Government of South Australia

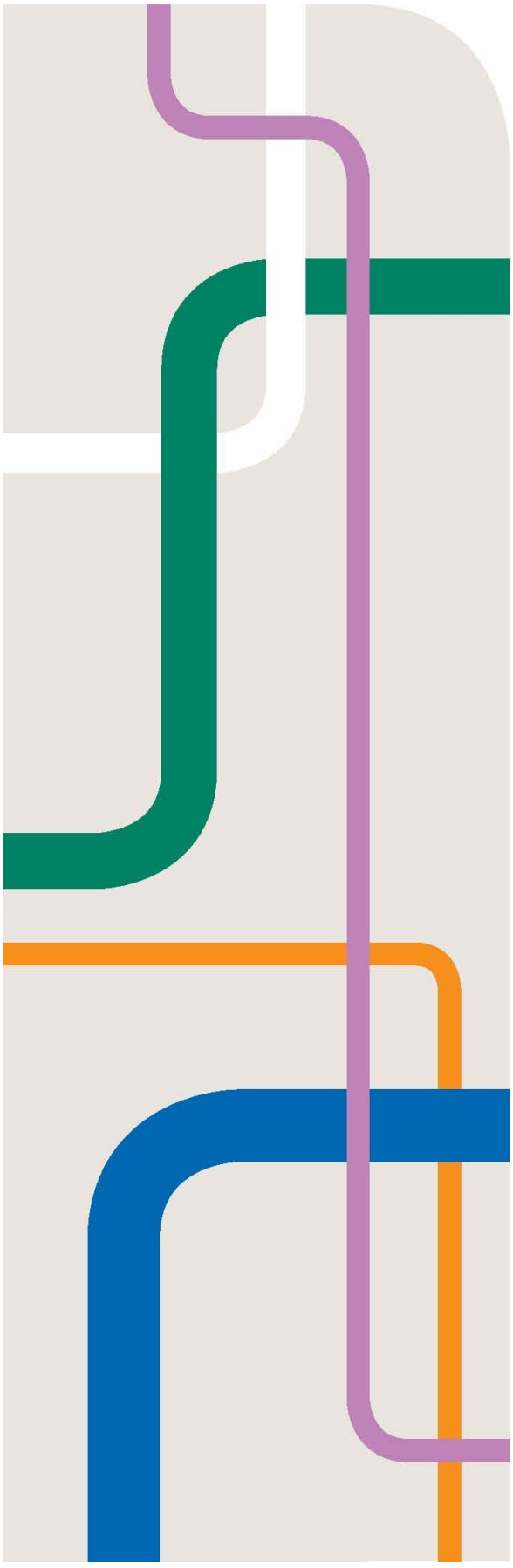
SA Water

SA Water
Regulatory
Business
Proposal
2016-2020

Attachment L
Technology capital planning approach – 2016-20, SA Water

Government of South Australia

SA Water



Information Services

Technology Capital Planning Approach - 2016 to 2020

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1 Executive Summary

SA Water proposes to invest $115 million of capital in technology over the second regulatory period to improve customer experience, improve business efficiencies and future proof our technology (Table 1). Our proposed investment will result in $2.8 million of additional support and licencing costs and achieve operating cost efficiencies of $11.4 million per year by 2020.

Table 1: Proposed capital technology plan for second regulator period (Dec 2014 real $'million)

	Proposed capital investment*	Annual increase operating costs**	Annual operating cost savings**
Business Change Program			
Improve business efficiencies	32.5	2.1	9.5
Improve customer experience	13.5	0.2	1.1
Plan for the future	22.0	0.5	0.8
Business Change Program sub total	**68.0**	**2.8**	**11.4**
IT Asset Lifecycle Program	**47.0**	**0.0**	**0.0**
Technology capital plan	**115.0**	**2.8**	**11.4**

* The information technology capital expenditure is allocated 50% to water and 50% to sewerage, as supported in principle by ESCOSA.

** This operating expenditure is allocated between the water, sewerage, excluded and non-regulated business segments based on the cost allocation method supported in principle by ESCOSA.

SA Water developed the technology capital plan via an extensive business planning process and robust internal and external consultation processes including Your Say. A broad range of technology needs from across the business were considered.

To address competing priorities we adopted a comprehensive internal governance process including:

- A 'top–down' strategic analysis to ensure the technology capital plan aligns with our strategic priorities
- Detailed business cases for each investment proposal including a 'bottom–up' approach to costing
- Management review and prioritisation to ensure investments are prudent and efficient.

KPMG has provided independent assurance that the governance process and controls we applied to developing our capital technology plan were sufficient. (Refer to 'Independent Prudence an Efficiency Review of the RBP 2016 Technology Submission' document by KPMG)

Figure 1 depicts the framework used to develop the technology capital plan for the second regulatory period. This broadly classifies capital initiatives that are focused on supporting a Business Change Program for delivering additional benefits to SA Water and its customers, and an IT Asset Lifecycle Program for Business Change Program ensuring the continued availability and resilience of existing systems.

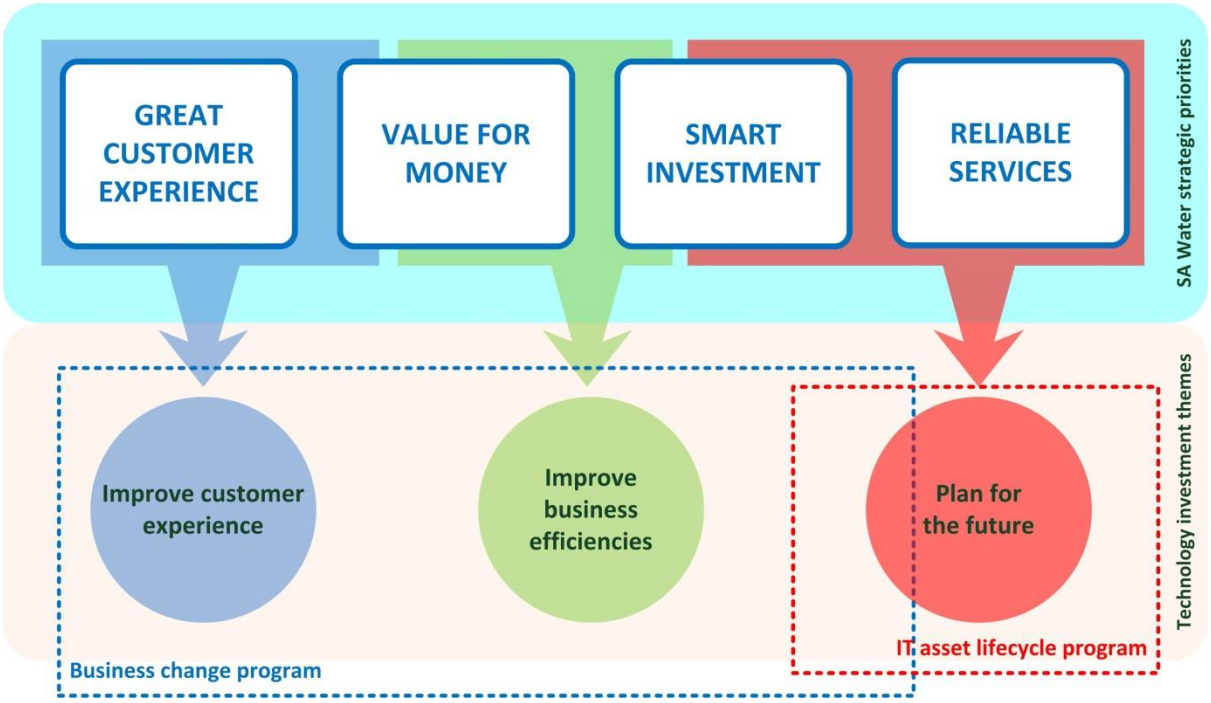


Figure 1: Technology capital plan framework

The two programs are aligned to three technology investment themes:

Improve customer experience
During our recent customer engagement program, Your Say, our customers informed us that they:

- Favour multiple channels of communication instead of the traditional telephone based service
- Want more options on how they interact with us and they seek online self-service options
- Value a case management approach to customer service based on a comprehensive view of previous interactions, account history and communication preferences.

We developed our *Digital Strategy: 2014 – 2020* (attachment M) to address the changing expectations of customers and the need to modernise and streamline customer facing services and channels. We will continue to implement our Digital Strategy over the second regulatory period to provide increased customer-facing functionality and business process savings. Specifically, we will build on the Digital Program we started implementing in the first regulatory period.

