2023-27

POWERLINK QUEENSLAND REVENUE PROPOSAL

Supporting Document – PUBLIC

Digital Asset Management Framework

Digital Asset Management - Framework

Policy stream	Asset Management	
Authored by	Team Leader Sec Sys & Telecom Strategies	[redacted]
Reviewed by	Manager Asset Strategies	[redacted]
	A/ General Manager Technology and Planning	[redacted]
Approved by	A/ Executive General Manager Delivery and Technical Solutions	[redacted]

Version history

Version	Date	Section(s)	Summary of amendment
1.0	26/05/2016	All	Original version .Introduction of software condition concepts. Minor updates
2.0	31/03/2017	All	Updated due to KPMG audit. The following sections have been added – 2.2 – Stakeholder Requirements 4 – Emergency Response and Network Security 5 – Supporting Activities 6 – Environment and Safety 7 – Forward Planning
3.0	25/08/2020	All	Whole document review; content updates.

Table of contents

1. Introduction

1.1 Purpose

This document outlines the methodology for the asset management of all digital assets deployed by Powerlink, and puts responsibility on the business to ensure this methodology is followed. The integrated asset framework provides a uniform and consistent approach to the management of the technologies encompassed under the areas of Secondary Systems, Telecommunications and Operational Technologies.

By engaging a common, strategic approach to the management of digital assets, Powerlink is endeavouring to optimise whole of life cycle costs, risk and benefits, while achieving the service delivery requirements of the business.

The methodology aligns with Powerlink's Asset Management Strategy to achieve the optimal capability of the digital assets with consideration towards key areas of:

- Continuing to develop the digital assets that we own and manage to support high voltage (HV) network and business related services.
- Developing practices that consider the whole life cycle of the asset in the decision making process. The three primary timeframes are:
  - Planning and Investment
  - Operation, Maintenance and Refurbishment
  - End of Life.
- Maintaining digital assets at optimal levels of reliability and performance during their life cycle, reducing service disruptions and losses due to failure.
- Reviewing our approach to the management of digital assets to deliver overall business benefits.
- Provide digital assets cost effectively with an appropriate balance between reliability of supply and cost.

This document forms part of Powerlink's asset management system documentation, as defined in the Asset Management Framework (ASM-I&P-FRA-A2300019).

1.2 Scope

The scope of this document applies to digital assets in Powerlink. Business IT is excluded.

1.3 References

Document code	Document title
Technology planning techniques	Investment planning methodology – Technology planning techniques *Queensland Government Chief Information Office | V3.0.1 | 2014.*
National Electricity Rules Version 142	National Electricity Rules, *Australian Energy Market Commission (AEMC)*
Power System Data Communication Standard	Power System Data Communication Standard, *Australian Energy Market Operator (AEMO)*
ISO/IEC/IEEE 29148:2011(E)	Systems and software engineering – Life cycle processes – Requirements engineering
ASM-I&P-FRA-A2300019	Asset Management Framework
ASM-I&P-STR-A969433	Asset Management Strategy
ASM-I&P-STR-A1019283	Telecommunications Asset Strategy

Document code	Document title
ASM-I&P-STR-A2326067	Telecommunications Business Strategy
ASM-I&P-STR-A2331814	Secondary Systems Asset Strategy
ASM-I&P-STR-A2331811	Secondary Systems Business Strategy
ASM-I&P-STR-A2296978	Operational Technology Asset Strategy
ASM-I&P-STR-A2296977	Operational Technology Business Strategy
BUR-SR&CS-FRA-A2294813	Security Management - Framework

1.4 Defined terms

Terms	Definition
ISO 55000	International Standard for management of physical assets.

1.5 Roles and responsibilities

Who	What
Team Leader Sec Sys & Telecom Strategies	Delegated Author. Responsible for period review and updated versions.
Manager Asset Strategies	Reviewer. Ensures fitness of purpose and alignment with HV strategies.
General Manager Technology and Planning	Reviewer and Responsible Author. Ensures organisational commitment to the framework outlined in this document through consultation.
Executive General Manager Delivery and Technical Solutions	Approver. Supports the use of this framework in the organisation.

2. Framework

2.1 Digital Assets Profile

Digital assets transcend traditional asset management methodologies such as ISO 55000 and predecessors that focus on physical assets primarily. Digital assets, while still based on physical assets are far more integrated, complex and are subject to a wider concept of value beyond 'utilisation'. As such, principles from technology investment methodologies have also been integrated with the traditional physical asset management approaches to create the digital asset management framework.

2.1.1 Complexity of digital assets

Digital assets are an order of magnitude more complex than physical assets due to heterogeneity, interrelatedness and dynamism as outlined in Figure 2-1.

