLC spends both capital and revenue funds on ICT projects.

6.1 Core Infrastructure

As part of the standard hardware refresh cycle, it is necessary to invest in core infrastructure (storage, servers and network) towards the beginning of the period covered by this strategy. The current platform has not aged well; and it reaches its scheduled end of life from a third party maintenance perspective in October 2019. The ambitions of the council will only start to be fulfilled through the deployment of a new set of building blocks upon which new ways of working can be successfully deployed.

6.1.1 Data Centres (Server Rooms)

The Infrastructure Refresh project will see a minor development of the server rooms both at City Hall and Hamilton House with the introduction of new racking, the rearrangement of space within racks and the decommissioning of the current storage/server platform.

During the period of this strategy ICT will aim to develop the server rooms to provide hosting facilities of a higher standard, improving resilience and reducing exposed cabling and work areas within the rooms.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Data Centres (Server Rooms)	<ul style="list-style-type: none"> • Minor layout adjustments driven by the Infrastructure Refresh project 	<ul style="list-style-type: none"> • Improve facilities, increase resilience and reduce exposed cabling / work areas 	<ul style="list-style-type: none"> • Review space requirements, layout, UPS design and produce a long-term plan

6.1.2 Storage

The current NetApp hardware cannot support the 2019 demand for CoLC application hosting. This lack of performance is severely compromising the ability to deliver new services and providing less than optimal performance to ICT customers on existing services.

The refresh project scheduled to deliver a new storage solution in October 2019 will provide sufficient performance to host all services, offer a platform to deploy required services in-line with demand from the business and provide rapid DR facilities in-line with business expectations.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Storage	<ul style="list-style-type: none"> Produce a specification for 5 years plus for data storage and performance Accepting that a Cloud strategy is needed, 2019/20 is not the time to provide an either/or decision – the need to refresh is now Deliver a new SAN and migrate existing servers 	<ul style="list-style-type: none"> Decommission NetApp following completion of migration 	<ul style="list-style-type: none"> Consider the effects of cloud on future storage requirements; what does the 2022-25 demand on local storage look like

6.1.3 Servers & Virtualisation

New compute nodes (servers) with increased memory and processing power will be delivered as part of the Infrastructure Refresh project. This will allow all applications to be hosted on the Storage infrastructure along with satisfying demand for further business requirements. Decommissioning of standalone servers, except where this has been done for licencing purposes (Oracle servers for instance) will simplify support and management.

Server operating systems will continue to need refreshing as Microsoft end of support dates drive this requirement. The next priority is Server 2008 which goes end of life in January 2020. All new servers and upgrade will be deployed at version 2019 where possible with 2016 or 2012 used where applications dictate. It should be made clear though as part of the decision making process that no new system deployment will be accepted at any version less than 2016.

VMware vSphere will remain the strategic server hypervisor for the foreseeable future. A version upgrade to 6.7 will be achievable and is desirable as part of the Infrastructure Refresh. This will leave CoLC well positioned for the duration of this strategy.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Servers & Virtualisation	<ul style="list-style-type: none"> Deploy new server hardware through the Infrastructure Refresh project Remove all Server 2008 before January 2020 VMware remains strategic for the period of this strategy VMware version upgrade to 6.7 Adopt Server 2019 as the strategy server platform 	<ul style="list-style-type: none"> Compute nodes strategic for 5 years 	<ul style="list-style-type: none"> Compute nodes strategic for 5 years Plan the removal of Server 2012 which goes end of life in October 2023

6.1.4 Authentication & Directory Services

The Microsoft Active directory remains the primary means of desktop authentication. This is unlikely to change unless a major move towards Cloud services provides an opportunity to look at Authentication as a Service.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Active Directory Authentication	<ul style="list-style-type: none"> AD remains strategic choice 	<ul style="list-style-type: none"> AD remains strategic choice 	<ul style="list-style-type: none"> Review the long-term requirements for authentication

