



Supporting
document 5.34

IT Asset Management Plan 2019-2023

2020-2025
Regulatory Proposal
December 2018



SA Power Networks



IT Asset Management Plan 2019 - 2023

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1. INTRODUCTION

1.1 Background

The [SA Power Networks Asset Management Policy](#)¹ outlines our responsibilities for managing the organisation's Information Assets and Information Technology Assets.

The policy states that we will employ good asset management practices that:

- provide a safe environment for employees, contractors and the community;
- are guided by the Corporate Strategic Plan;
- are driven by the levels of service that customers value;
- ensure we comply with our regulatory obligations;
- deliver a prudent risk-based approach; and
- foster continuous improvement.

The policy defines the following terms:

- > **Asset management:** The set of coordinated activities that an organisation undertakes to realise value from assets in the delivery of its outcomes or objectives in the most cost effective and prudent manner. Realisation of value requires the achievement of a balance of costs, risks and benefits, often over different timescales.
- > **Assets means tangible or intellectual property (either owned, leased or maintained under contract)** that provides service potential for future economic benefit and includes plant, equipment, electricity distribution infrastructure, information assets, information technology system assets, buildings, land, easement rights, stocks and spares.
- > **Information Assets** - comprises all forms of knowledge or data that is processed, stored and transferred and has value to the organisation.
- > **Information Technology System Assets** - includes information, the computer processors that support business and control functions, all associated peripheral equipment, networks and communication links, all forms of software, business applications and programs, all forms of electronic storage media and printed material.

Collectively, Information Assets and Information Technology System Assets are referred to as 'IT Assets' throughout this document.

The IT Asset Management Plan (IT AMP) has been developed for a five-year period from 2019 to 2023 and will be reviewed and updated annually.

1.2 Purpose

The purpose of the IT AMP is to:

1. Provide alignment with SA Power Networks' Asset Management Policy to enable the delivery of essential energy services.
2. Describe how we manage our IT Assets to deliver the most value to our customers and stakeholders.
3. Provide a framework for ensuring IT Assets are prudently managed throughout the entire asset lifecycle.

¹ SAPN Asset Management Policy, Policy No. 4.1, Major Version 4, reviewed 1/12/2016

1.3 How to use this document

This document contains the guidelines for managing IT assets and will be supported by detailed asset management plans for each of the asset classes outlined in Section 1.4. The management of our assets also considers our annual budgets and key performance indicators.

The document is divided into six sections as follows:

1. Introduction
2. IT Asset Management Context
3. IT Asset Management Framework
 - Principles, Drivers and Challenges
 - IT Asset Lifecycle
 - Managing IT Assets through the lifecycle
4. IT Asset Classification
5. IT AMP Monitoring and Review

2. IT ASSET MANAGEMENT CONTEXT

2.1 IT Asset Management Objectives

Our objectives are:

1. ***To establish and maintain efficient levels of IT service*** to meet our licence and regulatory obligations of providing organisational energy service levels for our customers and stakeholders.
2. ***To provide a clear approach to how we manage IT Assets***, so we can:
 - a. deliver reliable IT Asset performance and associated IT Services, and
 - b. optimise value throughout the asset's lifecycle.

We define 'value' as the right balance of cost, risk and performance.

We aim to ***extend the useful life of IT Assets by prudent upgrades and updates.***

2.2 Our IT Assets

The IT AMP covers the following three broad categories of assets which support the delivery of IT services.

2.2.1 IT Infrastructure and IT Network Assets

These are the hardware, software, monitoring, network, security and administration assets that form the foundation upon which business systems and applications are built. They are used to develop, test, monitor, control and support IT services and they support the delivery of business systems for SA Power Networks to achieve its overall business objectives.

These assets are made up of:

1. IT infrastructure services hosted in a data centre directly related to server-based computing, associated networking and data storage.

Assets located there are:

- Core IT network hardware
 - Data Storage and backup facilities
 - Security network equipment.
2. Other assets not physically located in hosting facilities, including:
 - Local Area and Wide Area Networking equipment
 - Platform software
 - IT Resiliency and Disaster Recovery systems
 - Security network hardware and software.

2.2.2 Applications

These are the business software systems used across the organisation. They are an integrated suite of software packages that provide the core data and information necessary to enable SA Power Networks to operate and maintain the electricity network and deliver services to its customers.

Our Applications portfolio enables the delivery of capability including customer information, asset management, works management and scheduling, network management and monitoring, geographical information, business management, operational, desktop and mobile applications and websites.

Application licensing management is also included to ensure SA Power Networks has the most appropriate number and type of licensing across all applications including consideration of who requires access to perform their role.

Applications have been assigned a 'service tier'² based on their criticality in terms of enabling both the organisation and the electricity network to continue functioning. The purpose of establishing the service tiers is to define the level of service IT will provide and to understand the risk in the event of a failure. Service tiers are explained in more detail in Section 4.

2.2.3 Client devices

Client devices are end user computing devices, including mobility and collaboration tools, and are made up of the following equipment:

- Laptops
- Desktops
- Monitors (used in conjunction with laptops and desktops)
- Smart devices (phones and tablets)
- Handheld meter-reading devices
- Tough devices
- Plotters
- Large display and conferencing devices
- Associated sundry peripherals (mice, keyboards, etc).

Client Devices are managed against various user roles within SA Power Networks to standardise usage and control the growth of our device fleet. Refer Appendix B for the current client device role matrix.