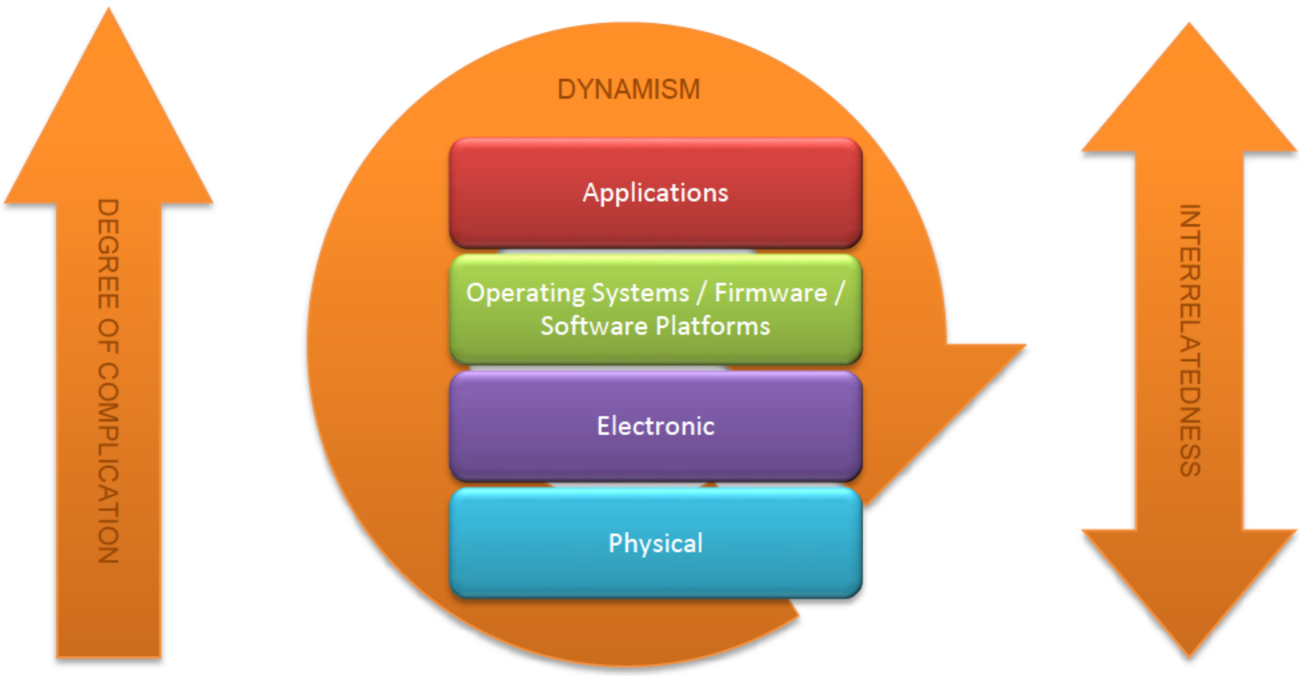

Figure 2-1 – The complexity of digital asset management

Digital assets are highly heterogeneous in their degree of complication, occupying a spectrum ranging from simple physical assets to purpose built enterprise application. As such a 'one size fits all' approach to digital asset management is not sufficient. The digital asset framework therefore distinguishes between categories of asset in order to provide adapted practices suitable to degree of complication inherent to the asset. These categories are Applications, Operating Systems / Firmware / Software Platforms, Electronic and Physical (see section 3.2 below).

A second contributor to complexity of digital asset management is the concept of interrelatedness. More complicated assets are reliant on and comprised of less complicated assets. For example, an enterprise level software application depends on operating systems, electronics and ultimately physical assets. This has two-way implications, in that:

- The end of life of an application may necessitate reinvestment into some or all lower level asset category instances, regardless of their individual asset life cycle.
- The end of life of a physical component may necessitate reinvestment into some or all of the higher level asset category instances, regardless of their individual asset cycle.

Appropriate lifecycle planning, as well as selection of technologies and assets that minimise the degree of interrelatedness are both required to manage the risk of these scenarios eventuating.

Finally, digital assets are more highly exposed to dynamism than primarily physical assets like HV plant in that change is rapid, constant and may originate from many sources both internal and external to the organisation. Understanding and being able to monitor these potential change vectors is critical to asset life cycle management.

For the majority of digital assets, the lifecycle is generally between 5 and 20 years depending on the technology class. Supporting infrastructure for some digital assets consists of site infrastructure, buildings and other facilities with a longer asset life of up to 40 years. For a break down on the numbers of assets per asset profile refer to the Asset Management Plan.

2.1.2 Secondary System Assets

Secondary systems assets are located at each of Powerlink's substations and in addition assets are also centrally located at the Network Operations Centre and the Powerlink Business Continuity Site.

For Secondary Systems, associated protection, control and ancillary devices including panel and cabling for a corresponding HV switching bay ("Bay") is defined as an asset.

Secondary systems ancillary functions that support an entire substation, including site infrastructure, HMI (Human Machine Interface), Integrated Operational Network and Service (IONS) – formerly Operational Wide Area Network (OpsWAN), SCADA gateways, common substation Remote Terminal Units (RTU) and specialised site level control and monitoring functions (e.g. Under Frequency Load Shedding and power system monitoring) are grouped under separate assets.

