Information and Communication Technology Strategy 2019-2024

Berrigan Shire Council

Building an even better Berrigan Shire

Overview

In common with all organisations, the development of Information and Communication Technology (ICT) over the past 5 years has had a very significant impact on the operations of Berrigan Shire Council. The introduction of ICT into Council operations has made Council operations much more efficient and has enabled Council to better connect with its community and the wider world.

The challenge for the Council is to use ICT to continue to improve the manner in which it delivers its services and connects with its community and stakeholders.

This strategy details the Council's ICT objectives over the next four years and the actions it intends to undertake to achieve them. The strategy treats ICT as a key Council resource and as such is designed to integrate with the Council's overall Resourcing Strategy and through that its entire suite of Integrated Plans. It is a living document and changes will need to be made as Council's objectives change and new ICT solutions are introduced.

It is important to distinguish between ICT as a tool or resource to assist in achieving the Council's preferred outcomes and the use of ICT for its own sake. It is important to avoid the situation where artificial demand for service is created simply to justify the implementation of ICT. Therefore this strategy focuses on the Council's preferred outcomes and then identifies how the use of ICT can be used to achieve them.

Relevant Council Policies

This strategy reflects the Council's priorities as set down in *Berrigan Shire 2023*. While not formally part of the Council's four-year Resourcing Strategy, it does reflect the Council's plan to deliver ICT services as a key Council resource.

Actions from this strategy will be adopted in the Council's Delivery Program and Operating Plan.

When implementing the strategy, the following Council policies and plans have been considered.

- Councillors Expenses and Facilities Policy
- Staff Expenses and Facilities Guidelines
- Procurement and Disposal Policy
- Code of Conduct
- Communication Devices Policy
- Fraud Control Policy
- Public Internet Usage Policy
- Privacy Management Plan
- Access to Information Policy

A review of some or all of these policies may be required as this strategy is implemented.

Existing ICT structure

The Council's existing technology functions and assets are spread across several areas. Not all of these areas are tied together in an effective manner.

The Council has formal arrangement with Hitech Support to provide advice and assistance to the Council regarding ICT issues.

Servers

The Council upgraded the backbone of its server network in 2017. It replaced the existing physical servers with a new physical server as shown in the diagram below.

Figure 1: Virtual server network
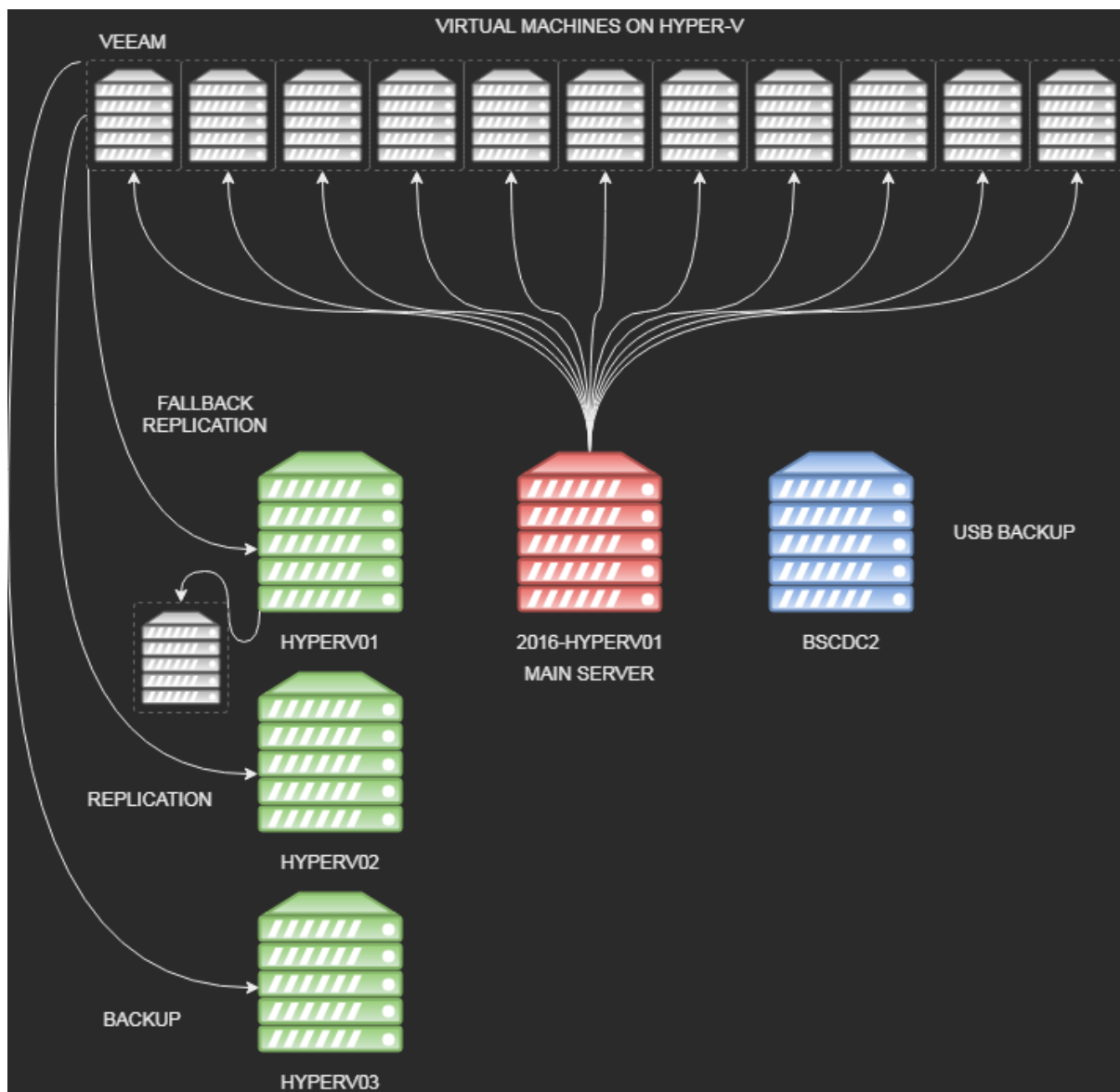
The servers running on the physical and virtual server network are:

- Fileserver – The Council's main file server
- BSCDC2 – A server which holds VEEAM backups for USB Off-site storage
- 2016-HyperV01 – The main server which hosts all the Virtual Server Environment
- HYPERV01 – Disaster Recovery Server 1
- HYPERV02 – Disaster Recovery Server 2
- HYPERV03 – Backup & Replication server for VEEAM
- BSCTS2 – The Council's terminal server
- BSCEXCH2016 – The Council's Exchange (email) server
- ENGINEERING – Running the Council's GIS and Asset Management systems
- SSA – Spectrum Spatial Analyst sever
- PRACTICALPLUS – Running the Council's financial management software
- LIBERO – The Library operating system server
- INTRANET – Internal Intranet
- TECHNICAL SERVICES – AssetFinda server
- EHC – Setup for the Electronic Housing Code and Development Application tracking
- VEEAM – Server Backup & Replication Management

WAN

The Council's Wide Area Network (WAN) connects several of the Council's remote sites with its main network in the Council administration office.

The WAN has two major components:

- A Virtual Private Network (VPN) that connects the Depot to the Council administration office
- A Virtual Private Network (VPN) that connects the Libraries to the Council administration office

The VPN arrangement does come at a cost to the Council and is a little less flexible but is more reliable and simpler to maintain.

The VPN connects to Council's server network through a terminal server.

Backup and Disaster Recovery

The Council backup and disaster recovery system is summarised in the document below.

The Council's data is backed up in three locations

- On the physical server BSCDC2 (Backup)
- On the HYPERV01 and HYPERV02 servers (Replication)
- On the HYPERV03 server (Backup)
- On a removable USB drive (Backup)

The backup and recovery system needs to be integrated into the Council's broader Business Continuity Plan.

Computers and Laptops

The Council maintains around 80 computers and laptops for use by Council staff. Most of these computers are in the Council administration office although there are also computers in use at

- The Berrigan depot
- The four library branches

All of these computers operate on the Windows environment.

There is no standard build for these computers as most of these have differing roles and tasks.

Council's computers vary in age from machines installed in 2010 (mainly operating on the terminal server) to newer machines installed in 2017 used for resource-heavy applications such as AutoCAD. Computers are replaced yearly after an audit is conducted to determine which machines need replacing to ensure that Council's computers are up to date.

Public access computers

As a service, the Berrigan Shire Library Service provides the public with access to computers and the internet. The service operates in all four branches of the service

This access is through two methods

- A wireless "hot-spot" with access controlled via a ticketing system
- Public access computers with access to basic software and the internet.

The computers and internet access provided through the libraries are physically separated from the Council's main IT network.

Water supply system

The Council's water supply utility is maintained by a discrete network of computers linked together via a telemetry system provided by Radtel. The system is monitored at the Berrigan Depot and the Council administration office.

This system is currently operated independently of the Council's ICT system.

Telephony

The Council's administration office, the Berrigan depot and the Berrigan and Finley Libraries are service by an NEC SV8100 telephone system.

The base system has

- 4 ISDN2 services (8 lines)

- 80 x digital extensions
- 8 analogue extensions
- Approximately 70 consoles and handsets

The Finley Library is connected to the telephone system via Voice over IP (VoIP) technology.