2.3 Alignment with Organisational Strategy

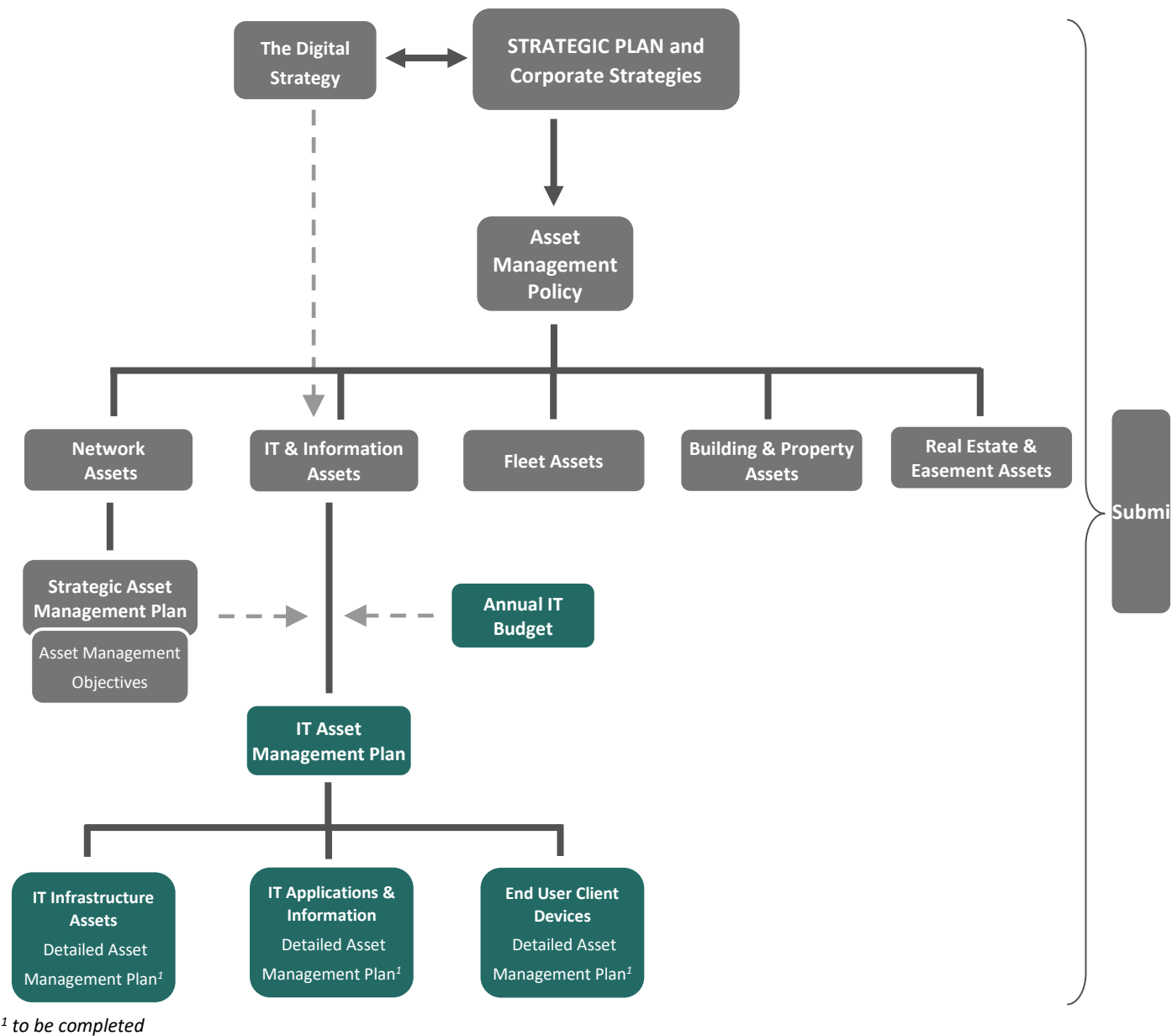
The following SA Power Networks plans and strategies are related to and inform the IT AMP:

1. **The 2018 - 2022 Strategic Plan:** details our strategic direction, key priorities and core areas of focus. This Plan provides the overarching direction for the IT AMP.
2. **Reset Submission(s):** These summarise our business plans with a focus on a specific regulatory control period submitted to the Australian Energy Regulator for consideration during five-yearly price determinations after comprehensive input from our customers and stakeholders. For the 2020-2025 RCP, we shared these with our customers by including details in the publicly available Draft Plan and inviting feedback about how we manage the distribution network into the future.
3. **Asset Management Policy:** This sets out the principles that should be followed when establishing a framework for setting asset management objectives. The policy provides guidance that underpins the development and application of the IT AMP.
4. **Strategic Asset Management Plan (SAMP):** Although covering the regulated electricity distribution network and associated systems, the approach to the management of all assets should be consistent across the organisation. In particular, the **Asset Management Objectives** contained in the SAMP should be followed by all SA Power Networks' Asset Management Plans.
5. **The Digital Strategy:** The strategy objective is to enable SA Power Networks to survive and thrive in an increasingly digital world. This means:
 - understanding and making use of the technology opportunities while continuing to maintain our existing levels of service and managing our strategic and operational risks.
 - actively seeking cost efficient means of helping reduce our costs to customers through more intelligent use of our data and technology.

² A Service Tier is a category of service level IT is committed to providing to those applications that have been assigned to that tier. Refer to Section 4 for more information.

Figure 1 shows the relationship of the various SA Power Networks plans and strategies and where the IT Asset Management Plan fits in.