6.1.5 Disaster Recovery

Over the next 3 years and through the investment in new core infrastructure, DR will be enhanced. The new infrastructure will provide a suitable environment at the secondary site, Hamilton House. This will allow the recovery of SAN hosted applications with minimum data loss, the exact details will need to be agreed with the business and BCP owner. Further work will be required to enable the satisfactory recovery of the telephony system.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Disaster Recovery	<ul style="list-style-type: none"> Understand the business requirement and BCP interface Include the optimal level of DR in the Infrastructure Refresh project specification Ensure DR facilities are included in any ongoing procurement plans 	<ul style="list-style-type: none"> Publish RPO/RTO SLAs to ICT customers Test a recovery to the DR site Write and publish a new ICT technical recovery plan Following the delivery of the SIP project (see telephony) agree requirements, secure funds and deliver DR for telephony 	<ul style="list-style-type: none"> Tactical DR testing and continued reviews of the BCP requirements

6.1.6 Connectivity

A tactical upgrade to the core switch will provide the connectivity required for the Infrastructure Refresh project. The redesign of switching to separate the SAN core fabric from the LAN core switching will resolve this known design issue.

The core switch hardware becomes end of life during 2020 and will need to be replaced, however this project should be delayed until after the migration onto the new storage infrastructure is complete. This will limit the amount of change being attempted at any one time.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Connectivity	<ul style="list-style-type: none"> The core & edge switching becomes end of life in 2020 There is a need to upgrade the core to cater for the new SAN – this is low level tactical spend only The KCOM MPLS remains strategy for the duration of this strategy KCOM inter-site bandwidth needs 	<ul style="list-style-type: none"> Produce a specification and run a procurement process to refresh the core & edge switching Future proof bandwidth with a view to maximising the core throughput and allowing for gigabit connection to the desktop (currently restricted by 	<ul style="list-style-type: none"> Internet bandwidth and resilience becomes critical as more services are moved to external (cloud) providers

	consideration, particularly at Hamilton House	telephone handsets) Identify if there is a need for a dedicated connection for agile / SaaS applications	
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6.1.7 Telephony

The current Atos Unify Openscape telephony solution is in year two of a five year commitment . Although the current solution has proved problematic in delivery and fallen short of expected outcomes it would be a major decision to start the procurement of a replacement now. CoLC are at a crossroads with telephony as further investment would be needed to provide DR for the current solution through the purchase of additional hardware and SIP DDI facilities.

Towards the expiry of the current arrangement alternative hosted solutions will be consider to support mobile working and and reducing overall TCO. Due to resource issues and the number of short to medium term projects on the ICT infrastructure work plan, it is safer to put this project on-hold until closer to the scheduled end of life date for the Openscape services in 2023. As such, short-term investment for improved DR and the delivery of the SIP project, that has a good ROI, should be scheduled for after the Infrastructure Refresh is complete.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Telephony	<ul style="list-style-type: none"> Continue to resolve issues with the Openscape service Look at alternative telephony solutions to support new ways of working 	<ul style="list-style-type: none"> Linked to the above, migrate from ISDN to SIP for DDI traffic Identify suitability of existing phone system to support smart working. Upon successful completion of phases 1 / 2, Upgrade Openscape to provide DR 	<ul style="list-style-type: none"> Plan for the procurement of a replacement telephony solution – specification, RFQ and programme office requirements

6.2 Distributed Infrastructure

For a number of years the strategic desktop has been a RDSH ‘thin’ delivery with a Citrix layer for an improved experience. This has been offered both on thin client hardware and PCs. Recently there has been a shift towards mobile devices, in particular laptops and tablets resulting in difference solutions being required. There is now a demand for mobile devices which have been traditionally funded by the business units who have requested a range of devices

This now presents CoLC with decision about the future of the desktop that will define the possibilities and user experience for the next 5 years.