The Council has a plan to push out VoIP to all its remote sites, including libraries, depots, pools, water treatment plans etc.

The system is maintained by Albury Telephone Services (ATS) and contracted with Telstra.

Mobile devices

The Council operates a "fleet" of mobile phones of varying types and configurations. There are around 70 mobile telephones and tablets on issue to staff and Councillors at present.

The use of mobile devices by staff and Councillors is becoming more common. There is an internal intranet to keep track of devices provided per position and person.

The Council rolled out tablets to Councillors to allow access to Council information in an electronic format.

The expansion of mobile devices will be used extensively in the future, ranging from Councillors receiving electronic documents to field workers looking up asset information and infrastructure.

Software

The Council uses a range of software for different tasks. One of the difficulties for the ICT function is managing data moving between applications.

Table 1: Software used by the Council

Requirement	Version
Server operating systems	Windows Server 2008R2, 2012R2, 2016
PC operating systems	Windows 7, 8.1, 10
Email system	Microsoft Outlook 2010, 2016
Anti-virus system	Webroot Secure Anywhere
Mail security	Symantec Email Security Cloud
Backup	Veeam Backup & Replication
Financial management	Practical Plus
Library Management system	LIBERO LMS
Office productivity suite	MS Office 2010, MS Office 2016
GIS system	MapInfo Pro 12.5, Exponare, Spectrum Spatial Analyst
Asset management systems	BizeAsset, AssetFinda
CAD design	Autodesk Suite 2018-19
PDF maker	Adobe Acrobat Pro

There are many other minor programs hosted on individual computers to perform specific tasks.

Licensing for the major software items - operating systems, office productivity software, other core functions – is generally managed well.

Licensing is provided for all Microsoft products through the Volume Licensing Service Centre. Other software does not have a centralised system to maintain licensing and is provided on an ad hoc basis.

A software register is maintained for upcoming renewals of specific software packages.

Printers and other peripherals

The Council's main photocopier/printer is the Fuji Xerox ApeosPort V C5580, installed in 2014. The Council has an agreement with Viatek to maintain this and other Viatek provided machines.

The Council has a range of other printers in its administration office, libraries and elsewhere. Some are networked printers and other stand-alone printers, these are also maintained by Viatek.

There is no system currently in place to track other peripherals such as cameras, traffic counters, GPS devices etc.

Website

The Council operates a website at http://www.berriganshire.nsw.gov.au/. This site was developed and maintained internally. It is hosted with StudioCoast.

Identified issues

IT Survey

In February 2019 Council conducted a survey to ask the users (Council staff, management & Councillors) their thoughts around the IT infrastructure, delivery and operations. The survey aimed to understand what the users would like to see improve and make their role easier to conduct using IT equipment and IT software. The survey was sent to 52 participants of which 31 responded.

Image 2: Survey respondents by worksite
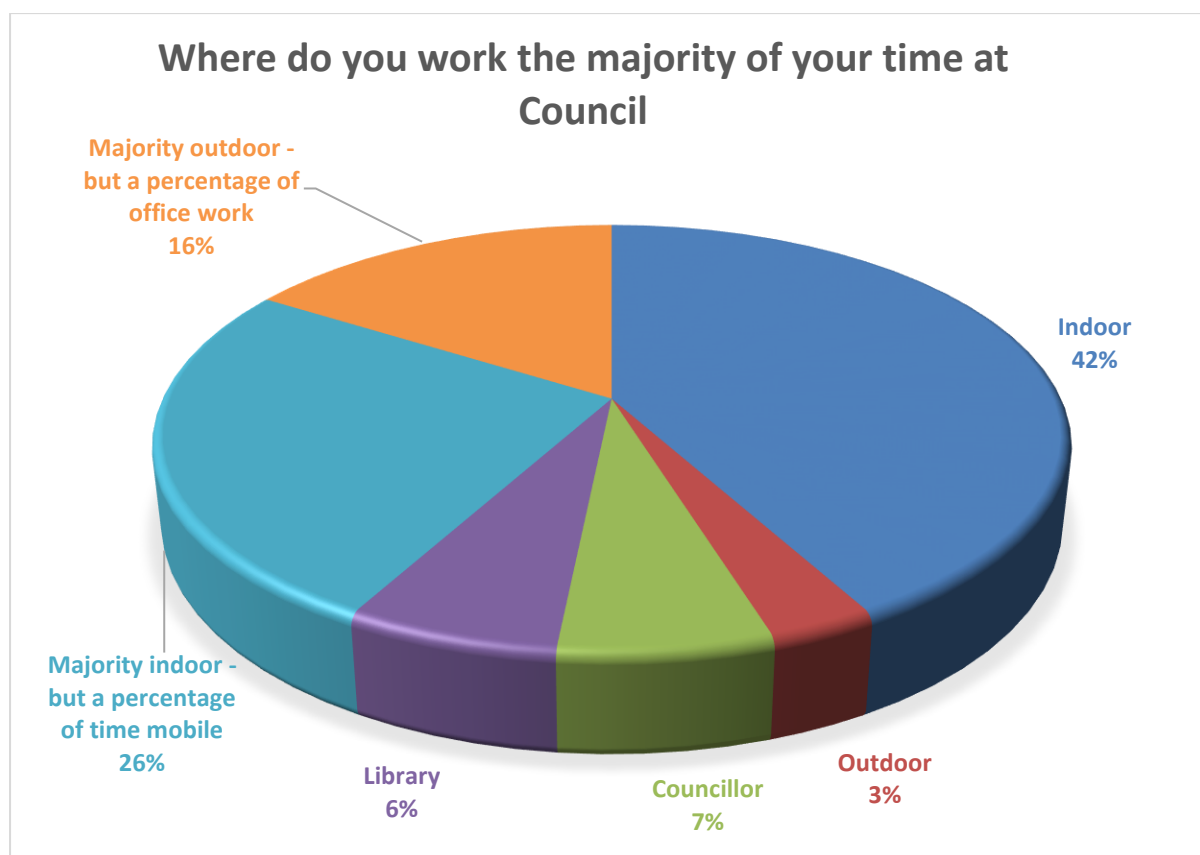
The survey consisted of three main questions:

- What one technological element or improvement would make your role at Council easier?
- Can you think of any IT functions or technologies that you have you seen at another organisation or function, Council or otherwise, that you believe would be of benefit to Council, or your position?
- If budget was not a factor, what IT improvement at Council would you like to see the most?

The main theme with responses around the first question "What one technological element or improvement would make your role at Council easier?" was a mixture of new software, integration with current software and new devices such as tablets and printers. With new software, a number of

respondents suggested that they would like to see new financial software and records management software.

Figure 3: Service improvement preferences as per survey
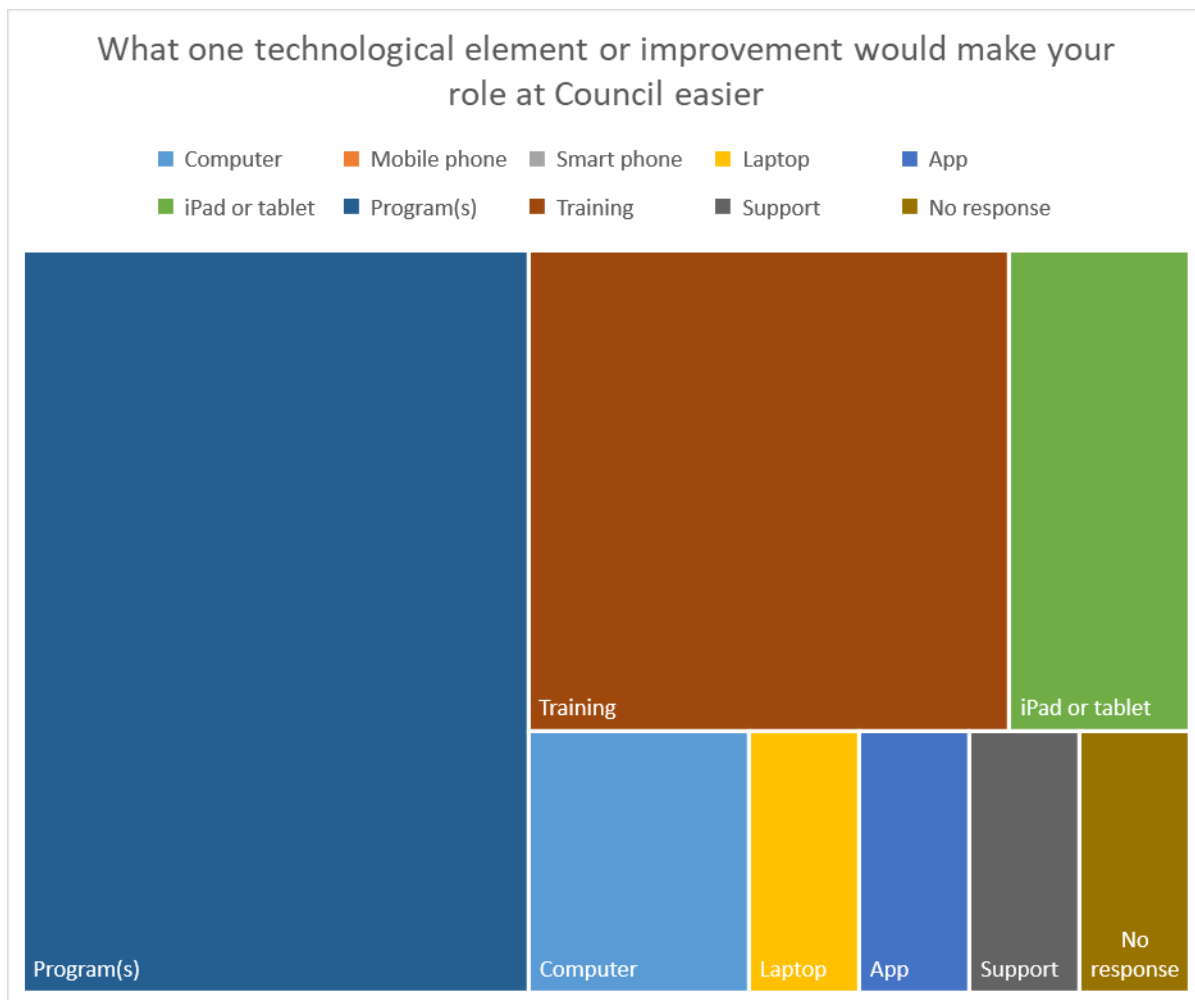
The new devices such as tablets, have been suggested to be utilised more out of the office when Council staff are conducting inspections, asset and mapping related tasks in the field and general access to information otherwise not available outside of the main Council office.