Figure 1. Organisational Strategy and IT Alignment



2.4 Alignment with generally accepted asset management practices

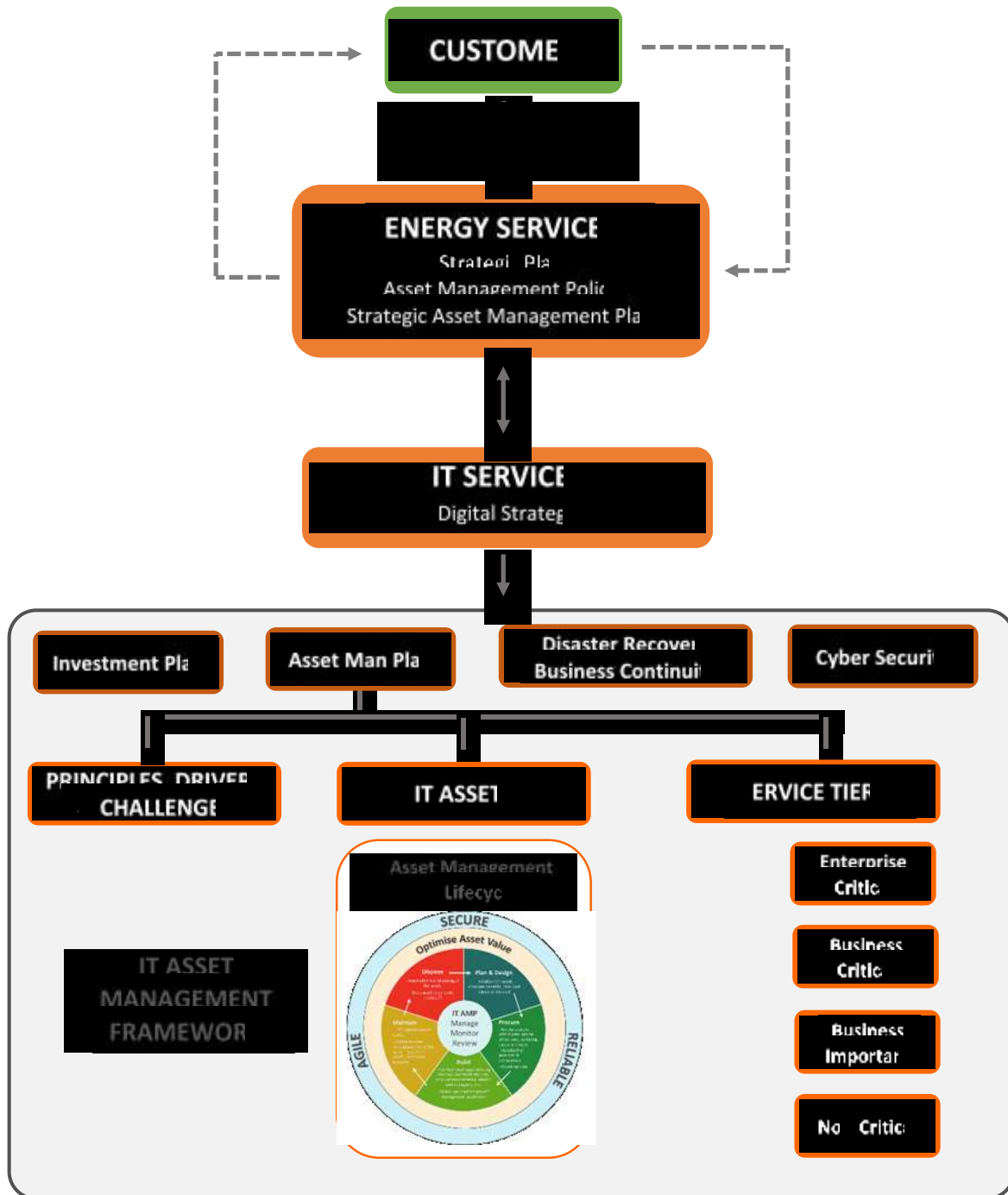
To continually improve our approach to asset management, we align asset management processes and practices with the ISO 55000 series of standards for asset management and the *Information Technology Infrastructure Library (ITIL)* methodology for managing IT as a service.

Although there is no plan to formally go through the process of gaining ISO certification or to roll out the ITIL methodology in its entirety, following these generally accepted practices to asset management helps to ensure that IT investment decisions are made by considering the best balance of cost, risk and asset performance that meets agreed service levels to meet business objectives.

3. THE IT ASSET MANAGEMENT FRAMEWORK

The IT Asset Management Framework is an integrated approach to managing our assets by aligning corporate strategic objectives (as detailed in our strategy and policy documents) with the management of IT assets. Figure 2 illustrates the relationship between our overall business objectives and the management of our IT assets. Decisions to invest in IT Assets are made in accordance with the IT Asset Management Framework to make sure the most prudent approach is selected.

Figure 2. The IT Asset Management Framework



The various elements of the Framework are described in sections below.

3.1 IT Asset Management Principles, Drivers and Challenges

3.1.1 IT Asset Management Principles

The principles we use to manage IT Assets are aligned with SA Power Networks' Asset Management Policy principles, which were established to provide consistency with SA Power Networks' vision, purpose and strategic focus.

1. We will manage assets to meet the strategic goals, measures and initiatives outlined in the Corporate Strategic Plan.
2. We will comply with relevant legislation, licences, codes of practice, regulatory obligations and other relevant requirements.
3. We will employ good asset management practice to deliver value from assets and to manage the life cycle of assets prudently and efficiently.
4. We will establish Asset Management strategies, objectives and plans based on agreed levels of service.
5. We will continue to implement and maintain processes and procedures for identifying opportunities and assessing, prioritising and implementing actions to achieve continuous improvement in asset management.