6.2.1 Desktop Devices

Driven by a business requirement for mobile working and hot-desking, the desktop needs to evolve over the course of this strategy. Laptops with docking stations will be provided in addition to harnessing the benefits of the thin client solution where appropriate for business needs.

A desktop refresh programme, fully funded by capital reserves will address 25% of the estate on an annual basis. ICT will target devices based on age, specification and customer needs to ensure new equipment goes to those who most need it.

ICT Customers will be addressed by agreed criteria and receive the device appropriate to their usage and where they operate from.

The strategy to increase mobility and agile working will also require changes to the office. This will be outside of ICT control and although a standard device and docking station will be agreed, only investment in more open plan office space will maximise the advantages of this new way of working.

ICT will create a new ways of working (NWoW) demonstration area to present the options to ICT customers and gain feedback. This will consist of:

- A standard laptop device set-up
- Soft phone, headset and unified comms
- Docking station including keyboard, monitor and mouse
- A remote access connection over Wi-Fi (Internet) with as much automation of the connection process as possible
- Access to data stores and email via the Cloud

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Desktop Devices	<ul style="list-style-type: none"> • Agree the refresh programme • Set-up NWoW office • Resolve slow logon issues • Select standard device • Test build • Select deployment and update tool 	<ul style="list-style-type: none"> • Refresh 25% of desktop devices (this may be dependant of n the success of the M365 project – see later notes) • Assess the on-going need for Citrix 	<ul style="list-style-type: none"> • Refresh 25% of desktop devices (this may be dependant of n the success of the M365 project – see later notes)

6.2.2 Remote, Flexible and Agile Working

The remote access solution provided as part of the new ways of working build will be key to how the device operates on the move.

Coupled to the standard remote access, sub-laptop devices such as tablets and smartphones, will be able to access data on the move via the Microsoft cloud.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Remote Working	<ul style="list-style-type: none"> • Testing of remote connection methods to determine roll out strategy • Rollout VPN on laptop devices • Provide Citrix based solutions integrated into Mobile working where practical 	<ul style="list-style-type: none"> • Commence the roll-out of the new build including strategic remote access 	<ul style="list-style-type: none"> • Continue to develop device flexibility and evolve the NWoW build

6.2.3 Printing Services

The Konica MFD contract has recently been renegotiated for the next 4 years including the supply of new MFD hardware. The MFDs have secure print release features through the use of proximity cards.

Over the period of this strategy, ICT will continue to encourage those customers who still have standalone printers to discontinue the use of these in favour of MFD use. Colc still retains a higher than average level of printers with around 30 still in use but without high level backing this is difficult to reduce.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Printing services	<ul style="list-style-type: none"> • New Konica MFDs to be installed • New 4 year contract in-place 	<ul style="list-style-type: none"> • Monitor contract performance 	<ul style="list-style-type: none"> • Monitor contract performance

6.2.4 Mobile Telephony

The corporate mobile phone contract has reached its scheduled end date leaving CoLC currently in a rolling contract situation. Work needs to be undertaken during 2019/20 to establish the suitability of the current provider, KCOM / EE, and a decision taken on entering a new contract.

The current contract offers the best coverage for the Lincoln area whilst providing the features required such as pooled data, handset choice and unlimited calls/texts.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Mobile	<ul style="list-style-type: none"> Put in-place a new contract for 3-5 years 	<ul style="list-style-type: none"> Monitor contract performance 	<ul style="list-style-type: none"> Monitor contract performance

6.3 Data Security

The PSN Code of Compliance (CoCo), although less stringent than it once was, still acts as a good discipline to keep Council data security at a satisfactory level. The annual Health Check (ITHC) performed by a suitably qualified third-party will continue to provide the information needed to ensure that recommended levels of security are in place, patching is being undertaken, vulnerabilities are plugged and that software remains at supportable levels. The ITHC also provides the basis for the annual return to the Cabinet Office and enables connection to the PSN to be maintained.