Improve business efficiencies
To meet the challenge of providing more affordable services for customers, we propose investment in technology to reduce operating costs. These investments in technology will provide timely, accurate and relevant information to enable us to optimise our business processes and be more innovative in how we deliver services. The business efficiencies will help keep prices affordable, while maintaining or improving service to customers.

Plan for the future
We propose investment in a sustainable technology platform that enables us to more effectively engage with our customers, improve our operational effectiveness and manage risks. We intend to leverage our use of technology and customer data to be better informed about our customers and operational environment. Our proposed investment will support immediate customer and business needs, as well provide scalability to support future needs. To ensure business continuity and stable, reliable technology services, we must also continue to invest in our existing technology assets through modernisation and upgrade activities.

Figure 2 and Table 2 illustrate the increasing profile of our technology capital investment over the first and second regulatory periods. The Business Change Program is driving the larger part of the increase with average annual investment rising from $9.9 million in the first regulatory period to $17 million in the second regulatory period. The average annual investment for the IT Asset Lifecycle Program is also increasing from $10.4 million in the first regulatory period to $11.7 million in the second regulatory period.

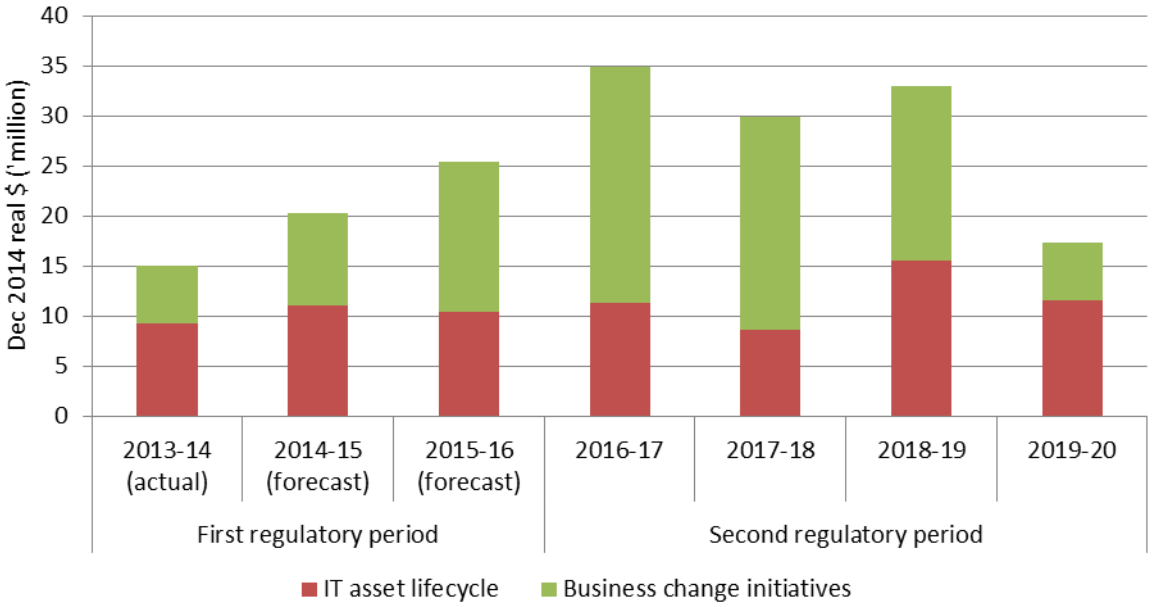


Figure 2: Technology capital plan comparison 2013-14 to 2019-20

Table 2: Technology expenditure comparison of regulatory periods

	Technology capital expenditure	
	First regulatory period (forecast)	**Second regulatory period (proposed)**
Number of years	3	4
Technology expenditure (Dec 2014 real $'million)	60.9	115.0
Average annual Business change program expenditure (Dec 2014 real $'million)	9.9	17.0
Average annual IT asset lifecycle program expenditure (Dec 2014 real $'million)	10.4	11.7

SA Water's RBP 2016 technology capital plan consists of a total of 39 initiatives; Business Change-related initiative account for 26 of these and IT Asset Lifecycle-related initiatives account for the remaining 13. Table 3 below highlights the key investments covered by the technology capital plan.

Table 3: Key benefits of proposed technology capital plan (December 2014 real $)

Improve customer experience	
Key investment	**Benefits**
Digital program ($10.2 million) *Enhance existing Digital Strategy program of work to meet the changing expectations of our customers.* *Continue to enhance operational efficiencies by implementing technology to streamline and automate processes by providing opportunities for customers to 'self-serve'.*	• **Enhanced and optimised website** to enable customers to get the information and services they need, when they need it and in the right form. • **Expanded contact centre channel management and strategy** to enhance customer enquiry handling so enquiries can be received through more channels and routed to appropriate personnel, ensuring a consistent and responsive customer experience. • **Availability of online fault reporting** to enable customers to report faults online and be kept informed about the fault through the channel of their choice • **Enhanced customer self-service platform** to enable all customers to self-serve and access account information through a secure, responsive portal when and how it suits them. • **Expanded eBilling and online payment** to consistently provide customers with a good experience when paying bills online through convenient and intuitive payment methods. • **Improved customer relationship and information management** to ensure all customer records and key interactions are captured and accessible through a single system that will also provide personalised and segmented views of customers to support the provision of targeted services and communications.
Improve business efficiencies	
Key investment	**Benefits**
Field process re-engineering ($13.9 million) *Extend existing asset and works management program to deliver critical information and system access to staff working in the field.* *Use technology to enhance efficiencies in field processes and provide timely and accurate information to our customers through online channels implemented by the Digital Program.*	• **Enhanced field asset and works mobility platform** to enable workforce mobility and greater access to information and systems from the field. • **Improved digital fault communication** to proactively provide customers with timely and relevant information on service issues impacting them. • **Improved safety** to reduce the risk of workplace health and safety (WHS) incidents by providing hazard information and safe working procedures in the field, supported by proactive WHS monitoring of field crew activity through In-Vehicle Tracking and Lone Worker systems. • **Improved field service delivery efficiencies** through: - Automating and optimising planning and dispatch functions of field crews - Greater access to customer data and information to deliver more efficient and effective services, for example improved Fault Management Services. - Improved accuracy and timeliness of asset data collected in the field by providing data recording tools and reducing manual/paper-based component in processes. • **Improved understanding and management of assets** to plan and deliver more cost-effective asset management and preventative maintenance services.

Plan for the future	
Key investments	**Benefits**
SCADA systems review and renewal ($4.6 million) *Review our asset control system platform (SCADA) practices, systems performance, architecture and security controls to then implement appropriate changes to:* • *Ensure the SCADA systems are fit for purpose, cost effective and accessible given business criticality and future needs* • *Implement security controls mandated by the SA Government.* • *Improve data quality through improved system reliability.*	**Future proof water & sewerage services** through: • Enhanced SCADA platform providing the right data to the right people at the right time. This will enable improved decision making to maintain service standards and provide reliable water and sewerage services to our customers. • Enhanced SCADA remote monitoring and control capability to detect and resolve problems earlier, to reduce frequency and extent of service outages impacting customers. **Minimise risks relating to:** • Breakdown of SCADA or other critical operational control systems potentially affecting ability to deliver core services. • Threats to security and cyber-attacks on information assets. **Compliance with SA Government information security requirements** mandated in the ISMF.
Information security program ($4.0 million) *Further reduce the risk of cyber security breaches and to ensure compliance with SA Government mandated information security requirements as per Information Security Management Framework (ISMF).*	

IT Asset Lifecycle Program	
Key investment	**Benefits**
IT assets lifecycle renewal programs ($47 million) *Modernise and upgrade core business applications and underlying technology infrastructure.* *Maintain an acceptable level of risk for the availability and security of technology assets.*	**Control and mitigate technology asset risks** relating to: • Increased operating support costs for products that are no longer supported by vendors • Critical business systems not being available or corruption of data within the systems from security risks of unsupported software / hardware (e.g. computer viruses and malicious software) • Prolonged system outages impacting business critical operations and our customers • Non-compliance with mandated security controls of ISMF disaster recovery and system support requirements • Replacement parts and hardware components not being available for hardware no longer supported by vendors.