3.1.2 Key IT Asset Management Drivers

Driver	Description
<i>Changes in the Electricity Industry</i>	<ul style="list-style-type: none"> > We need to be ready to make IT investment decisions in response to significant changes in the electricity industry as alternatives to grid electricity become more readily available and cost effective for our customers. Being able to react quickly to these changes to support the organisation in meeting these future challenges is a significant driver.
<i>Maintain Agreed IT Service Levels</i>	<ul style="list-style-type: none"> > IT Service Tiers help ensure that IT is supporting the business to achieve its regulatory obligation of providing a reliable electricity supply to customers. A key driver therefore, when making IT investment decisions is to consider whether these levels of service will be maintained.
<i>Maximise value throughout the life of IT assets</i>	<ul style="list-style-type: none"> > Although committed to maximising opportunities presented by technology, we are at the same time constantly considering ways to control, or where possible, reduce technology costs. Over past five years, we have been successful in providing a highly cost-effective service whilst meeting business needs. > Continuing to focus on the cost of providing IT services was emphasised during customer engagement workshops, which underlined the importance of SA Power Networks doing everything it can to reduce (external) customer costs³. > Making sure we continue to maximise the value of IT assets is therefore a key business driver when making IT Asset decisions.
<i>Maximise the benefits of Transformative Technologies</i>	<ul style="list-style-type: none"> > Developments in technology are constantly occurring, with some of the latest ones being artificial intelligence, internet of things, robotics, big data, virtual reality and cloud storage and computing. When making IT investment decisions, a key driver for us is to consider these new technologies to make sure we adopt the most prudent solution in order to meet customer expectations and achieve our business objectives.

³ The update to this IT Asset Management Plan has considered the feedback received from our customers in the report, SA Power Networks Information Technology Deep Dive Workshop Report, Think Human, 28 June 2018, version 1

3.1.3 Key Challenges facing SAPN IT

Challenge	Description
Maintaining reliable core applications	<ul style="list-style-type: none"> > Managing the risk of failure in core application platforms leading to a significant interruption in customer services. > Exposure to cyber security intrusions due to applications not being patched regularly enough to meet continuing and more sophisticated cyber threats.
Cyber-security	<ul style="list-style-type: none"> > <i>The increasing complexity of cyber threats</i> Threats faced by the energy sector have increased and evolved in ways that could not have been anticipated just five years ago. Although not possible to accurately predict the specific threats we will face in the future, we need to be able to respond to their increasing prevalence and sophistication. > <i>A changing electricity distribution industry</i> Customer expectations and demand for new energy services is growing rapidly. The network of the future will leverage a wider use of technology and include more integration and data sharing between our IT assets and devices used by a range of electricity network customers and stakeholders, all with varying cyber security practices. This will create new challenges for maintaining a safe, secure and reliable distribution network.
Rapidly changing IT landscape	<ul style="list-style-type: none"> > <i>Transformative technologies</i> Although maximising the benefits of transformative technologies is a key driver when making IT investment decisions, we must also be aware that we utilise these technologies with the intention of providing the most prudent way of maintaining the electricity network for our customers > Awareness of potential limitations of these new technologies, for example, the practicalities of moving existing large applications to the cloud. > <i>Changing customer expectations</i> Technology developments have led to significant changes in the way information is provided to customers, leading to an increase in customer expectations for timely and relevant information, particularly during outages.
Changes in the regulatory environment	<ul style="list-style-type: none"> > <i>Critical Infrastructure</i> Regulations limiting certain types of private and public cloud are expected to come into force in the near future. > <i>Geographic</i> Legal and regulatory requirements around consuming services only within Australian jurisdictions limit some options and, in most cases, increase hosting costs e.g. Australian hosted versus overseas hosted is often more expensive.

3.2 IT Asset Lifecycle

3.2.1 Introduction

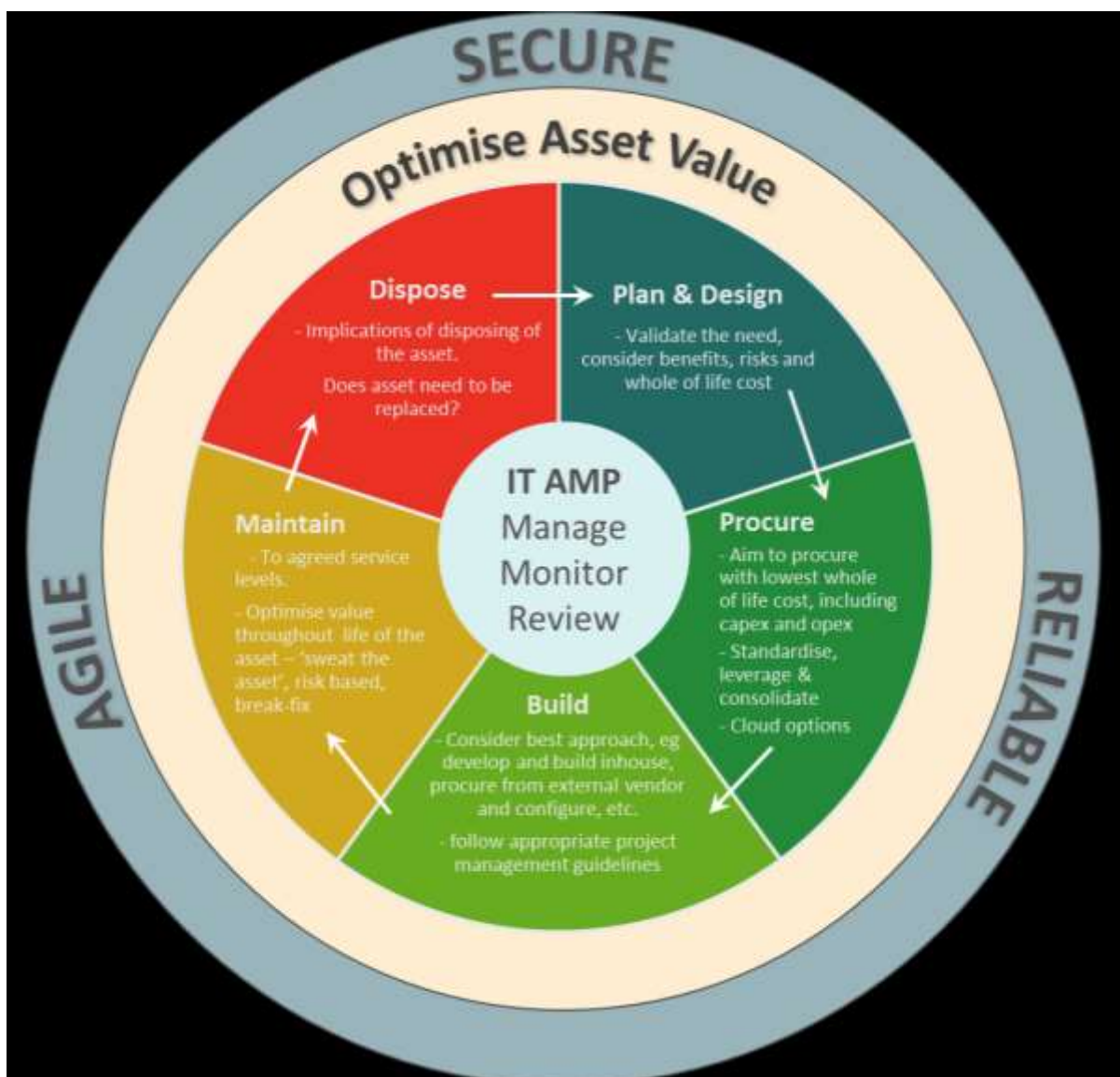
Good asset management involves asset management throughout the asset's lifecycle, which starts with Planning and Design and ends with Disposal.