The second question, "What one technological element or improvement would make your role at Council easier?" Which expanded on the first question, contained a very similar theme. Staff had a strong indication for new software such as a records management system, which currently is a very tedious and long process of maintaining. Again, another theme was having access to Council information in the field using tablets.

The third question, "If budget was not a factor, what IT improvement at Council would you like to see the most?", was met with suggestions that Council needs to replace and implement new systems for the financial management software and the records management areas. Printers and mobile devices were indicated to be of great interest.

Audit Office of NSW

Reports prepared by the Audit Office of NSW has contributed to the development of this plan.

This includes reports prepared specifically for Berrigan Shire Council with recommendations such as:

1. Reports on the Conduct of the Audit, and
2. Audit Management Letters

It also includes other reports prepared for the NSW Local Government sector as a whole. The most recent reports used to inform this strategy include:

1. Local Government 2018 – a report on the audit of the 2017/18 financial statements for local government.
2. Fraud Controls in Local Government

The table below details the key areas of concern raised in these reports

Table 2: ICT issues identified by the NSW Audit Office

Issues Identified	Source of identity	Common Theme	Reasoning
IT access privileges for Network and Practical access	Audit Management Letter	Security	Potential security risks known and prevented
Reviewing audit logs for Practical Access	Audit Management Letter	Security	Potential security risks known and prevented
IT Security Risks registered and reported to senior management	Audit Management Letter	Security	Potential security risks known and prevented
IT General Controls	NSW Auditor-General's Report	Policy	Access control and usage control in line with Council policies
Managing Service Providers	NSW Auditor-General's Report	Procedure	Maintaining a list of up to date contacts in the event of emergency
IT Policies formalised and up to date	NSW Auditor-General's Report	Policy	IT Policies cover usage and compliancy
Disaster Recovery Server relocation	Internal	Backup	In the event of DR we would lose all infrastructure
IT Procedures Documented	Multiple sources	Procedure	Documentation for IT functions outlined
IT Software / Hardware Procurement consultation with IT Department	Internal	Purchasing	Software and hardware compatibility issues, supporting issues
One IT personnel for council IT function	Internal	Procedure	Lack of function
Windows 7, Server 2008 End of Life January 14, 2020	Microsoft	Security	Security concerns due to no product support

Issues Identified	Source of identity	Common Theme	Reasoning
Software kept up to date	Multiple sources	Security	Up to date software has less chance of security risks and issues
Mitigate use and purchasing of obsolete software and hardware	Multiple sources	Purchasing / Security	Security and compatibility issues
Backups tested and audited	Multiple sources	Backup	Ensuring backups get tested so we know they work and an audit of results
Email Archiving	Internal	Backup	Emails will need to be archived and when archived backed up as they will be locally achieved

Government Chief Information Security Officer

The NSW Government has established the position of Government Chief Information Security Officer (GCISO). The position was created to "build whole-of-government cyber security capabilities and standards" and "[lay] the foundations for the whole-of-government cyber security practice, [provide] basic coordination and support for agencies and [act as] a single point-of-contact for the receipt and sharing of cyber security information across NSW Government

In 2018, the GCISO released a Cyber Security Strategy. This strategy guides and informs the safe management of the NSW government's growing cyber footprint. The Strategy is built around the following principles to achieve a connected, protected and trusted cyber safe NSW.