2 Introduction

The Information Services (IS) business unit is responsible for providing technology services and expertise to SA Water's Business groups. IS is governed by the IT Governance Committee (ITGC) that provides strategic guidance concerning the management, direction and priorities of technology within SA Water. The primary focus for IS since 2009 has been to incrementally uplift the overall maturity level of technology services across SA Water (i.e. technology infrastructure uplift, formalised project delivery, forward technology planning, technology strategy and governance). This has been an iterative process, with the next iteration being the driven by the upcoming 2nd Regulatory Period (RBP2016). The focus for RBP2016 is to further optimise technology services and reduce the cost of technology for SA Water.

To facilitate this goal, IS has developed a technology capital plan for RBP2016 that will ensure that technology systems, utilised by SA Water's internal users and external customers, are available and provide the necessary business functionality and performance to enable the reliable delivery of its services to customers. This plan is broadly categorised into the following areas:

- **Capital Business Change program:** Technology-driven works program to deliver benefits to SA Water customers, achieve efficiencies in how SA Water delivers services to customers, or to future proof SA Water's services by addressing risks to SA Water.
- **IT Asset Lifecycle program:** Work program to address security and business risks on existing technology assets to ensure continued availability of functionality to SA Water business users and customers. This program typically includes hardware / software replacement programs and regular upgrades activities. No new functionality or enhancements are covered in this program as the focus on this program is about addressing risks and ensuring continuity of existing levels of services.

As shown in Figure 3 below, a number of documents have been written during the process of developing the technology capital plan. The processes resulting in these outputs are documented in section 4 of this document. Key document outputs are identified in the diagram, surrounded by the box drawn in blue-dotted line. The remainder of the documents in the diagram are supporting artefacts used to generate the necessary information included in the key documents.

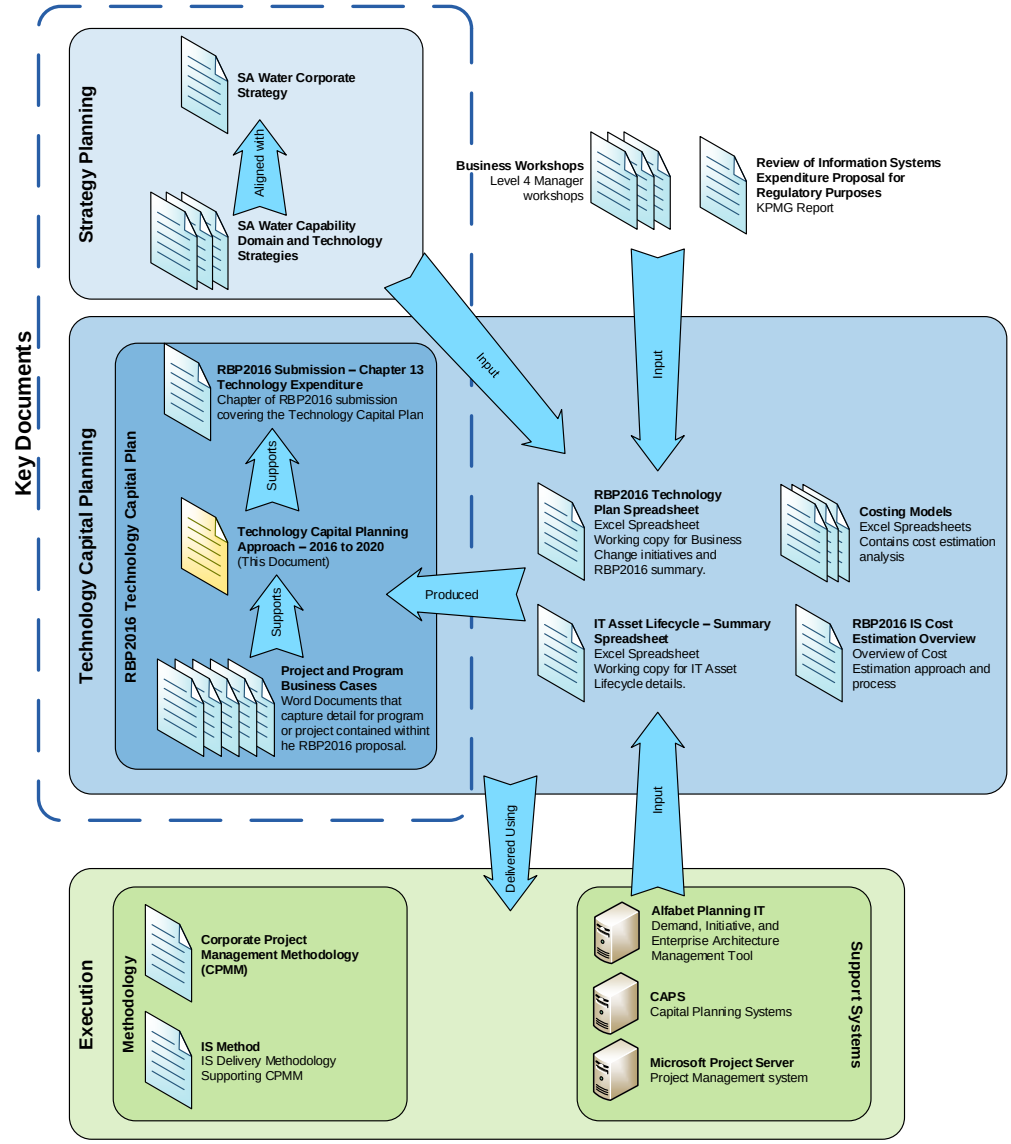


Figure 3: Related Documentation

This document includes the methodology adopted and processes followed in the planning, analysis and execution of the capital work program from FY16/17 through to the end of FY19/20, which have resulted in the creation of the abovementioned key documents.

Note that the Operational Support Program is not covered by this document. Details about that program can be found in the Information Services operating budget plan.

2.1 Purpose

This document has been developed to provide a guide to the process and approach used for the design, analysis and execution of the IS Capital works program. In addition this document provides a summary of the Capital Works program for the RBP2016 submission.

The document is split into the following major sections:

Section	Description
1. Executive Summary	Contains a summary of the contents of this document.

Section	Description
2. Introduction	The current section that contains the overview of the documents context, glossary, references and introduction to the document. This section also provides an overview of the document and introduces the various supporting documents that are developed in the process of creating the work program.
3. Commentary on First Regulatory Period	Overview of the performance and outcomes of work planned in the 1st regulatory period and the various events that occurred that will impact the plan for the second regulatory period.
4. Technology Capital Investment Planning Methodology	Detailed information about the approach to designing the work program, capturing the business needs, alignment with strategy, governance surrounding the process and the process for costing each program of work.
5. Summary of Second Regulatory Technology Capital Plan	Summary of the work program initiatives broken up into each of the capability domains.
6. Prudency and Independent Review	Summary of an independent review of the SA Water Technology Capital plan to determine if the submission is prudent and focused on the correct areas of expenditure.
7. Delivery Approach	Summary of the delivery approach utilised by IS to deliver work outcomes identified in the work program in order to control schedule, scope and quality of all IS deliverables.
8. Technology Strategy Approach	Overview of the technology strategy development approach and the how the technology capital plan is aligned to the business and technology strategies.

2.2 Scope

Inclusions

The scope of the Technology Capital Plan includes business functions that require Information Services (IS) support to deliver and maintain the Information Communications Technology (ICT) capabilities within SA Water. This includes:

- Implementation of new technology systems – contained in the Business Change Program.
- Implementation of new functionality of existing technology systems – contained in the Business Change Program.
- Support and maintenance of existing technology systems – contained in the IT Asset Lifecycle Program.

Exclusions

Capital investment associated with the following systems and projects has been excluded from the process described in this document:

- Physical Asset Infrastructure and SCADA Systems – These are managed in associate with the Asset Infrastructure program and therefore not included in the Technology Capital Plan. However IS does provide auxiliary support for the servers and networking equipment within the SCADA domain, which are included within the IT Asset Lifecycle Program for ongoing preventative maintenance actions.

- Operational activities conducted within the business as ongoing Business as Usual (BAU) activities. For example, the ongoing use and configuration of hydraulic models and execution models within the planning business area are considered BAU activities and therefore excluded as they are part of the regular activities required for the business to deliver services to customers or supporting business functions. These BAU activities are covered by the Business Unit operational budget or BAU technology support program contained within the Information Services (IS) Operational Plan.

- Standard technology services for existing systems with a defined catalogue of standard support activities. This include the running of regular audits and maintenance checks, lifecycle upgrades of minor applications that are of low complexity and correction of functionality errors of defects in production systems. These standard services are covered by the Information Services operating budget and plan.