The objective of IT lifecycle asset management is to achieve an asset's maximum value from planning and design all the way through to acquisition, use, maintenance and disposal. When calculating the value of an IT Asset, the total cost throughout the entire lifecycle needs to be included.

Assets progress through various stages of the Asset Lifecycle and the cycle is continually repeated as assets move in and out of the IT Asset base.

The lifecycle starts by establishing or reviewing needs and in some cases, developing a business case to substantiate the need and any associated capital or operating expenditure. The expenditure needs to be consistent with SA Power Networks' organisational business objectives. Projects are then delivered to acquire and implement the asset, which will require ongoing support and maintenance. The final stage of the asset life is disposal.

Figure 3. IT Asset Management Lifecycle



3.2.2 IT Asset Lifecycle Stages

Planning & Design

This stage validates the need for the asset and what benefits it is expected to deliver. It can involve preparing a business case to justify the IT investment decision by calculating the whole of life costs and detailing risks and benefits.

Once the need is confirmed, this stage also includes developing requirements including business, technical, operational, support and security requirements.

Procure

We aim to procure assets that have the lowest whole of lifecycle cost. We consider the total cost throughout the life of the asset including planning, design, procurement, build and support costs and any other costs directly attributable to owning or using the asset.

Procuring an IT Asset includes building a solution in-house or purchasing an off-the-shelf solution and configuring to meet our specific requirements if necessary.

Often there is a trade-off between initial capital cost and the operating and maintenance costs of an asset. For example, a higher capital cost may result in a lower operating and maintenance cost and consequently a lower whole of life cost for the asset, or vice-versa. An options analysis is therefore undertaken as part of the business case to consider suitable alternatives and combinations of capital and operating expenditure.

Build and Implement

We expect the project delivery costs associated with building and implementing IT Assets to be as efficient as possible. SA Power Networks prefers using internal resources for asset management activities, which is supplemented by a competitive tendering process for external resourcing.

The scope prepared for a project that involves the acquisition of IT Assets includes enough information and detail necessary for detailed design and implementation.

Testing and commissioning procedures are developed to ensure that new IT Assets are ready to be implemented.

Recognising the impact IT projects can have across the business, we also consider change management and the amount of effort required to embed new or updated IT assets into the business environment.

Support, Maintain & Monitor

These tasks are the ongoing activities undertaken to make sure we deliver the services needed to help meet organisational business objectives and include:

- i. The adequacy and effectiveness of support and maintenance to ensure legislative, regulatory and business requirements are met.
- ii. Managing the risk of failure going unrecognised until service quality is adversely affected.

The planning for IT Asset maintenance is consistent with the principles of sound asset and risk management and includes:

- i. the introduction of best practice asset management strategies.
- ii. the provision of standards to ensure that maintenance practices are consistently applied and IT performance assured.
- iii. seeking external advice on the adequacy and effectiveness of support and maintenance plans, and the impact on asset performance and the management of risks.

We have developed Service Tiers to provide specific guidance on the frequency of maintenance tasks and the scope of work that must be covered. This is explained in more detail in Section 4.1.

Disposal

Assets reach this stage when the risk is too great to continue to maintain and support them and/ or the cost to maintain is greater than disposal or replacement. These matters should be clearly presented in the business case put forward for the acquisition of replacement assets.

3.3 Whole of Life Costs

The initial capital expenditure of an IT Asset is normally only a part of the total cost of holding the asset throughout its life. Other costs over an asset's lifecycle need to be considered to help determine the best balance of cost, risk and performance. Consideration must also be given to capital and operating costs especially when considering purchasing a service v's owning the asset.

The following costs should be considered when determining an asset's whole of life costs:

- Acquisition, including planning and design.
- Change Management, including training.
- Operating:
 - failures
 - repairs
 - spares
 - downtime
 - loss of production
- Maintenance:
 - corrective maintenance
 - preventive maintenance, including security and functional updates and patches
 - predictive maintenance
- Disposal costs.

3.4 Managing IT Assets throughout the lifecycle

This section outlines some of the key elements we consider when managing our IT assets to help make sure our objectives are being met.

3.4.1 Business context

SAPN IT recognises the importance of understanding and working across the business to achieve a mutual understanding of the business objectives to be met when making IT asset expenditure decisions. This ensures investments in technology will **maximise the value of the asset throughout its life**.

We also understand that IT investment decisions often impacts the way the business functions. We are therefore committed to recognising the importance of **organisational change management** when making decisions.

3.4.2 Business Impact Analysis (BIA)

Investment in IT Assets are made to ensure IT continues to provide the necessary infrastructure and support to maintain agreed service levels to meet business objectives.