2.1.3 Telecommunication Assets

Powerlink has independent telecommunication repeater sites and telecommunications infrastructure collocated within operational substations.

The Telecommunications asset group includes different assets associated with site infrastructure, communication towers, multiplexer equipment, microwave radio terminals and other communication systems.

2.2 Stakeholder Requirements

Specifying and understanding stakeholder requirements is essential to the successful management of digital assets. Stakeholders (or stakeholder classes) involved with the management of digital assets throughout their life cycles shall be identified, along with their needs, expectations and desires. These are to be analysed and transformed into a common set of requirements that expresses the intended interaction the system(s) will have with its operational environment, and are the reference against which each operational service is validated [ISO/IEC/IEEE 29148:2011(E)].

Powerlink's Asset Management Strategy (ASM-I&P-STR-A969433), along with this document, serve as key inputs to the stakeholder requirements definition. At a minimum, the following aspects are to be considered when determining stakeholders and respective requirements –

- Safety and environmental compliance;
- Reliability of supply;
- Conformance with the National Electricity Rules;
- Conformance with the Power Systems Data Communication Standard;
- Direct measures;
- Indirect measures; and
- Other constraints on the system solution.

The requirements shall be documented in a format that ensures traceability of requirements to stakeholders and their needs, and is to be communicated to all responsible for fulfilling such requirements.

3. Digital Asset Management

Powerlink maintains an extensive digital asset base servicing the needs of the organisation. Spanning across the areas of Secondary System, Telecommunications and Operational Technologies, Powerlink endeavours to maintain a level of alignment across the different functional areas to ensure opportunities for operational efficiencies are realised. With the deployment of standard equipment types there is also a strong emphasis on optimising whole of life costs, risk and benefits.

In order to perform asset management in this complex environment the organisation must be able to:

- Understand change vectors affecting digital assets;
- Understand issues of interrelatedness, and ensure these dependencies are planned for, or mitigated via selection of digital assets that 'de-couple' asset categories; and
- Define, classify and manage assets according to category, understanding the exposure of each category to each type of change vector and interrelatedness.

3.1 Change vectors

There are four distinct change vectors that must be considered and monitored during the asset life cycle in order to perform prudent asset management of digital assets. These are:

- Business utility;
- Total cost of ownership;
- Obsolescence; and
- Condition.

These vectors are not mutually exclusive – an asset is simultaneously exposed to all of these vectors and an investment decision occurs when any of these forces reaches a trigger condition. However the level of exposure to each of these vectors varies across asset category such that one of these vectors is likely to drive most of the investment decisions for that category.

3.1.1 Business utility

Organisations strive to sustainably create value for their stakeholders while complying with regulation. However this definition of value is variable over time in both magnitude and nature. In order to meet this changing value proposition the organisation may need to either invest in new assets to create new capability, or dispose of unproductive assets whose capability is no longer required.

The business must outline its strategic direction in order for business utility to be assessed. This framework recognises the Powerlink business strategy and divisional plans outlined in the Governance stream of the document management framework as the enunciated and committed direction used to make changes to digital assets.

3.1.2 Total cost of ownership

For most assets, running costs represent the vast majority of the total asset cost. Occasionally innovation and competitive forces may create situations where early replacement of an asset with a new asset (i.e. incurring additional acquisition cost and/or write off) can be justified by the reduction in operating costs.

Service providers shall ensure that the total cost of ownership of assets under their remit are well understood and must have appropriate systems and processes in place for capturing costs associated with digital assets for the entire asset lifecycle.

3.1.3 Obsolescence

Obsolescence is the inability to support a product, system, or service for ongoing use despite it being in reasonable working order. While life extension is possible, an unsupported product has a significantly increased risk profile as a lack of spares and expertise increase the consequences of failure. Additionally lack of cyber security mitigations also increases both likelihood and consequences of risks associated with legacy digital assets. Obsolescence differs in its asset management treatment in that it is typically addressed via a ‘fleet-wide’ replacement decision where the organisation will strategically divest all instances, rather than targeted at individual assets.

Service providers shall perform vendor management in order to ensure that obsolescence is mitigated as far as practicable and that the maximum notification of obsolescence situations is available to support asset management decisions.

3.1.4 Condition

Physical devices are subject to mechanical and environmental stresses that cause wear and tear that ultimately engenders a finite technical life before failure.

Where physical condition can be measured and predicted with a high degree of confidence, techniques such as inspection and measurement can be used to pre-empt failures and enable just-in-time replacement of individual assets – where the asset is of sufficient value that such effort is justified. Commodity assets may be replaced based on age as this offers a useful proxy for more detailed inspection techniques while minimising the cost of managing the asset. Finally, assets that are able to be replaced easily, and for which the consequences of failure are low may simply be replaced as they fail.

Software or firmware may also be subject to failures or performance issues due to coding errors and incompatibilities. Usually these can be redressed with vendors but in some cases the sheer complexity of software and systems can make diagnosis and remediation impracticable leading to persistent but intermittent failures or performance that may render the platform unfit for purpose.