2.3 Glossary

The following glossary items are used in this document:

Term	Description
BI	Business Intelligence
CAB	Change Approval Board
CIS	Customer Information System
CPMM	Corporate Project Management Methodology
CPMO	Corporate Project Management Organisation
ERP	Enterprise Resource Planner
FFA	Full Financial Approval
GIS	Geographic Information System
ICT	Information Communication Technology
ICT	Information Communication Technology
IRC	Investment Review Committee
IS	Information Services
IS Method	Detailed technology focused project delivery methodology (support the CPMM)
IS OMC	Information Service Operational Management Committee
ISARC	Information Services Architecture Review Committee
ISDA	Information Services Design Authority
ISMF	Information Security Management Framework
IT	Information Technology
ITGC	IT Governance Committee
OCIO	Office of the Chief Information Officer (now known as ODG)
ODG	Office of the Digital Government
OMC	Operational Management Centre
PlanningIT	Information System utilised by Information Services within SA Water to manage business demands, initiatives / projects and the application catalogue and architecture.

Term	Description
RBG	Regulatory Business Group
RBP2013	First Regulatory Period
RBP2016	Second Regulatory Period
SA Water	South Australian Water Corporation
SAW	SA Water
SLT	Senior Leadership Team

2.4 References

See Appendix D – References.

3 Commentary on First Regulatory Period

In the first regulatory period the focus of technology investments was on delivering Business Change to address identified risks and IT Asset Lifecycle activities to maintain and extend the life of existing technology assets. This risk-based focus meant that the first regulatory period plan contained a limited number of efficiency-based initiatives.

In 2013, SA Water initiated a major change program, Business Transformation, to respond to the efficiency targets set for the first regulatory period and changing customer expectations. The outcomes from the Business Transformation program:

- Enhance customer relationships;
- Improve efficiency - ensuring we deliver the right services, at the right price;
- Ensure effective investments; and
- Drive continuous improvement - so that we are always looking for better ways of working.

In order to deliver the Business Transformation program outcomes and achieve efficiency targets, a shift in focus from our Technology Capital Plan for the first regulatory period was required. The result was a reprioritisation of capital investment to focus on delivering greater efficiency and customer outcomes rather than the original risk-based outcomes. These changes to the technology plan were governed by corporate investment processes to ensure prudent and prioritised investments as per the governance structure in section 4.6.

The performance of the technology plan in terms of budget and spend for the first regulatory period is outlined in the Table 4 and Figure 4 below.

Table 4: Technology capital plan expenditure for first regulatory period (Dec 2014 real $'million)

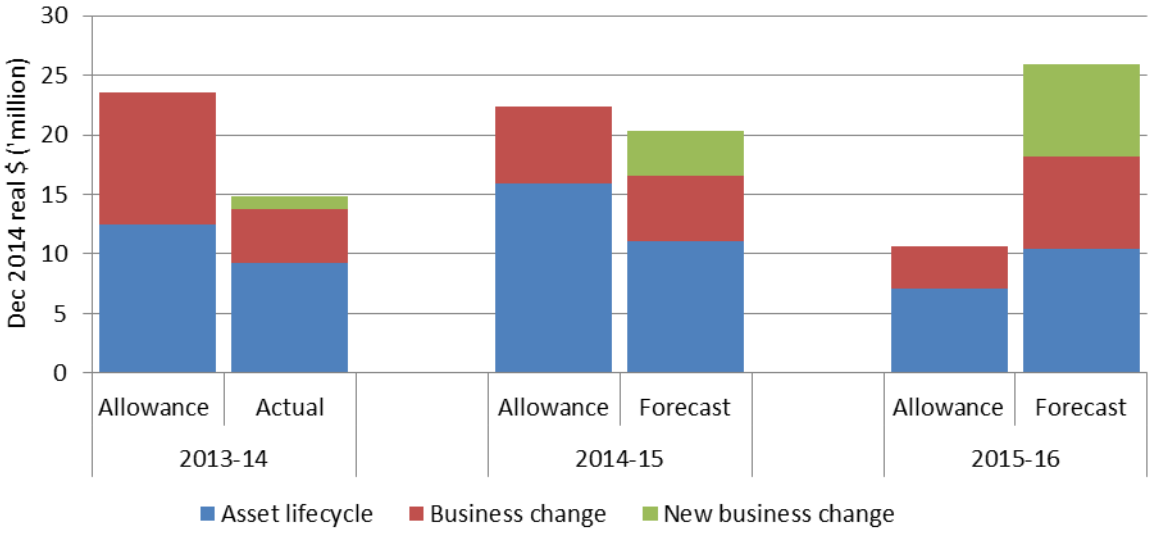
Technology plan	2013-14	2014-15	2015-16	Grand Total
Technology capital expenditure allowance from first determination*	23.3	22.4	10.5	56.2
Actual/forecast technology capital expenditure**	15.5	20.3	25.1	60.9

* Includes efficiency savings of 1% per year as required in first determination.
** At January 2015.

Figure 4 represents our technology capital expenditure by program across the first regulatory period. The figure shows:

- Increased investment in new business initiatives across the period to support Business Transformation. This investment included the Digital Program which has delivered a new website platform, and will be delivering a residential customer portal to provide basic online account management and self-service and improvements to customer enquiry handling.
- Reduced investment in planned business change initiatives because we refocused our investment towards efficiency and customer experience outcomes.
- Deferred investment of planned business change initiatives to later years of the first regulatory period following a change to our organisational structure.
- Deferred investment of planned asset lifecycle initiatives to later years of the first regulatory period due to a shift in our technology infrastructure strategy to consider the benefits of emerging technologies such as Cloud computing.

Figure 4: Technology capital plan by program for first regulatory period



4 Technology Capital Investment Planning Methodology

The following section highlights the methodology used to:

- Identify and prioritise business change initiatives (Section 4.1),
- Schedule IT asset lifecycle activities to maintain acceptable risk profile (Section 4.2),
- Estimate costs for initiatives (Section 4.3),
- Organise and structure the plan (Sections 4.4 and 4.5).
- Formalise the governance approach to develop and deliver the plan (Section 4.6)

4.1 Business Change Planning Approach and Timelines

In order to develop the business change component for the RBP2016 Technology Plan a large number of workshops and analysis activities were conducted that involved individuals from across SA Water. Figure 5 below depicts the primary steps in developing the RBP2016 Technology Capital Plan with a description of each step in Table 5.