The level of IT support provides for IT services used across the business, are detailed in service level tiers. The service level tiers categorise applications in terms of criticality to achieve business objectives. The services allocated to each tier were based on a business impact analysis⁴. The tiers are:

⁴ The last BIA review was conducted in March and April 2017.

- Tier 1 Enterprise Critical – critical to SA Power Networks achieving its regulatory and customer obligations.
- Tier 2 Business Unit Critical – applications critical at an individual business unit level.
- Tier 3 Business Important – applications required for SA Power Networks to operate but can be offline for longer.
- Tier 4 Non-Critical – applications support for non-critical business processes.

When IT makes decisions about its assets, it is influenced by the need to **maintain agreed business service levels for reliability, availability, efficiency, capacity and support**. IT therefore needs to be able to monitor its assets so that it can assess an asset's condition to continue to provide the required level of business support at acceptable risk levels.

The IT AMP has been prepared to assist IT to make the most prudent decision when it comes to IT Asset investments, while at the same time ensuring business objectives and service levels are still being met.

3.4.3 IT Service Tiers

SA Power Networks IT has an ongoing commitment to work across the business to develop and agree levels of service to support the organisation in achieving its overall business objectives.

Four tiers have been established to define the level of support IT is committed to providing for each service that has been assigned to that tier.

To ensure business expectations are being met, IT will continue to engage with business units to agree the appropriate levels of service to be provided.

The table below summarises the four tiers and the level of support IT provides, noting that the Outage Tolerance refers to the delivery of the service as a whole, regardless of whether the outage is due to the infrastructure, application or client device delivering the service to the user.

Table 1: IT Service Tiers

Tier	Category	Business Impact	Outage Tolerance	RTO ⁵	RPO ⁶	Maintenance Strategy
1	Enterprise Critical	Critical to achieving Regulatory and customer obligations. Must be online first after a disaster.	Can accept no risk very little risk of failure. Very high impact/ cost of failure.	24 hrs	4 hrs	APPLICATIONS Security Patching: Monthly/ Quarterly Minor Upgrades: Quarterly/ Annual Major Upgrade: 2-5 years, depending on risk and value Vendor Support: Mandatory Resiliency Testing: Annually / Bi-Annually and at significant change INFRASTRUCTURE & CLIENT DEVICES Replacement Cycle: refer to section 4.5 for standard asset lives
	Business Critical	Critical to running the organisation. Must be online second after a disaster.	Willing to accept little risk of failure. Moderate impact/ cost of failure.	72 hrs	8hrs	APPLICATIONS Security Patching: Monthly/ Quarterly Minor Upgrades: Bi-annual/ Annual Major Upgrade: 3-5 years, depending on risk and value Vendor Support: Mandatory

⁵ Recovery Time Objective - duration within which a service must be restored after a failure to avoid unacceptable consequences associated with a break in continuity, with Business Continuity Planning workarounds in place.

⁶ Recovery Point Objective - the maximum length of time before the quantity of data lost during that period exceeds the agreed tolerance.

Tier	Category	Business Impact	Outage Tolerance	RTO ⁵	RPO ⁶	Maintenance Strategy
3						Resiliency Testing: Bi-annual and at significant change INFRASTRUCTURE & CLIENT DEVICES Replacement Cycle: refer to section 4.5 for standard asset lives
	Business Important	Required to run the organisation but can be offline for longer.	Willing to accept moderate risk of failure. Low impact/cost of failure.	7 days	72 hrs	APPLICATIONS Security Patching: Monthly/ Quarterly Patching: Bi-annual/ Annual, depending on the specific application Major Upgrade: Based on risk and value Vendor Support: Optional based on risk and value Resiliency Testing: Optional based on risk and value INFRASTRUCTURE & CLIENT DEVICES Replacement Cycle: refer to section 4.5 for standard asset lives
	Non-critical	Applications that support non-critical business processes	Willing to accept moderate/high risk of failure. Low impact/cost of failure.	> 7 days	> 7 days	APPLICATIONS Security Patching: Monthly/ Quarterly Patching: Bi-annual/ Annual, depending on the specific application Major Upgrade: Based on risk and value Vendor Support: Optional based on risk and value Resiliency Testing: Optional based on risk and value INFRASTRUCTURE & CLIENT DEVICES Replacement Cycle: refer to section 4.5 for standard asset lives

3.4.4 Optimising value throughout the asset lifecycle

Bearing in mind the objective of the IT AMP is to provide a clear approach to the way we manage IT Assets by optimising value throughout their life, the following guidelines should be followed when making asset decisions in terms of continuing to maintain an asset or to upgrade, replace or dispose of it.

Level of Agreed Service Support

The criticality to the operation of the organisation is a key consideration when making IT asset decisions and the level of risk associated with deciding to upgrade, replace or dispose. The service tier to which a service has been allocated will assist in determining its criticality.

Extending the life of IT Assets – ‘Sweating the Asset’

This is concerned with extending the useful life of an asset by continuing to support, maintain and monitor its condition, while at the same time making sure the risk of the asset failing to provide the expected service is adequately managed.

When considering whether to sweat an asset, we consider the following:

1. The possibility of extending vendor support for the asset, even though it is outside recommended support arrangements.
2. If vendor support is extended outside the recommended period, will any replacement asset under the support agreement be refurbished equipment, and if so, is this acceptable?
3. Using non-vendor support for an asset once it has reach end of vendor support.

4. Are there any security implications of extending the life of an asset beyond vendor support, for example, is the risk of not having security patches installed acceptable?
5. Replacing only critical components that have a proportionately high risk of failure as they age.
6. Whether continuing to maintain an asset will cause compatibility issues with other assets as they are replaced or upgraded.
7. Is deciding to extend the life of an asset a response to an IT Strategic decision? For example, is it feasible to extend the life of an infrastructure asset until the strategic decision to move to cloud computing solutions has been put into operation?