ICT will continue to develop security policy in partnership with other councils and external partners. New policies will be provided to ICT customers during 2019/20 to improve awareness and encourage responsibility. With the ever present risk of cyber-attacks, ICT will work closely with the DPO to ensure that risks are minimised and awareness is maintained.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
ICT Security	<ul style="list-style-type: none"> Develop and Implement new ICT Security Policies 	<ul style="list-style-type: none"> Develop Cyber/ICT Risk Register Regular reporting to ICT Governance board (CLT) Provide ICT Security Training for staff and Members 	<ul style="list-style-type: none"> Regular reporting/monitoring to ICT Governance board (CLT)

6.4 Software Licencing

Microsoft software remains a major part of both Server and Desktop solutions. This wide adoption will continue throughout the period of this strategy with version updates required to remain compliant. The main features of the current Enterprise Agreement (EA) are:

- Rental – 3-year agreement, licences are never owned, impacts revenue budget.
- No entitlement at the end of the agreement – options include renewing the agreement for a new period, buying licences outright or moving to a different agreement or software provider.
- Ability to upgrade to the latest versions of Microsoft software covered by the agreement at any time.
- Desk top OS licencing model will be tied to our Office M365 agreement
- Ability to true-up or true-down by +/- 20% at each anniversary.
- Ability to over deploy and true-up at the end of each year.

- No Cloud entitlement (Office 365).

CoLC currently pay around £90k per annum with the current EA ending in March 2020. At that point, decisions regarding the type of agreement will need to be taken if O365 features are to be delivered. These features have been discussed with CMT and the business and include:

- Cloud Exchange services, offering large mailbox sizes and built in DR.
- OneDrive for Business and Teams, offering unstructured data to be stored in the Cloud for easy access.

The negative is likely to be the increase in EA pricing as a perfect storm is likely to include:

- Additional cost of O365 (Cloud Services).
- The increase in SQL licences due to more processing power.
- The need for a new EA agreement and Microsoft's recent price increases.

Enterprise agreements can be effective where there is wide adoption of Microsoft products (if Microsoft provide the functionality then it should be deployed) and where the organisation has a strategy to deploy the latest versions of products shortly after their launch. These concepts should be adopted as part of this strategy to ensure that the investment in the EA is maximised.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Microsoft Software Licencing	<ul style="list-style-type: none"> • Minimise the SQL licence increase • Prepare for a new EA by producing a requirements specification • Pilot M365 	<ul style="list-style-type: none"> • Procure new EA • Decide if M365 is to be undertaken in 2020 	<ul style="list-style-type: none"> • True-up/True-down review

6.5 Infrastructure / Technical work plan

A programme of work (infrastructure / technical work plan – see appendix A), aligned to this strategy will be agreed by CMT. The work plan will be adjusted during the period of this strategy.

6.6 Website & Online Services

The Council's current website is now an aging resource that does not meet the current needs of either the Council or its customers as well as not meeting WCAG 2.1. The Council is already undertaking a Website replacement project in partnership with Lincolnshire County Council and the solution provider Spacecraft. This new solution will be built upon the JADU continuum CMS platform.

This new platform will provide a platform to enable us to deliver a new customer focused resource for accessing all online services.

Web provision will become more embedded as ‘Business as Usual’ with the Authority and services will be encouraged to deliver services as ‘Digital by Default’.