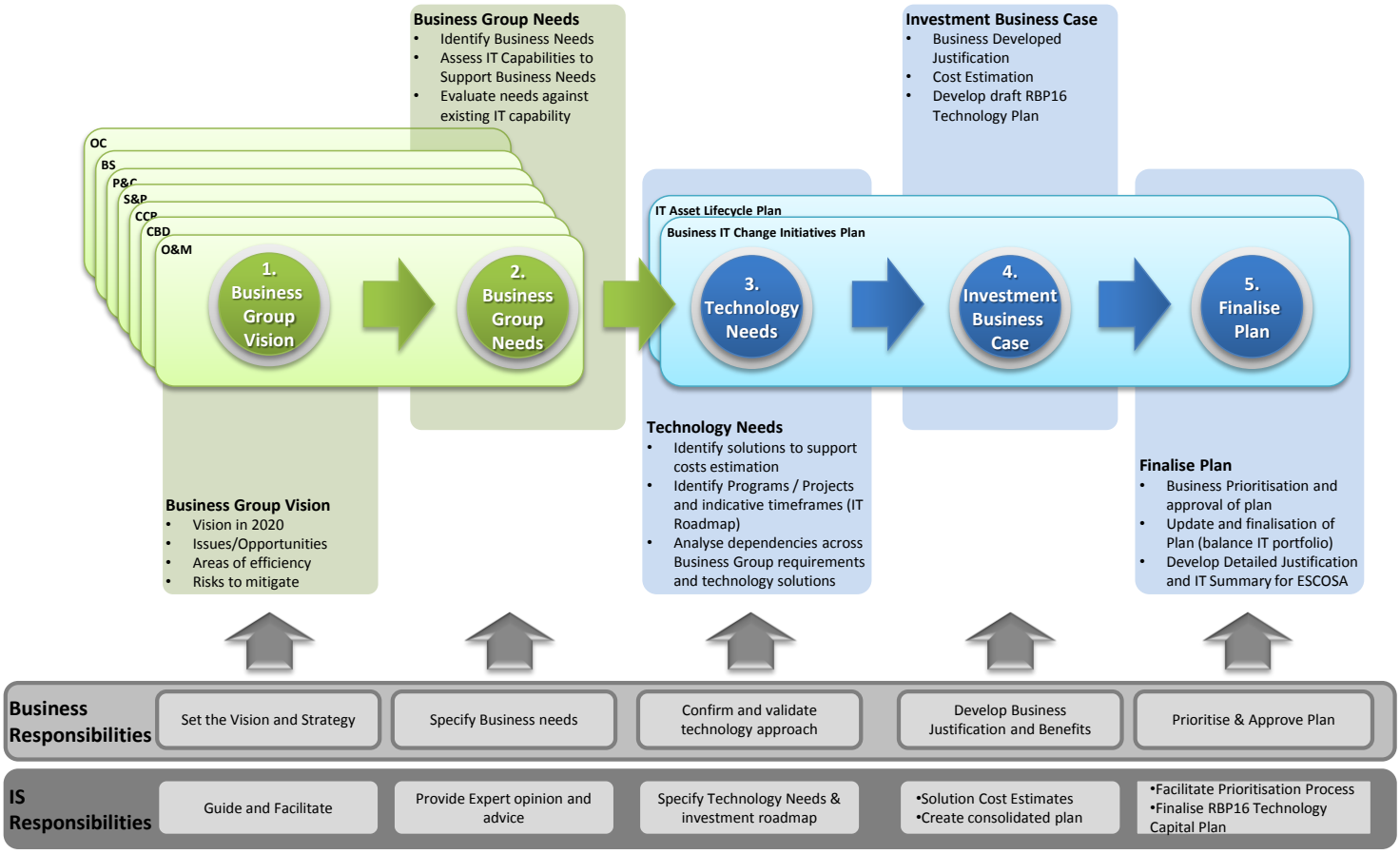


Figure 5: RBP2016 Planning Process

Table 5: Planning Process Steps

Step	Description	Responsibilities
1. Business Group Vision	**Inputs:** • Feedback from customer engagement program • SA Water Corporate Strategy and Support Technology Capability Strategies • Business Group Vision and Strategy • Business Group Operational Plans • Risks, Issues and Opportunities identified • Current technology demands or delayed initiatives • Existing Enterprise Architecture Landscape • Technology Trends **Activity:** The purpose of this activity is to clearly define the vision for each business unit in the business group and identify the capabilities required to fulfil them. The vision is expressed as a combination of: • how each business unit intends to align with SA Water's corporate strategies and goals • current risks and issues addressed, and • efficiencies attained in delivering products / services to customers or activities to help ensure the future capability and quality of those services / products. Thereafter, the focus then turns to possible areas of work that could be conducted in order to deliver on outcomes identified. This activity is conducted as facilitated brainstorming session with representation from each business unit. It typically results in a very large number of possible initiatives that are captured for future refinement and prioritisation in subsequent planning steps. **Output:** Consolidated set of possible initiatives for each business unit.	**Business / Stakeholder:** • Set the Business Vision and Strategy • Identify risks, issues and opportunities **Information Services:** • Guide and facilitate workshop • Identify possible areas technology can achieve business outcomes • Identify technology trends and best practices
2. Business Group Needs	**Inputs:** • Business Group Vision Workshop outputs (Step 1) • Business Process (existing and future) • Risks Analysis • Existing Enterprise Architecture Landscape • Vendor Market Analysis **Activity:** Utilising the output step 1 this activity involves a 'first pass' prioritisation of the initiatives list and to start to identify the high-level business needs, outcomes, scope elements and objectives for each of them. The outcome of this step is a refined list of initiatives that clearly identify the scope and the primary drivers for the initiative. IS representatives from strategy and architecture will provide input on what existing / emerging technologies, aligned with SA Water's technology strategy, can be best utilised to meet business outcomes. Typically this activity results in multiple initiatives identified in step 1 being consolidated due to interdependencies or to achieve delivery efficiencies. This step is conducted typically as a workshop with the key stakeholders of the proposed initiatives from Step 1. **Output:** Refined list of proposed initiatives for each business unit.	**Business / Stakeholder:** • Specify business needs • Expertise on current and future business processes • Conducting internal risk workshops **Information Services:** • Guide and facilitate workshop • Provide expert opinion and advice on how technology can support business proposals.

Step	Description	Responsibilities
3. Technology Needs	**Inputs:** • Business Group Needs Workshop outputs (Step 2) • Technology Research Analysis (e.g. Gartner) • Market Research Results • Existing Enterprise Architecture Landscape • IT Asset Lifecycle program (see section 4.2 for more details). **Activity:** Utilising the business needs articulated in step 2, technology impacts are identified. For some larger initiatives a Solution Approach will be defined that articulates possible solution building blocks likely to be required to achieve the desired business outcomes. Interdependencies are identified between initiatives due to resource contention (people and technology), prerequisite needs (e.g. technology platform is required before commencing or changes in business processes are to occur prior to commencement of a proposed initiative). For initiatives that are completely new to SA Water, market research is conducted with Research Analysts or directly with vendors to identify solutions options and their magnitude of costs and technology components. This step is the first time the plan is considered holistically to identify interdependencies, conflicts or additional opportunities for consolidation (e.g. duplication between multiple business units). The Strategy and Architecture team within Information Services lead this activity and utilises support from a variety of Information Service disciplines, IS Planning team and business stakeholders to achieve the step's outcomes. The objective of this activity is to provide enough details of the possible solution and dependencies as input for the cost estimation process. NOTE: The solution approach identified in this step does not limit alternative product choices during the Solution Options analysis conducted when the project actually executes the choice of product is only to gain a rough order of magnitude cost estimate. **Output:** Solution Approach, Vendor Costs, Market Research and Interdependencies analysis.	**Business / Stakeholder:** • Confirm and validate possible technology solution options identified. • Identify any business interdependencies. **Information Services:** • Market Research • Solution Approach Definition • Technology interdependencies • Feasibility Analysis
4. Investment Business Case	**Inputs:** • Solution Approach (Step 3) • Market Research (Step 3) • Vendor Costs (Step 3) • Business Group Needs Workshop outputs (Step 2) • Risk Workshops • Efficiency Savings **Activity:** This step utilises the business needs (Step 2) and the technology needs analysis (Step 3) to develop the business case and cost estimation. This stage is crucial to justify the rationale as to why the initiative should be included into the Technology Capital Plan and to capture the key parameters utilised within the prioritisation activities. This step is typically conducted in two parts with the cost estimation involving IS project delivery resources and the second part with the business developing and capturing the business case. The IS Portfolio Planning team help coordinate both activities simultaneously. The outcome of this activity is completed business case complete with prioritisation criteria, cost estimate, and business justification. **Output:** Individual Business Cases for Initiatives	**Business / Stakeholder:** • Identify Business Benefits • Articulate efficiency savings, increased revenue or increased costs. **Information Services:** • Conduct Cost Estimation Workshop (with IS Delivery Resources) • Facilitate business case development • Provide input on the technology impact section of the business case

Step	Description	Responsibilities
5. Finalise Plan	**Inputs:** • Individual Business Cases for Initiatives (Step 4) • SA Water Strategic Priorities • Impacts on Customer Pricing **Activity:** This final step is typically an iterative activity to gradually refine and reprioritise the plan. Utilising the business cases and the key prioritisation criteria the various initiatives (from Step 4) are compared against their alignment with the key strategic priorities (see section 4.4) and the interdependencies between initiatives. This prioritisation results in selected initiatives not being included into the final plan or initiatives are re-scoped to increase the benefits gained, reduce the implementation costs or combined to leverage delivery efficiencies. Initiatives that are re-scoped have their cost estimations updated (as per step 4). This step also considers the scheduling of initiatives within the program of works as to whether the initiative is to commence earlier of later within the execution period. The outcome of this step is a finalised Technology Capital Plan for approval and execution. **Output:** Finalised and Approved Technology Capital Plan.	**Business / Stakeholder:** • Prioritise Plan • Approve Final Plan **Information Services:** • Facilitate Prioritisation Process • Finalise Technology Capital Plan

As highlighted in the capital planning steps above, technology planning typically starts with a large number of possible initiatives but as it progresses this initiative list is consolidated, prioritised and optimised to the final submitted plan. Further details on the prioritisation criteria utilised are included in Appendix C on page 106. An overview of the consolidation and prioritisation achieved is highlighted by Table 6 below, which shows the initial consolidation workshops resulted in 321 possible initiatives, but through subsequent planning and prioritisation activities, the list was reduced to 39 initiatives / programs for the final submission of the RBP2016 Technology Capital Plan. Dates and attendees of each of the workshops conducted are captured in Appendix A on page 92.