Service providers shall perform condition assessment and/or fault management to enable condition to be assessed and monitored which takes into account:

- Physical condition – integrity of elements including marshalling cubicles, cabling, inter panel wiring, panel configuration, AC and DC supplies, air conditioning systems, buildings and site infrastructure (fencing, earthing, towers);
- Equipment reliability statistics – SAP defect notifications and performance reports are integrated to develop reliability statistics for each item of equipment;
- Obsolescence – an assessment of the extent of manufacturer support, technical support within Powerlink and availability of suitable spares. The adoption of new technologies and standards (driven by manufacturers and faster moving technology industries) in the high voltage environment is forcing change to power system digital technology standards through the inclusion of more corporate technologies. This is resulting in reduced life cycles for new digital technologies, with a vastly increased emphasis on ongoing manufacturer support, technology and product support roadmaps and organisational competency required to support the technology. These factors are becoming critical aspects in the condition assessment process.
- Fitness for purpose – an analysis of whether the equipment or system functions meet business requirements; and
- Criticality of the asset within the network to understand and quantify risk.

The condition assessment model and criteria weighting are dependent on the technology being assessed.

3.2 Asset categories

The following represents the categories of digital assets.

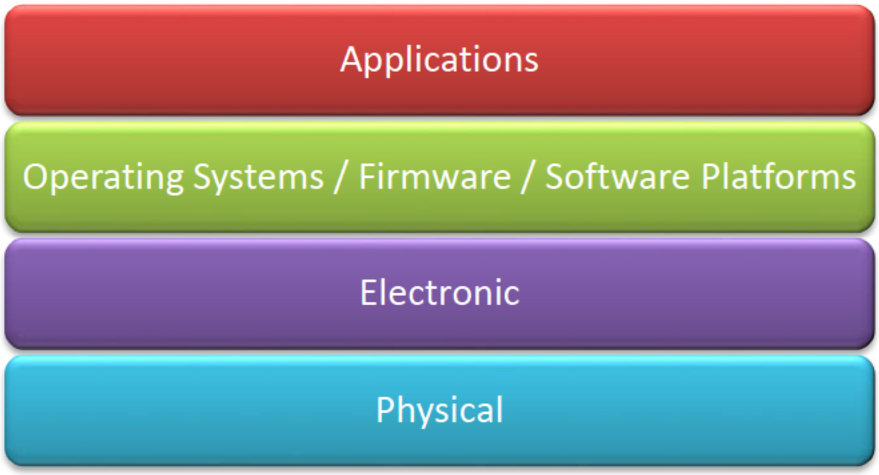

Figure 3-1 – Categories of digital assets

3.2.1 Applications

Application assets are items of software that are used to support a business activity such as data collection and analysis or systems administration.

Examples include:

- Management systems and element managers;
- Terminal services and Human Machine Interfaces (HMI); and
- Power system applications.

3.2.1.1 Planning and investment

Investment in applications is primarily justified by business utility – creating efficiencies aligned with the business strategy or meeting compliance requirements. Planning and investment includes not only the initial procurement decisions, but decisions to take major version upgrades or add additional functionality.

3.2.1.2 Operation, maintenance and refurbishment

Operations of applications are the responsibility of the business to support their intended use. Maintenance of assets generally includes minor version upgrades in collaboration with vendors to address issues of defects, cyber-security or incremental functionality improvements.

Applications cannot be refurbished, but may be life extended beyond service provider capability if the risks to the business are acceptable.