1. Secure
2. Integrated
3. Responsive
4. Holistic

In February 2019, the GCISO released the NSW Government's Cyber Security Policy. This Policy applies to all NSW Public Service agencies. While the Policy does not apply to local government, Berrigan Shire Council has chosen to use this policy as a guide when considering its own cyber security arrangements.

In particular, this Strategy recommends the adoption of the Australian Cyber Security Centre's "Essential 8" strategies for mitigating cyber security incidents.

Table 3: GCISO Essential 8

| The "Essential 8" strategies for mitigating cyber-security incidents		
Strategy	**What**	**Why**
Mitigation strategies to prevent malware delivery and execution		
1 Application whitelisting	Approved/trusted programs to prevent execution of unapproved/malicious programs	All non-approved applications (including malicious code) are prevented from executing
2 Configure Microsoft application settings	Lock macros from the Internet, and only allow vetted macros	Microsoft Office macros can be used to deliver and execute malicious code on systems
3 Patch applications	Flash, web browsers, Microsoft Office, Java and PDF viewers. Patch/mitigate computers with 'extreme risk' vulnerabilities within 48 hours	Security vulnerabilities in applications can be used to execute malicious code on systems.
4 User application hardening	Configure web browsers to block Flash (ideally uninstall it), ads and Java on the Internet. Disable unneeded features in Microsoft Office (e.g. OLE), web browsers and PDF viewers	Flash, ads and Java are popular ways to deliver and execute malicious code on systems
Mitigation strategies to limit the extent of incidents		
5 Restrict administrative privileges	For operating systems and applications based on user duties. Regularly revalidate the need for privileges. Don't use privileged accounts for reading email and web browsing	Admin accounts are the 'keys to the kingdom'. Adversaries use these accounts to gain full access to information and systems
6 Multi-factor authentication	VPNs, RDP, SSH and other remote access, and for all users when they perform a privileged action	Stronger user authentication makes it harder for adversaries to access sensitive information and systems
7 Patch operating systems	Patch/mitigate computers (including network devices) with 'extreme risk' vulnerabilities within 48 hours. Use the latest operating system version. Don't use unsupported versions	Security vulnerabilities in operating systems can be used to further the compromise of systems.
Mitigation strategies to recover data and system availability		
8 Daily backups	Important new/changed data, software and configuration settings, stored disconnected, retained for at least three months. Test restoration initially, annually and when IT infrastructure changes	To ensure information can be accessed again following a cyber-security incident (e.g. a ransomware incident)

ITIL Framework

The ITIL Framework and how it applies to this strategy:

Successfully deployed in over 20 years around the world, the Information Technology Information Library Framework (ITIL) is a source of best practice in IT service management. The ITIL service lifecycle consists of five publications that cover each stage of the lifecycle:

1. Service Strategy
2. Service Design
3. Service Transition
4. Service operation
5. Continual Service Improvement

Figure 4: ITIL Framework
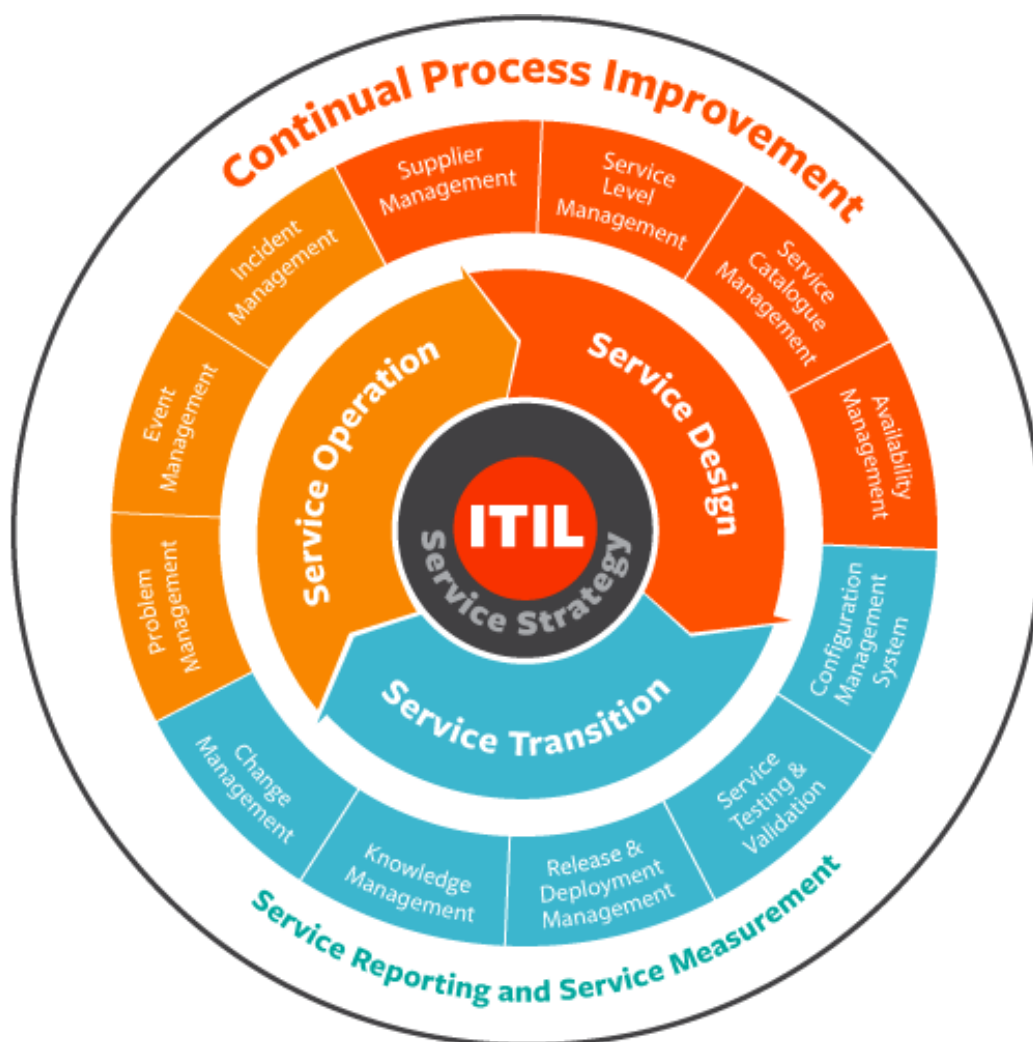
The ITIL framework was designed to standardize the selection, planning, delivery and maintenance of IT services within a business. The goal is to improve efficiency and achieve predictable service delivery.

The ITIL guiding principles focus on:

- Focus on value - Generate directly or indirectly value.
- Start where you are - Preserve good capabilities and improve where needed.
- Progress iteratively with feedback - Improve often-in small steps and measure your way forward.
- Collaborate and promote visibility - Transparent work in the teams, with the stakeholders and partners.
- Think and work holistically - It is an End-to-End responsibility – the service and the SVS.
- Keep it simple and practical - The right size and use of processes, tools, resources matters.
- Optimize and automate - Manual work is a bug. Reserve human intervention only for needed activities.

Aims

The Technology Strategy is designed to assist the Council to meet its overall desired outcomes as identified in *Berrigan Shire 2027*.

While ICT can and is used across all outcomes and functions of the Council, the specific Delivery Program and Operational Objectives to be achieved by this Strategy are

Delivery Program – Strategic Objectives

2.1 Berrigan Shire 2027 objectives and strategic actions facilitate the effective governance by Council of Council operations and reporting

3.2 Support community engagement through life-long learning, culture and recreation

Delivery Program and related Operational Plan Objectives / Actions that this Strategy will support include:

2.1.3   Council operations and financial management support ethical, transparent and accountable corporate governance

2.1.3.6   Provide information technology and associated support for Council operations

2.1.3.7   Coordinate the delivery and management of Shire records and communications

3.2.1   Provide opportunities for life-long learning, culture and recreation

3.2.1.1.6   Be an information and digital gateway for shire residents, students and visitors.

Objectives

Based on the research above, the ICT Strategy has identified the following seven objectives.

2.1.3.6.1   A robust and effective ICT network that supports Council functions

2.1.3.6.2   Software used by Council is fit for purpose

2.1.3.6.3   ICT is used by the Council as tool for innovation and business improvement

2.1.3.6.4   Council maintains a robust data protection and security protocol.

2.1.3.7.1   Council's ICT system enables best practice records management

3.2.1.1.6.1   The public have access to ICT resources through the public library system

3.2.1.1.6.2   Council effectively represents the community on broader ICT issues

Each objective contains one or more required actions aimed at assisting the Council to meet this objective.