Table 6: Consolidation Approach for RBP2016 Technology Capital Plan

Business Groups	Step 1 Brainstorm Phase (Aug 2014)	Step 2 1st Round Consolidation (Sep 2014)	Step 3,4,5 RBG Submission (3rd Oct 2014)	Step 4,5 Post RBG Review (24th Oct 2014)	Step 4,5 Post IRC Prioritisation (13th Mar 2014)
Business Services	62	19	13	10	11
Information Services (IT Asset Lifecycle)	68	16	16	12	12
Commercial Business & Development	69	29	12	12	6
Customer & Community Relations	13	4	4	4	2
Office of the CE	15	2	2	1	1
Operations and Maintenance	39	44	6	6	4
People & Culture	3	3	1	1	1
Strategy & Planning	52	24	5	5	2
TOTAL # Initiatives	**321**	**141**	**59**	**51**	**39**
CAPEX Cost	-	-	$155.28M	$131.88M	$115.16M
IS OPEX Increase	-	-	$4.89M	$3.26M	$2.85M
OPEX Savings	-	-	$5.13M	$14.81M	$11.44M

4.2 IT Asset Lifecycle Planning Approach

The IT Asset Lifecycle Programs address lifecycle risks associated with technology applications and ensure that the acceptable level of business application availability, vendor support and operational costs risks are maintained and do not increase SA Water's exposure to unacceptable cost, functional and capability impacts. Ultimately, this is to ensure that the base level of technology systems, required to support SA Water to deliver services to customers at the required level of quality and efficiency, is maintained.

SA Water has a significant portfolio of technology applications and supporting infrastructure to maintain day to day business operations. Based on SA Water's Technology Strategy and underlying IS Guiding Principles, a majority of these applications utilise Commercial-Off–The-Shelf (COTS) software. This COTS software is supported and maintained by the vendor. The vendor is responsible for ensuring that their products are continually developed / maintained to ensure that security vulnerabilities are corrected, broken functionality is fixed and the platform supports current and emerging hardware and software platforms to ensure resilience and availability of the functionality delivered by the system. Vendors typically achieve this through regular software / hardware patches or product version releases; SA Water is then required to implement these patches and latest product versions. This is achieved, through an ongoing lifecycle program for applications, by regularly patching / upgrading applications within the vendor's recommended lifecycle support periods.

Given the increased risk and additional costs associated with running unsupported technology solutions, security controls are mandated by the SA Government Office of the Digital Government (ODG) in the Information Security Management Framework (ISMF) 3.1 that requires all technology systems to be maintained within vendor support lifecycles. This is to ensure that security vulnerabilities are addressed by the vendor and available to SA Water to manage the risk of malicious attack on SA Water's and South Australian Government systems.

Not all applications require ongoing lifecycle activities as some vendors continue to support older product versions and therefore there is no end of support date. Therefore only activities that either extend the life of the technology asset or address security or availability risk are included. Details on the principles used to determine whether an activity requires ongoing lifecycle activities is contained in Section 4.2.3 on page 30.

These risks are summarised as:

- **Increased Costs:** Increased ongoing operating support costs as a result of higher vendor support costs for unsupported systems or the need to rectify higher likelihood of failing systems.
- **Data Loss/Corruption and Failures:** Significant business data loss of corruption due to system failure, security breach or system bug.
- **Unavailability**: Prolonged system outage impacting business critical operations and our customers.
- **Non-compliance**: Non-compliance to Government of South Australia policies and in particular the Protective Security Policy Framework[1] and supporting security frameworks. The Protective Security Policy Framework states that all systems operated by State Government agencies comply with the ODG IS Security Framework. This Framework requires

[1] PC030 Protective Security Policy Framework (February 2012) – Department of the Premier and Cabinet Circular – http://dpc.sa.gov.au/sites/default/files/pubimages/Circulars/PC030_Protective-Security.pdf

SA Water to ensure systems are within vendor support as defined within ISMF control 0304[2]. SA Water policy[3] states that "SA Water will comply with whole-of-government policies, circulars and instructions (including Treasurer's Instructions) except where the Board and/or the Chief Executive otherwise determine".

In order to address these risks a suitable ongoing application lifecycle program is developed per application aligned to vendor lifecycle periods and hardware performance characteristics. This is achieved using the process contained in Figure 6 and described in Table 7.

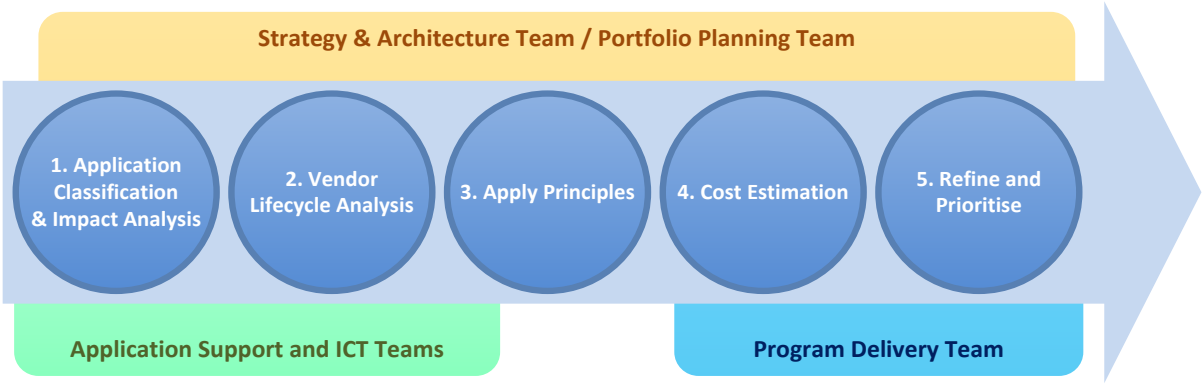


Figure 6: IT Asset Lifecycle Planning Process

Table 7: IT Asset Lifecycle Planning Process Steps

Step	Description	Responsibilities
1. Application Classification & Impact Analysis	**Inputs:** • Application Details (already contained within PlanningIT) • Existing Enterprise Architecture Landscape • Technology Trends **Activity:** Utilising information about the current business system and infrastructure landscape this activity captures various attributes and classifications of an application. This classification attributes are key data items used to understand how an application is used within SA Water, the criticality of the application and the structure of the application, which are used in step 3 and step 4 in the lifecycle planning process. This activity is achieved through individual meetings with each application support and ICT specialists and where necessary with the business sponsor if business use details are not already known. The information captured within this planning step is updated within PlanningIT for reference in future steps. PlanningIT data is also used as an input as many of the business systems already contain these details. Further details of the attributes and classification used are in section 4.2.1 on page 26. **Output:** Defined Application Classification and Attributes within PlanningIT.	**Application Support and ICT Teams:** • Provide expert advice and support on specific business applications and systems • Identify risks and issues with specific business applications and systems **Strategy & Architecture Team** • Guide and facilitate workshops • Provide overarching strategic direction and alignment between technology platforms **Portfolio Planning Team** • Ensure alignment with the Business Change Program

[2] ISMF Control 0304 - *"Once a cessation date for support is announced for software or ICT equipment, agencies will find it increasingly difficult to protect against vulnerabilities found in the software or equipment as no security patches will be made available by the vendor. Once a cessation date for support is announced agencies should investigate new solutions that will be appropriately supported."*
[3] http://intranet.sawater.sa.gov.au/NR/rdonlyres/FEA5D1D0-F530-4BAC-9299-C22EC187CFAB/0/PolicyMgtPolicy.pdf