3.2.1.3 Exposure to change vectors

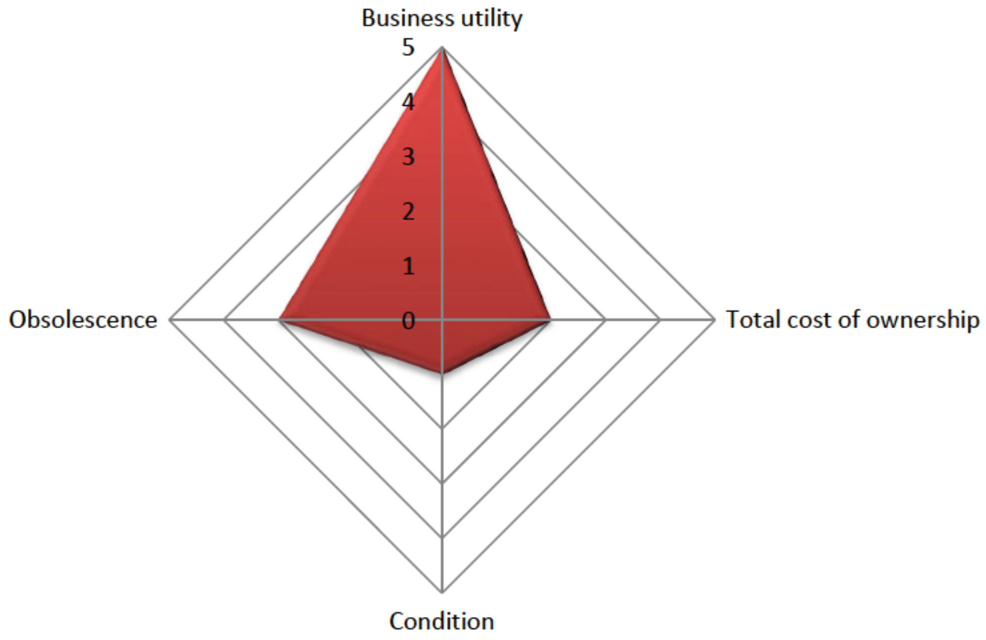

Figure 3-2 - Likelihood of change vectors for the application asset category

Figure 3-2 – outlines the exposure of the application category to change vectors. Applications are most subject to change based on their business utility, though occasionally the business may be forced to replace systems based on eroded service provider capability or disruption / innovation impacting total cost of ownership. It is extremely unlikely but possible that an application may need to be replaced or upgraded to address issues associated with condition.

3.2.1.4 Interrelatedness

Category	Degree of interrelatedness	Category
Application	→ Moderate. Application vendors are likely to only support a limited set of operating systems or legacy device firmwares such that changing an application could result in the need to change the platform. The more specialised the application the more likely this is to be a factor.	Operating Systems / Firmware / Software Platforms
	← Low. Only generational changes are likely to result in applications being replaced or upgraded as backwards compatibility is usually a key feature.	

3.2.2 Operating Systems / firmware / software platforms

Operating System / firmware is software native to hardware used primarily to enable functionality of the hardware. Software platforms are common use systems that provide generic functionality to applications.

Examples include:

- Operating systems and hypervisors running on computer hardware;
- Firmware running on networking and security devices;
- Firmware running on telecommunications equipment;
- Firmware running on intelligent electronic devices. and
- Database Management Systems, web servers, directory and network services.

3.2.2.1 Planning and investment

Investment in operating systems / firmware / software platforms is driven by technical service providers to support the required capability in compliance with asset management principles and standards.

3.2.2.2 Operation, maintenance and refurbishment

The operation of operating system / firmware / software platforms is the responsibility of technical service providers and generally involves performance and capacity management. Maintenance of operating systems and firmware generally includes minor version upgrades in collaboration with vendors to address issues of defects, cyber-security or incremental functionality improvements.

Operating systems / firmware / software platforms cannot be refurbished, but may be life extended beyond vendor support dates provided risks can be mitigated.

3.2.2.3 Exposure to change vectors

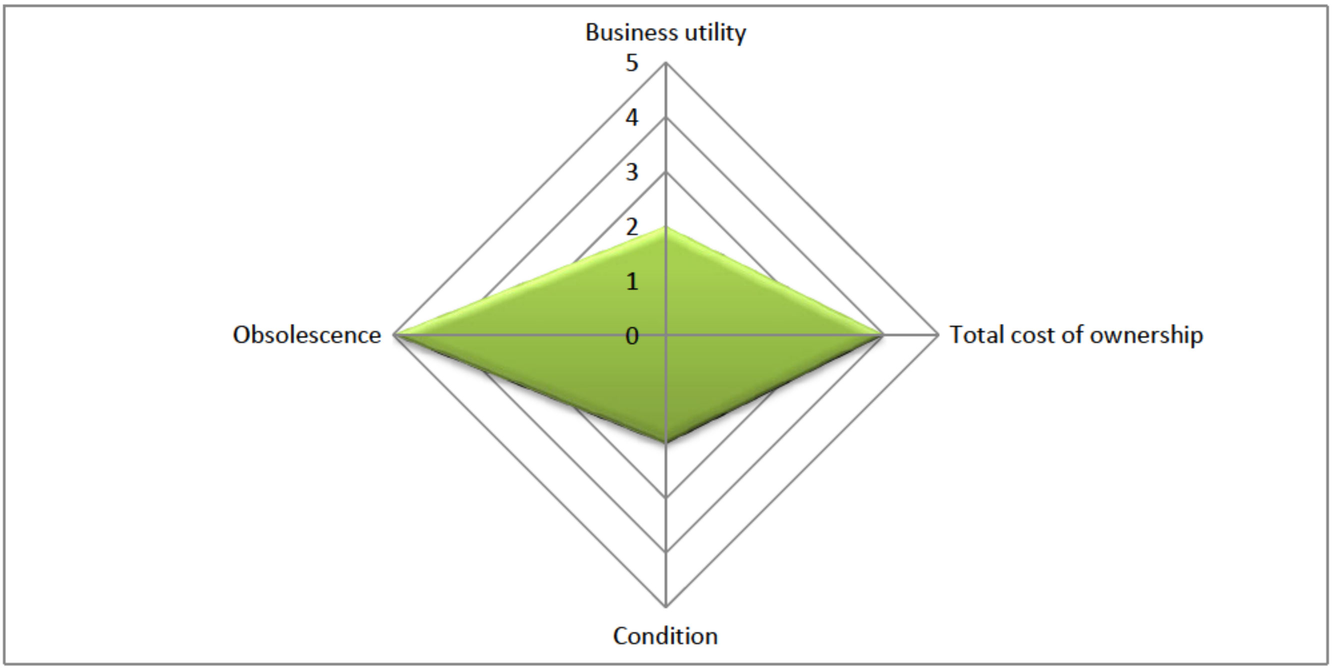

Figure 3-3 - Likelihood of change vectors for the operating systems / firmware / software platform asset category