Future phases of the project will look at the optimum delivery mechanism and applications for web service provision, rationalising services where appropriate.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Website	<ul style="list-style-type: none"> Complete Website migration to new platform 	<ul style="list-style-type: none"> Skill services to maintain and enhance web content Review web services provision including e-forms, customer accounts etc. 	<ul style="list-style-type: none"> Consider rationalisation and enhancement of web services in conjunction with Customer Experience programme

7. The ICT Service

7.1 Forward budgeting

7.1.1 Capital Budget

The ICT capital reserve accrues at a rate of £100k per annum with the fund intended to be used on major capital items, such as the Infrastructure Refresh project. The current situation is:

- The opening balance carried forward to 2019/20 is £258k.
- From the £100k allocated each year, ICT has already committed an ongoing £44k of costs, meaning that in effect the fund is only growing by £56k annually. The £44k includes staff costs and annual maintenance fees that clearly should be in appropriate revenue budgets.
- Funding for some desktop devices comes from departmental budgets in the form of new desktop hardware requests. This figure totalled £57k for 2018/19 and should be centralised to allow ICT to determine the desktop refresh rate on a merit rather than a funding basis.

In order to meet the objectives laid out in this strategy, there will need to be a review of existing operational arrangements, and in addition it is clear that there will be required to be new and sustained investment in ICT Services. Whilst some elements are essential for ongoing provision (although there may be alternatives, other are aspirational, and will need to be considered as business cases throughout the life of the strategy.

Essential items include the provision of core infrastructure, such as servers, storage, network and licences. In addition, desktop equipment has been under invested and in order to provide a good quality user experience will need to be enhanced.

7.1.2 Revenue budget

The revenue budget for 2018/19 has been adjusted below to:

- Include a best estimate for Line of business applications funded from departmental budgets. Further work needs to be done in this area and a decision taken on the most appropriate way to budget for applications – centralised in the ICT budget or decentralised in departmental budgets. There are good reasons to decentralise all but corporate software as business cases and ROI is scrutinised in far more depth if a service manager is funding an application upgrade or replacement.
- Non-core ICT staff costs have been removed, as detailed above.
- Income from Land Charges has been removed.

Further work in conjunction with Finance will be necessary to ensure that for 2020/21 the revenue budget clearly reflects the true cost of core ICT, providing the ICT & Business Development Manager with an opportunity to cost control the line items they have control and influence over. Existing revenue and capital ICT budgets from across the Council will be reviewed and options for consolidation and reinvestment will be considered.

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Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
ICT Budgets	<ul style="list-style-type: none"> • Seek funding for core infrastructure projects • Work with finance to increase reserve contributions 	<ul style="list-style-type: none"> • Business case-based approach to funding of new projects 	<ul style="list-style-type: none"> • Secure financial stability of ICT Services for future Strategies

8. Structure of Team

In the short-term, due to project delivery pressures, the ICT structure will remain as-is. It is however recognised that the current structure is less than optimal for the following reasons:

- There are roles managed by the ICT & Business Development Manager that are not considered to be core ICT roles.
- There could be more integration between the Business Development and Technical Teams.
- The Service Desk (currently a technical Help Desk) does not manage calls proactively as possible.
- The Service Desk system could be extended where beneficial to other linked services.

During 2020/21, once the major infrastructure projects have been delivered, service management will focus on improving the way the team works. This will involve minor changes to the structure and a clearer definition of staff roles.

Element	Short-term (2019/20)	Medium-term (2020/21)	Long-term (2022 and beyond)
Team structure	<ul style="list-style-type: none"> • Develop team structure for delivering strategy 	<ul style="list-style-type: none"> • Review further opportunities for ICT team as strategy progresses 	<ul style="list-style-type: none"> • Monitor service provision to meet Council Business requirements

Appendix A – Work Plans

This section is intended to contain the work plans compiled through meetings with each of the service managers, consulting with them on what application, technology or business projects they require to support the Council's 2020 Vision, the developing needs of their service or to ensure that current systems are kept up-to-date.

These plans will be flexed and adjusted as new requirements become known through the One Council programme and as reprioritisation becomes necessary.

Projects will be approved and managed in line with the Lincoln Project Management Model (LPMM).

The Infrastructure Work Plan (which covers cover infrastructure improvements and maintenance) reflects the urgent need to address the ageing and non-resilient infrastructure that currently exists and providing some of the known service improvements through new initiatives. The BDIT Service plan (for delivery of projects requested by service areas), will be flexed as priorities change and become apparent through Corporate and Service requires being defined.