Step	Description	Responsibilities
2. Vendor Lifecycle Analysis	**Inputs:** • Application Details (updated from Step 1) • Vendor Support Agreements **Activity:** Working with the application support vendors this activity is to identify the risks associated with increasing the period between software and hardware upgrades. This activity is conducted through workshops with each Application and ICT support team for each business system and infrastructure systems within SA Water and where additional information is required reaching out to the existing vendors. This allows the strategy and architecture team to determine the current support cycles and specifically the date (or period) when an application is planned to be out of support and therefore upgrades or other remediation actions need to be conducted within step 3. **Output:** Vendor Lifecycle Support Details	**Application Support and ICT Teams:** • Provide expert advice and support on specific business applications and systems • Liaise with existing vendors **Strategy & Architecture Team** • Guide and facilitate workshops
3. Apply Principles	**Inputs:** • Application Details • Existing Enterprise Architecture Landscape • Technology Trends • Vendor Lifecycle Support Details (from step 2) **Activity:** Utilising the core IT Asset Lifecycle principles and supporting rules (see section 4.2.3 below) the required refresh period for each business systems and supporting infrastructure system is defined. In addition, this step utilises the attributes to determine the IT Asset Lifecycle Strategy for each business system (see section 4.2.2 for more details). This analysis provides the frequency of activities required and whether an activity is required at all for selected minor systems. The goal is to optimise the lifecycle activities so that only actions are taken where risks are mitigated or to limit an increase in future costs. **Output:** List of lifecycle activities required per application / system.	**Application Support and ICT Teams:** • Provide expert advice and support on specific business applications and systems **Strategy & Architecture Team** • Application of principles and development of the lifecycle support plan • Provide overarching strategic direction and alignment between technology platforms **Portfolio Planning Team** • Ensure alignment with the Business Change Program

Step	Description	Responsibilities
4. Cost Estimation	**Inputs:** • Lifecycle Activities per application / system. (from step 3) • Lifecycle Cost Estimation Model • Historical Project Costs • Vendor support costs **Activity:** The cost of conducting each lifecycle activity is calculated utilising the Lifecycle Cost Estimation Model (see section 4.3.1). As lifecycle activities are usually cyclic (e.g. conducted ever 3-5 years) historical implementation costs are utilised to support the costing of future lifecycle activities. **Output:** Costed IT Asset Lifecycle Program.	**Application Support and ICT Teams:** • Provide expert advice and support on specific business applications and systems **Strategy & Architecture Team** • Guide and facilitate workshops • Provide overarching strategic direction and alignment between technology platforms **Portfolio Planning Team** • Facilitate the cost estimation workshops. • Ensure alignment with the Business Change Program **Program Delivery Team** • Provide input on the historical implementation costs. • Provide guidance and support on delivery approach.
5. Refine and Prioritise	**Inputs:** • Costed IT Asset Lifecycle Program • Business Change Program **Activity:** Utilising both the IT Asset Lifecycle Program (from step 4) and Business Change Capital Program initiatives are aligned and de-duplicated. This is achieved by highlighting where systems are being impacted by both an IT asset lifecycle activity and a business change initiative. Where there is alignment the IT Asset Lifecycle activity is removed so that the upgrade or refresh activity is included within the business change program or the timings for activities are aligned. The result is a reduction in the overall capital costs for delivering the same level of outcomes to SA Water. **Output:** Optimised IT Asset Lifecycle Program.	**Strategy & Architecture Team** • Provide overarching strategic direction and alignment between technology platforms • Highlight technical interdependencies **Portfolio Planning Team** • Ensure alignment with the Business Change Program • Facilitate prioritisation **Program Delivery Team** • Provide guidance and support on delivery approach.

4.2.1 Application Classification and Impact Analysis

To determine a business system's level of importance and complexity of the solution an Application Classification and Impact Analysis activity is conducted. Typically this analysis is conducted when a new system is introduced in SA Water; however this analysis approach was introduced for RBP2016 planning and therefore many of the systems required this analysis to be completed for input into the RBP2016 IT Asset Lifecycle component of the RBP2016 Technology Capital Plan. A visual representation of this analysis activity is shown in Figure 7 below. The impact analysis perspectives (represented as a star with a number) are described in Table 8. Data used to support this analysis is contained within PlanningIT, the system used by SA Water to manage its IT Application Catalogue and architecture baseline.

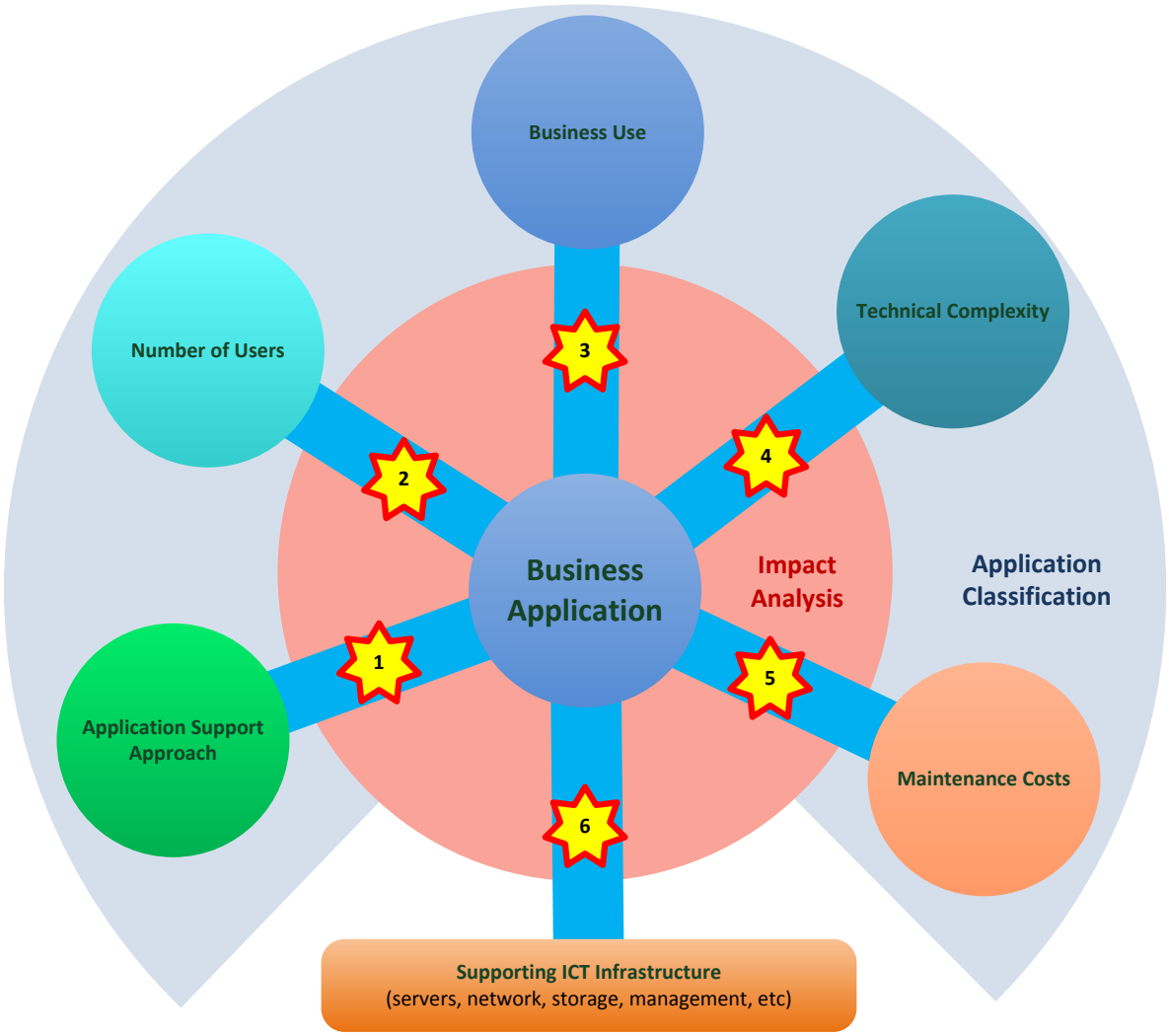


Figure 7: Application Classification and Impact Analysis

Table 8: Impact Analysis Dimensions

#	Impact	Description
1	**Application Support Approach**	Considers the level of support required for the business system / infrastructure system to ensure continued availability and where suitable to provide support for minor enhancements and configuration changes. This is used to analyse the support model around a system and therefore the source of estimating the cost and effort of IT Asset Lifecycle. For example, system such as Maximo that have considerable support structure the source of estimates for lifecycle activities can be provided by the incumbent support team / vendor. This attribute also provides guidance on the complexity of effort required to maintain an application and therefore the effort required to conduct asset lifecycle activities.
2	**Number of Users**	The number of users who utilise the application directly. This attribute helps identify the level of business change impact due to lifecycle activities and is also an indicator on cost estimates as systems with a larger number of users will have a higher change program and upgrade costs.