Information Technology Strategy Action Plan:

2.1.3.6 Provide information technology and associated support for Council operations					
	Objective	**Actions**	**Priority**	**Result**	**When**
2.1.3.6.1	**A robust and effective ICT network that supports Council functions**	Document an ICT Hardware Management Plan that includes a replacement schedule for all ICT hardware	Medium	The Council has a clear plan for the upgrade of its computer hardware	Ongoing
		Fully document the existing Information and Communication Technology environment	High	The Council knows the exact make-up of its ICT environment.	Ongoing
		Actively maintain the virtual server environment	High	The server network is maintained effectively	Ongoing
		Convert all servers to Windows Server 2016 or equivalent	High	All servers are operating in a modern environment	Ongoing
		ITIL lifecycle baseline for IT function	Medium	ITIL framework followed to ensure best practices	Ongoing
2.1.3.6.2	**Software used by Council is fit for purpose**	Where possible, a standard software suite is deployed	Medium	Software available to staff is as consistent as possible.	Ongoing
		All software purchases to be made in consultation with Information Technology Officer and Finance Manager	High	Software purchased is suitable for purpose and is compatible with existing environment	Ongoing

	Objective	Actions	Priority	Result	When
2.1.3.6 Provide information technology and associated support for Council operations					
		Upgrade all PCs to Windows 10	Medium	Staff have access to the latest versions of software to meet requirements	Ongoing
		Meet with function manager to develop ICT plan for specific function	Medium	Each business function has an ICT plan	Ongoing
		Investigation in options for migration to new Council Management software	High	Migration to a new Council Management system	Ongoing
2.1.3.6 .3	**ICT is used by the Council as tool for innovation and business improvement**	Identify (but not build) applications/solutions for Council	Medium	Relevant applications are identified and implemented	Ongoing
		Provide support for the systems that run third-party applications (but not support for the use of the applications themselves)	Medium	Relevant systems etc. are identified and implemented	Ongoing
		Develop system to migrate data from one application to another without re-entry.	Low	Double handling of data is minimised or eliminated wherever possible	Ongoing
		Develop strategy to release more spatial information via website	Low	Spatial information is available on the Council's website	Ongoing
		Provide more tablets for staff for use in the field	Medium	Staff able to conduct council business without returning to office	Ongoing

2.1.3.6 Provide information technology and associated support for Council operations					
	Objective	Actions	Priority	Result	When
2.1.3.6.4	Council maintains a robust data protection and security protocol	Develop and implement a backup procedure in Council's Integrated Management System (IMS) format	Medium	Regular backups are kept and recovery system robust	Ongoing
		Review Council's anti-virus, anti-spam and web blocking software	Medium	The anti-spam software is suitable for the Council's needs	Ongoing
		Maintain firewall and other network and data security software	High	The firewall and other Council software is suitable for the Council's needs	Ongoing
		Conduct regular audits to ensure only authorised users have access to Council's network	Low	Unauthorised access to the Council's network is prevented	Ongoing
		Review and report potential security risks to management	High	Potential security risks identified and prevented	Ongoing
		Keep an up to date list of third parties and access levels	High	List of third party vendors kept and maintained for security	Ongoing
		IT Policies and Procedures are formally documented, maintained and reviewed	High	Procedures and policies are kept up to date and reviewed on a regular basis	Ongoing

2.1.3.6 Provide information technology and associated support for Council operations

	Objective	Actions	Priority	Result	When
		Application whitelisting & patching applications	High	Software kept up to date, secure and trusted	Ongoing
		Restrict Administrative Privileges	High	High access account kept secure	Ongoing
		User access control audited	High	Audit can review user access rights and timelines associated with access	Ongoing
		Review Business Continuity Plan, implement actions and test regularly	High	Business Continuity Plan tested and robust.	Ongoing

2.1.3.7 Coordinate the delivery and management of Shire records and communications

	Objective	Actions	Priority	Result	When
2.1.3.7.1	**Council's ICT system enables best practice records management**	Implement plan for an Electronic Document Management System	High	An Electronic Data Management System is installed and maintained	2019-2020
		Digitise Council records and correspondence and encourage online viewing and distribution	Medium	Council records are available in a digital format.	Ongoing
		Contribute to a review of the Council's Privacy Management Plan	Medium	The Council meets its statutory requirements without undue	Ongoing

				burden on Council staff	

3.2.1.1.6 Be an information and digital gateway for shire residents, visitors and students **(Operational Plan)**

	Objective	Actions	Priority	Result	When
3.2.1.1.6.1	The public have access to ICT resources through the public library system	Support the Berrigan Shire Library Service's Public Access Computer service NSW.net / Hitech	High	The Public Access Computer service operates effectively	Ongoing
		Support the Berrigan Shire Library Service's wireless "hot-spot" service	High	The wireless hot-spot system operates effectively	Ongoing
3.2.1.1.6.2	Council effectively represents the community on broader ICT issues	Provide advice to Council on broader ICT issues that affect the local community – i.e. mobile phone network, NBN etc.	High	The Council has clear advice on ICT issues that affect the wider community.	Ongoing