Figure 3-3 – outlines the exposure of the application category to change vectors. Operating systems / firmware / software platforms are most likely to be impacted by obsolescence as software generally has a short product life. Total cost of ownership is also a likely vector as support costs represent a large and ongoing part of the overall asset cost of software. Business utility may also necessitate change as new features may be available in later or alternative products. It is extremely unlikely but possible that operating systems / firmware / software platforms may need to be replaced or upgraded to address issues associated with condition.

3.2.2.4 Interrelatedness

Category	Degree of interrelatedness	Category
Operating Systems / Firmware / Software Platforms	← Moderate. Operating systems and especially hypervisors are less coupled to underlying hardware than in the past.	Electronics
	→ High. Firmware is tightly coupled to its underlying hardware.	

3.2.3 Electronics

Electronic assets are primarily composed of semiconductors and some limited moving mechanical parts.

Examples include:

- Intelligent electronic devices;
- Networking and security devices;
- Telecommunications equipment; and
- Computer hardware.

3.2.3.1 Planning and investment

Investment in electronics is driven by technical service providers to support the required capability in compliance with asset management principles and standards.

3.2.3.2 Operation, maintenance and refurbishment

The operation of electronics is the responsibility of technical service providers, though is generally limited to fault detection. Maintenance is limited to the physical aspects of the device (such as fans, hard drives etc.).

Electronics can sometimes be refurbished and may be life extended beyond vendor support dates provided risks can be mitigated.

3.2.3.3 Exposure to change vectors

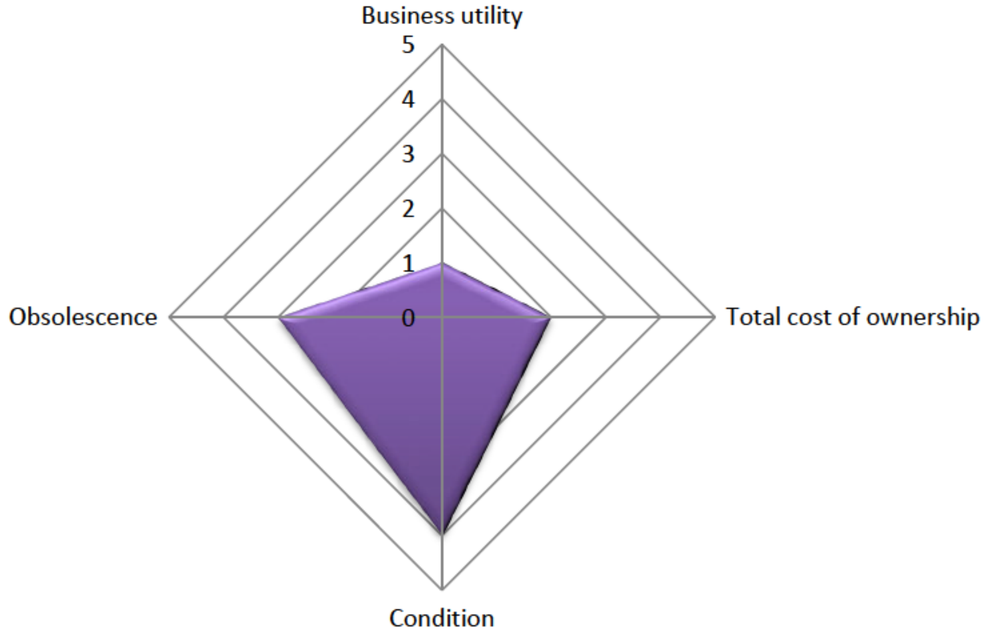

Figure 3-4 - Likelihood of change vectors for the electronics asset category

Figure 3-4 – outlines the exposure of the electronics category to change vectors. Electronics are most likely to be impacted by change in condition due to the limited life of semiconductors. Obsolescence is also a key change vector as electronic devices generally have a limited vendor support periods. Changes in total cost of ownership could potentially occur, though this is far more likely in centralised environments like the datacentre rather than in field deployments due to the extreme changeover costs in labour. It is unlikely that business utility will be a change vector, though this is possible.

3.2.3.4 Interrelatedness

Category	Degree of interrelatedness	Category
Electronics	←→ Low. Electronic devices are generally made to form factors based on standardised physical configurations.	Physical

3.2.4 Physical

Physical assets are assets and materials primarily mechanical or passive in nature.

Examples include:

- Telecommunications towers; and
- Buildings, panels/racks, wiring and fibre.

3.2.4.1 Planning and investment

Investment in physical assets is driven by technical service providers to support the required capability in compliance with asset management principles and standards.