A draft separate workplan for Business Development which will be further developed in line with emerging requirements from the One Council four pillars programme.

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Infrastructure Work Plan

Project	Year 1 - 2019/2020													Year 2 - 2020/2021													Year 3 - 2021/2022
	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M			
Channel Shift Projects																											
Customer Self-service device replacement 3.1																											
Service Desk enhancements to improve customer experience																											
New Ways of Working Projects																											
Mobile working solution 3.2																											
Telephony enhancements - 3.2																											
Mobile phone contract procurement 3.2																											
WiFi at remote sites 3.2																											
Office 365 3.2/3/4																											
Citrix update																											
Mobile Security																											
Value for Money Projects																											
Implement SIP 3.2/3/4																											
SQL Server rationalisation																											
High Availability and High Performance Projects																											
Windows Server upgrades																											
Infrastructure Refresh Project (SAN) 3.4																											
Security Policy update and rollout																											
Network Switch Replacement 3.4																											
Telephony Disaster Recovery 3.4																											
Backup Redesign																											
DR Enhancement																											

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IT Service Plan

Project	Year 1 - 2019/2020												Year 2 - 2020/2021												Year 3 - 2021/2022
	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	
New Ways of Working Projects																									
Servitor upgrade																									
Develop and implement desktop device strategy																									
Value for Money Projects																									
Create and implement Application Roadmap																									
Design + implement client device lifecycle management																									
High Availability and High Performance Projects																									
Members IT Refresh																									
Review Cloud SaaS Migration for LOB applications																									

Appendix B - Glossary

Acronym	Definition
BCP	Business Continuity Plan
CLT	Corporate Leadership Team
CMS	Content Management System - a software application that can be used to manage the creation and modification of digital content.
CMT	Corporate Management Team
CRM:	Customer Relationship Management system – a system to manage customer data and interactions
DDI	Direct Dial In – specific calling to individual numbers through the telephony system
DMS	Document Management System - a system used to track, manage and store documents and reduce paper
DR	Disaster Recovery – processes to recover ICT services after a major event
EDRMS	Electronic document and records management system is a type of content management system and refers to the combined technologies of document management and records management systems as an integrated system
EA	Enterprise Agreement – a software licensing model for volume licensing through Microsoft
HRS	Housing Repairs Service
ITIL	A set of detailed practices for IT service management (ITSM) that focuses on aligning IT services with the needs of business
LAN	Local Area Network – network within Council Premises
LOB	Line of Business – related to service area
LPMM	Lincoln Project Management Model
MFD	Multi-function devices – copier/printer/scanner
MPLS	Multiprotocol Label Switching – a technology for routing network traffic
MS SQL Server	A Relational Database Management Systems
Oracle	A Relational Database Management Systems
OS	Operating System – software that manages computers
Prince 2	A structured project management method
PSN	Public Services Network – a shared secure network between public sector bodies in the UK
RAD	Rapid-application development (RAD) - used to refer to adaptive software development
RDSH	Remote Desktop Session Host – allows remote users to connect to computers
ROI	Return on Investment
RPO	Recovery Point Objective - The maximum targeted period in which data (transactions) might be lost from an IT service due to a major incident
RTO	Recovery Time Objective is the targeted duration of time and a service level within which a business process must be restored
SaaS	Software licensing and delivery model in which software is licensed on a subscription basis and is centrally hosted
SAN	Storage area network is a computer network which provides access to consolidated data storage.

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SIP	Session Initiation Protocol is a technology used to manage phone calls over internet technology.
TCO	Total Cost of Ownership – financial estimating model
UPS	Uninterruptible Power Supply – provides power in the event of main power outage
VPN	Virtual Private Network – extends a private network over a public network
WCAG	Internationally recognised guidelines for website accessibility