Risk-based assessment

When an IT Asset is approaching its vendor recommended end-of-life or about to come out of vendor support, a risk-based assessment is conducted to determine the viability of continuing to use that asset.

The assessment should cover the following:

- i. Is the asset still fit for purpose and will it meet future growth/ usage demand?
- ii. Is there continuing vendor support/ does it matter if there isn't?
- iii. Is new technology available that will provide better business outcomes for the same cost/ NPV and at the same or reduced risk levels?
- iv. Will the cost of continuing to support and maintain the asset outweigh replacement cost?
- v. Is the technology likely to become redundant in the short-term and cause integration/ compatibility issues?

Run to Failure/ Break-fix

The appropriate strategy for some IT Assets may be to operate them to failure. There are some assets that are difficult to monitor for condition and the consequence of the asset failing is low. If necessary, this will lead to asset replacement at end of life.

3.4.5 Maintenance Cycles

Maintenance includes ensuring many IT Assets are updated using vendor supplied upgrades and patches. To continue to supply a reliable level of service, the frequency of applying upgrades and patches is set out in the Service Tiers, which is in turn supported by the CIO Application Patch & Upgrade Standard⁷. The Standard requires all CIO business functions to implement an appropriate schedule of application patching and upgrades which is based on balancing the need for continuity of business operations, the benefits of changes, the cost of changes and the risk of taking no action.

3.4.6 IT Assets Purchasing Principles

When making IT Asset purchasing decisions, the following principles should be followed to help ensure the best purchase decision has been made.

Factors to consider when purchasing IT Assets

A decision to purchase an IT Asset can be made because:

- i. It has been determined that the useful life of the asset has been exhausted and it is time to replace it. Depending on the asset, this decision is normally supported by a Business Case.
- ii. A Business Case has been prepared and approved to acquire a completely new asset, ie, it is not replacing an existing asset.

⁷ SA Power Networks *CIO Application Upgrade & Patch Standard*, Controlled Document ID M-1, Major Version 2, 18/08/2017.

Regardless of whether a business case has been prepared, IT Asset purchases will always involve considering the best balance of cost, risk and performance to maximise the value of the asset and to meet service level commitments.

The following key factors should be considered when determining the best balance:

1. Using the Service Tiers, the criticality of the service the IT Asset is providing.
2. The condition and performance of the asset that is being replaced.
3. The overall lifecycle cost of the asset.
4. The environment in which the asset is operating.

IT specific considerations

To face the challenge of a continually changing IT landscape, we consider current trends in technology when determining the best-balanced IT Asset purchasing decisions.

Technology trends are constantly evolving, and the IT AMP will be refreshed to consider the latest trends. The following is a list of current trends in the IT industry.

Cloud – IaaS, SaaS, PaaS

SA Power Networks' Hosting Strategy is built on a hybrid cloud solution which will utilise both cloud services and data-centre hosting for the provision of IT infrastructure, with a view to moving some applications to Software as a Service in the future.

When evaluating IT Asset purchases, consideration needs to be given about whether the asset should be data-centre hosted, or whether there is a cloud solution that aligns with the Hosting Strategy, including the following:

- > Is it prudent to continue to maintain an asset for longer than normal (ie, sweat the asset), so that the asset decision can align with the Hosting Strategy?
- > Have Critical Infrastructure Centre provisions been considered with respect to where certain infrastructure and information must reside, and whether a cloud service needs to be certified (by the Australian Signals Directorate)?

Standardise, leverage and consolidate IT Assets

Standardise

Standardise on a core modern set of large application suites or platforms that are more robust, allow flexible selection of capability and are more maintainable and supportable in the longer term.

Leverage

When considering an IT Asset purchase, we will assess whether there is an existing asset that can be used to meet the business need. This could include:

- i. using an under-utilised piece of existing infrastructure, client device or user-licence already paid for;
- ii. implementing new capability on our existing key technology platforms rather than implementing additional new systems that would increase maintenance complexity and cost.

Consolidate

Consolidate existing legacy systems onto these platforms over time.

3.4.7 Standard Asset Lives

The tables below detail the standard asset lives we should use when determining whether an asset has reached the end of its life. They have been established based on vendor recommendations, industry standards and our own experience in managing IT Assets.

These should also be used as a guide to determine whether the life of an asset should be extended past the standards.

3.4.8 Applications Standard Asset Lives – Frequency of Major Upgrades

Application	Standard Life (years)
Office Systems	5
Document Management Systems	7
Customer Relationship Management	5
Geospatial Information Systems	8-10
SCADA	12
Distribution Management Systems	12
Metering Systems	8-10
Enterprise Resource Planning Systems (SAP)	12

3.4.9 Infrastructure Standard Asset Lives – Frequency of Physical Asset Replacement

Asset Description	Standard Life (years)
Servers – physical	5-7 <i>based on risk assessment</i>
Storage hardware	5-7 <i>in line with vendor support agreements</i>
Physical cabling	<i>based on risk assessment</i>
Network Switches	5-7 <i>in line with vendor support agreements</i>
Routers	5-7 <i>in line with vendor support agreements</i>
Infrastructure Software	Annual patches Major updates in line with support arrangements and business case justification
Security hardware/ software	Based on risk assessment

3.4.10 Client Devices Standard Asset Lives – Frequency of Physical Asset Replacement

Asset Description	Standard Life (years)
Laptops – standard spec	4
Laptops – high-spec	3
CAD equipment – high-spec	4
Desktops	5
Monitors	break-fix
Mobile phones	3
Tablets	4
Metering devices	5
Tough devices	6
Plotters	6
Televisions	break-fix
Projectors	6
Video conferencing equipment	5
Tele-conferencing equipment	5
Associated sundry peripherals	break-fix

3.4.11 Deviating from standard asset lives

There will be instances when we need to upgrade or replace an asset that is not consistent with the standard asset lives. Reasons for this include:

1. The service tier the asset has been allocated to may mean it is more prudent to replace/ upgrade an asset before the standard life to ensure service levels are being maintained and risk is adequately managed.
2. The changing IT landscape means there are instances where we are increasingly reliant on a vendor's upgrade/ maintenance schedule. For example, we have moved one of our office systems from being installed and maintained in-house (Microsoft Office) to a vendor hosted solutions (Microsoft Office 365). This has shifted the maintenance and upgrade responsibilities to the vendor, meaning SA Power Networks has less influence over their timing. The standard of five years for a major upgrade for this office system there does not apply in this instance.
3. Premature failure of an asset or related asset. If an asset needs to be replaced to ensure the service continues to be provided and/ or relies on another asset that is now longer compatible, the only solution may be to replace the asset before it's standard life.