3.2.4.2 Operation, maintenance and refurbishment

The operation of physical assets is largely non-existent as the assets are passive and static. Maintenance of physical assets is key to their longevity, with a need to inspect and/or test them periodically.

Physical assets may be able to be refurbished and can be life extended subject to an appropriate ongoing condition assessment with consideration of the consequences of asset failure.

3.2.4.3 Exposure to change vectors

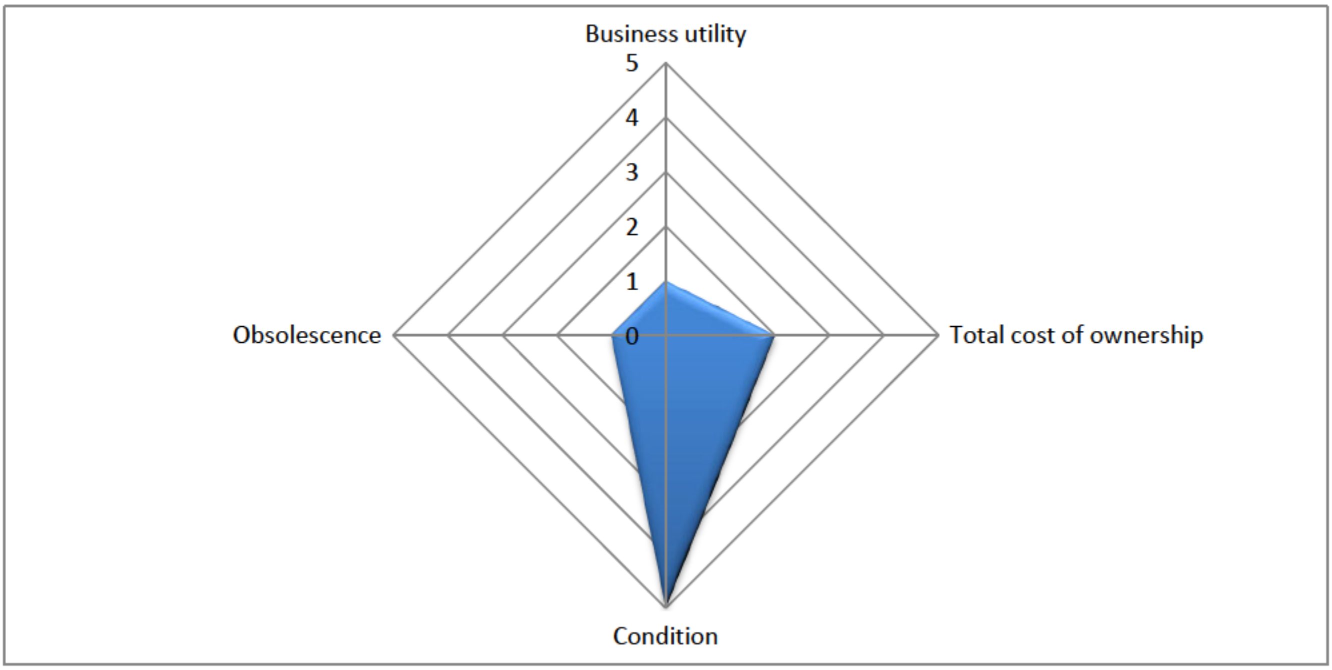

Figure 3-5 - Likelihood of change vectors for the physical category

Figure 3-5 – outlines the exposure of the physical category to change vectors. Physical assets are primarily affected by changes in physical condition, though potentially total cost of ownership could also factor if maintenance and inspection activities costs escalate. Business utility and obsolescence are both possible but extremely unlikely change vectors.

4. Emergency Response and Network Security

4.1 Emergency Response

Digital assets shall be designed and implemented to support and provide opportunities to improve the operational efficiencies for the corporate and the power system environments.

In addition to supporting the day to day operations, digital assets shall be designed to achieve a high availability and performance standard that will ensure the technologies are available during emergency events. The digital network and supporting technologies are critical in providing the organisation with the right information, in the right timeframe allowing the most optimal business decisions to be made.

The network management systems including the Energy Management System and Network Management Systems shall be designed and built to provide visibility of the Powerlink assets by the network switching and network operations staff at all times

4.2 Network Security

Powerlink operates and manages national critical infrastructure and therefore has an obligation to adopt a prudent approach to managing security risks and threats impacting on our network assets, information and associated facilities and infrastructure.

Significant security risks associated with Powerlink critical infrastructure shall be addressed in line with Powerlink's Security Management Framework and its supporting documents, to reduce the likelihood or consequence of adverse occurrences.

Powerlink's Security Management Framework outlines the risk management process for the management of security at Powerlink and is an important component of the management of disruptive operational risks as described in Powerlink's *Business Resilience Strategy*. It addresses the expectation from Governments that critical infrastructure operators like Powerlink provide adequate security for their physical and information assets and actively apply appropriate risk management to security activities. Security risk management also contributes to the management of legal obligations relating to the safety of the public near Powerlink's assets and the personal security of employees and contractors.