The standard asset lives will be reviewed annually as part of reviewing the IT AMP and will be updated to consider developments in the IT asset base.

3.5 Detailed IT Asset Management Plans

Detailed plans⁸ will provide information on how to manage the assets over their life cycle considering all aspects of the IT Asset Framework.

The approach includes:

- determining which assets warrant a plan;
- determining the level of risk associated with the asset, based on industry standards and our own experiences and the consequences of failure;
- using a 'bottom-up' approach to derive a plan that will maintain (or reduce) the level of risk over the life of the plan;
- costing the resulting plans to determine the expenditure needed to achieve them and which will align with our annual budgeting cycle.

⁸ Current detailed plans are represented by our Regulatory Submission documents.

4. CLASSIFICATION OF IT SERVICES

IT Services comprise a mixture of IT Applications, IT Infrastructure and Client device, with the Application as the user interface representing the service.

The IT services provided across the business are categorised into one of the four Service Tiers.

A review of the IT services as part of the Business Impact Assessment conducted in 2017 confirmed disaster recovery and business continuity requirements and the level of support expected for the services IT provides across the business. The results are shown in Appendix A for applications (representing the IT Services) for Service Tiers 1 to 3. There is an ongoing exercise to evaluate non-critical services to make sure they are also assigned an appropriate tier.

5. IT AMP MONITORING AND REVIEW

To make sure the IT AMP continues to be a relevant guide to assist in making the best-balanced IT Asset decisions, we will continue to monitor the following factors and update the AMP as appropriate:

- a. Asset performance
- b. Changing IT standards and trends
- c. Organisational business objectives, needs and opportunities for improvement and transformation
- d. SA Power Networks strategic business planning output
- e. The changing customer expectations of an electricity distributor
- f. Regulatory standards, changes to the National Electricity Rules and other legislative requirements
- g. Improvements in IT's processes and systems.

SA Power Networks IT will review its Asset Management Plan annually to ensure the plan is kept up date. The reviews initiate necessary changes to ensure continuous improvement is maintained in the management of IT Assets. They will also include a consultation and feedback process involving key stakeholders.

A. Appendix A: IT Services by Service Tiers 1 to 3 – as at October 2018

The following table reflects the level of expected support for the IT services IT including consideration of service levels, disaster recovery and business continuity requirements.

Table 2: Service Tier 1

[illegible]

[illegible]

Table 3: Service Tier 2

Application	Tier	Without Workarounds (hrs)	Without Workarounds	RTO With Workarounds	Data Loss
██████████	████	1	████	████ 1	████
██████████	████	██	████	████	████
██████████	████	██	████	████	████
██████████	████	██	████	████	████
██████████	████	██	████	████	████
██████	████	██	████	████	████
██████████	████	██	████	████	████
██████████	████	██	████	████	████
██████████	████	██	████	████	████
██████████	████	██	████	████	████
██████████	████	██	████	████	████
██	████	1	████	████	████
██	████	██	████	████	████
██████	████	██	████	████	████
██████████	████	██	████	████	████
██████████	████	██	████	████	████
██████████	████	██	████	████	████

Table 4: Service Tier 3

[illegible]

B. Appendix B: Client Device Role Matrix – as at October 2018

We have adopted a variety of client devices and associated useful life policies that reflect the spectrum of work styles, as reflected by our Organisational Human Resources defined user roles (Table 5), and suitability to the user role's work tasks (Table 6).

User numbers have been developed through detailed analysis of our HR records, both internal headcount and use of external service providers, and user login records for 2017–2018.

Within some roles there is a choice of devices depending on specific sub roles eg. Computer Aided Design users may be using a desktop or laptop depending on their specific tasks.

Some devices are shared and not individually assigned. This allows more continuous and efficient use of the devices. The majority of field crews share some devices.

Shared Devices include hot desks, meeting rooms. Meeting rooms include shared workstations and conferencing units as required.

Table 5: Number of Users by Role (2017-2018)⁹

User roles	Number of active users
Desk worker	■
Managers, team leaders, supervisors	■
General mobile worker (asset inspectors, engineers, project workers, support personnel)	■
CAD worker	■
Field worker (general)	■
Field worker – Apprentice	■
Field worker – Trade skill worker	■
Field worker – Customer connect officer	■
Field worker – Works coordinator	■
Warehouse worker	■
Total Active Users	■

⁹ These figures are not scaled for SCS and ACS

Table 6: Device role matrix

Role type	Tough device	Mobile phone	Desk phone	Laptop		Tool of trade	Tablet	Desktop	
				CAD Laptop	Standard laptop			CAD Desktop	Standard desktop
Desk worker			✓						✓
Managers, team leaders, supervisors		✓			✓		✓		
General mobile worker (asset inspectors, engineers, project workers, support personnel)		✓			✓				
CAD worker			✓	✓				✓	
Field worker - General	✓	✓				✓			✓
Field worker - Apprentice		✓							
Field worker - Trade skilled worker	✓	✓							
Field worker - Customer connect officer		✓			✓				
Field worker - Works coordinator		✓			✓				
Warehouse Worker	✓	✓							✓