Implementation of the framework and its supporting documents ensures the safety and security of all Powerlink assets, and that Powerlink employees are aware of their responsibilities and have adequate skills in managing security issues.

5. Supporting Activities

5.1 Risk Management

To successfully manage Powerlink Digital Technology assets, it is necessary to identify and manage a range of hazards and risks, including those not directly related to the performance of the asset. The Powerlink Risk Charter and matrix (with associated levels of likelihoods and consequences) shall be used as the basis for categorising risk. Risks shall be recorded in a risk register and reviewed regularly.

5.2 Project Handovers

The delivery of a new asset, replacement or refurbishment of an existing one all involve the interaction of design, construction, commissioning, project management, procurement and strategies groups. The transition from the practical completion of a project to the handover of operational asset requires the recording and communication of critical information and related data about the asset.

The Project Handover process has been implemented to provide the conduit for transferring design and construction information between the Designers, Construction Contractor and the Maintenance Service Provider. It further provides an opportunity for the project sponsor to proactively seek feedback from project managers, the project team and stakeholders about the project and the project handover process to ensure that opportunities for improvement are implemented.

5.3 Strategic Spares

The availability and storage of spares shall be continually reviewed and managed by the Materials Team.

When equipment is being purchased, spares numbers and locations shall be reviewed in acknowledgement of the approved project for which the equipment is being purchased. Reviewing spares during procurement shall ensure that on completion of the project the appropriate spares are stored in the correct location and are easily and readily available.

Procurement procedures shall define minimum and maximum stock levels of spares in different equipment categories to cover corrective maintenance tasks. The maintenance spares shall cover equipment failure resulting in a loss of service or data. Maintenance spares readily available across appropriate storage locations will ensure appropriate restoration of services, minimising any service interruptions.

5.4 Technical Training

For the introduction of any new digital technologies, a needs analysis shall be performed that identifies the different levels of training required that will be undertaken across the organisation, including nominated service providers.

6. Environment and Safety

6.1 Environmental Management

The environmental management of the digital assets shall align with existing strategies associated with Substation and Transmission Lines assets. The numbers of environmental hazards confronting digital assets are not as numerous as substations and lines, and are typically associated with the digital assets support infrastructure.

The treatment of oil and diesel stored on site for standby generators along with the clearing and refurbishment of site access tracks throughout sensitive ecosystems are examples of environmental management issues for Digital Technologies.

Alignment shall be maintained with current Substation and Transmission Lines environmental standards, providing clear guidance to service providers. In aligning with existing Substation and Transmission Lines standards clarity will be achieved through preventing the duplication of existing Asset Management documentation.

6.2 Safety Management

The design and implementation of Digital Technology maintenance strategies shall incorporate Powerlink's Safety Management System. This includes the use of risk and hazard management processes to ensure safety of workers, the safety of the public and the safety of plant and equipment.

7. Forward Planning

Digital asset initiatives occupy a broad spectrum of asset management *change vectors* as outlined in the sections above - from standard replacements of hardware based on condition, through to complex business enabling enterprise systems driven by business utility. The following documents and Asset Management Plan shall be periodically updated to describe the strategic direction, both from an asset and a business perspective, which form the drivers for the project initiative's that generate the respective capital and operational projects.

- ASM-I&P-STR-A1019283 Telecommunications Asset Strategy
- ASM-I&P-STR-A2331814 Secondary Systems Asset Strategy
- ASM-I&P-STR-A2296978 Operational Technology Asset Strategy
- ASM-I&P-STR-A2326067 Telecommunications Business Strategy
- ASM-I&P-STR-A2331811 Secondary Systems Business Strategy
- ASM-I&P-STR-A2296977 Operational Technology Business Strategy

The Asset Management Plan shall summarise the ten year forward plan on an area or network basis, outlining the projects by type, location and expected completion date as well as scheduled condition assessments.

The work on various condition prediction and risk tools is part of usual business process ensuring continuous improvement of the condition assessment process.

Where applicable, all routine maintenance plans shall be implemented within SAP and work orders for maintenance activities automatically generated for execution by the relevant service provider.

8. Distribution list

Divisional Distribution	Contact details
Chief Executive	N/A
Delivery and Technical Services	General Manager Design Solutions General Manager Infrastructure Delivery General Manager Technology and Planning Manager Asset Strategies Team Leader Sec Sys and Telecom Strategies Senior Secondary Systems Strategies Engineer Senior Telecommunications Strategies Engineer Senior Digital Asset Strategies Engineer
Finance and Governance	N/A
Operations and Service Delivery	General Manager Technical and Network Solutions General Manager Field Delivery General Manager Service and Supply Partners General Manager Network Operations
People and Corporate Services	General Manager Business IT
Strategy & Business Development	General Manager Strategy General Manager Network Portfolio General Manager Business Development Manager Resilience
Group/Team Distribution	**Contact details**
N/A	N/A
External Distribution	**Contact details**
N/A	N/A