#	Impact	Description
3	**Business Use**	This attribute helps the analyst to understand the type of functionality the system supports and therefore the criticality to the business. For example, systems that provide "Core / Line of Business" capabilities are more critical in nature to "Business Support" capabilities. This attribute also helps identify applications that are "Infrastructure Support Systems" and therefore provide underlying technology functions to support other business systems.
4	**Technical Complexity**	Technical complexity is utilised to provide context for the impact analysis as to whether lifecycle activities are more or less complex. More complex systems typically require additional effort to conduct asset lifecycle activities on as there are more components to be upgraded/changed or there is an increased interconnectivity and therefore an increased dependency management overhead.
5	**Maintenance Costs**	The ongoing maintenance costs provide a strong indicator of the magnitude of costs for conducting asset lifecycle activities. These maintenance costs also highlight what activities are conducted under existing support arrangements and therefore whether additional effort or resources are required to support the IT Asset Lifecycle activities.
6	**Supporting ICT Infrastructure**	For infrastructure applications the Number of Users (Impact 2) and Business Use (Impact 3) are not relevant as typically infrastructure support all of SA Water and provide underlying services to enable other business applications. For example, Active Directory service is a support ICT infrastructure that is used for authorisation and authentication in most business systems and desktop environments within SA Water but most SA Water users are unaware of its existence even though it provides a core critical function to ensure the continued operation of most of SA Water's technology systems. This impact analysis therefore considered the multi-directional dependencies between business systems, ICT infrastructure and other business systems relying on the common ICT infrastructure.

4.2.2 IT Asset Lifecycle Strategy

The impact analysis is utilised to define the IT Asset Lifecycle Strategy for each SA Water system. This strategy is used to determine the approach to be taken around the support and maintenance of an application. For example, as system that has been classed as "Invest" will have an increased focus and therefore will likely require additional effort or frequency of lifecycle support activities. In comparison, a system with a lifecycle strategy approach of "Deprecate" or "Retire" are unlikely to have any lifecycle activities conducted at all. A description of each of the lifecycle states is contained in Table 9 below with associated implications for the IT Asset Lifecycle Program. Some of the typical questions used to determine the lifecycle strategy are:

- Is the system actively used within the business? (if no longer used may be a candidate to retired)
- Is the system key to delivering business strategic outcomes (e.g. increased)? (may need additional investment)
- Is the application actively supported by the vendor? (if not supported may need to be replaced by an alternative solution)
- Is the business function supported needed in the future? (if function is no longer required then may be a candidate to retire)
- Are there other similar products within SA Water? (may be an opportunity to consolidate and retire one of the duplicate systems)

Table 9: IT Asset Lifecycle Strategy Definition

State	Description	IT Asset Lifecycle Program Implications
Maintain	Existing solution functionality that meets business needs. This is the default strategy approach for most business systems and supporting infrastructure.	• Solution is actively maintained and supported to ensure continued availability. • Operating expenses are continued and may increase to reflect changes in vendor prices, expertise or environmental changes. • No major new functional changes to the system other than version updates and configuration enhancements to address risk. (NOTE: If additional functionality changes are required then these are covered by a Business Change initiative / program not within the IT Asset Lifecycle programs).
Invest	System provides significant business functionality or supports strategic business outcomes.	• Solution is actively maintained and supported to ensure continued availability. • Operating expenses are continued and may increase to reflect changes in vendor prices, expertise or environmental changes. • Ongoing enhancement and system improvement program is scheduled to frequently update and modify functionality of the system. • Planned additional future investment to increase functionality or expand use within SA Water or customers.
Deprecate	The business function provided by the system is still required but the current system is no longer suitable. The reasons for this unsuitability can vary widely, but typically this is due to multiple systems providing duplicate functionality and each of the systems are flagged as “deprecate” to signify the need to consolidate functionality into a single system to reduce the ongoing costs and effort.	• No active version upgrades or lifecycle activities are conducted. • System support to ensure continued availability is still provided until the system is replace / consolidated. • Associated Business Change initiatives will have been identified to implement the necessary change program to replace the deprecated system with a better alternative.
Retire	Business functionality provided by the system is no longer required. Typically this state is only utilised when a business function is no longer required and therefore the supporting systems are no longer required.	• No ongoing maintenance or support is required (unless the retirement period is planned to continue for multiple years based on business need). • No enhancements or configuration changes. • No planned future IT Asset Lifecycle Activities. • Possible lifecycle activity to decommission the system and reclaim / repurpose infrastructure elements.

Throughout the life of a system, it will move between the various IT Asset Lifecycle stages as shown in Figure 8 below. Typically new systems will commence within the "Invest" or "Maintain" states depending on their business strategic alignment and criticality to delivering core business outcomes. An application will then typically stay within the "Maintain" state for considerable time until there is a change in the business or technology environment that necessitates a transition to either "Deprecate" or "Retire" states where the system is either removed completely or replace / consolidated with a new / alternative system. As a result most systems within SA Water are defined with the "Maintain" IT Asset Lifecycle Strategy.

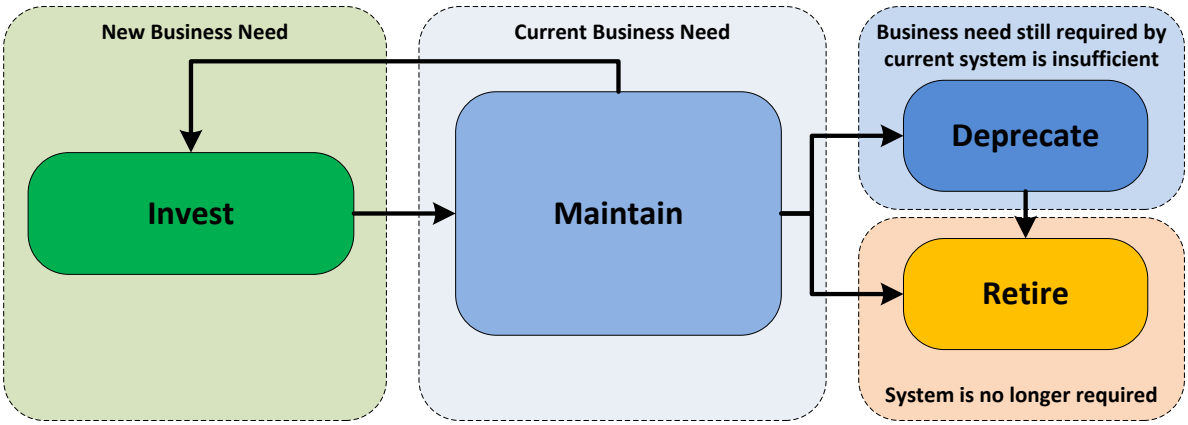


Figure 8: Lifecycle Strategy Transitions

4.2.3 IT Asset Lifecycle Principles

The following SA Water technology principles (Table 10) are used to determine whether or not SA Water needs to commit money on updating or replacement of systems. Using these principles SA Water reviewed all applications within scope of this program and determined the necessary activities required during the 2nd regulatory period to achieve the objectives set out above, namely; to avoid security breaches, to avoid unnecessary operating costs and to avoid interruptions to services experience by internal and external customers.

Based on these principles some technology systems within scope of this program do not have any associated activities as no activity is required to achieve the stated objectives for these systems. To help clarify and achieve these principles a set of guiding methodologies and rules are utilised (see Table 11).

Table 10: IT Asset Lifecycle Principles

Principles	Description
Only conduct cost effective lifecycle activities	Only conduct asset lifecycle activities that will directly reduce the impact of a known risk for the application / infrastructure but only enough to reduce the residual risk rating to either Medium or Low (not to remove the risk completely). This is achieved through the application of these principles and the rules defined below.
Delayed upgrades	Only conduct lifecycle activities towards the end of the vendor defined lifecycle support period, no proactive upgrades. This is in alignment with the IS Guiding Principles of *"Mid to late adopters of technologies enabling SA Water. All early adoption to be justified by a strong business case".*
Desktop hardware refresh of 4 years	Increased lifecycle period for desktop computing hardware from the industry practice of 3 years to 4 years to increase the risk level and minimise ongoing lifecycle costs to SA Water.

Principles	Description
Server hardware refresh of 5 years	Increased lifecycle period for server hardware from the industry practice of 4 years to 5 years to increase the risk level and minimise ongoing lifecycle costs to SA Water.
Network Equipment refresh of 4 years or run to failure	Increased lifecycle period for networking equipment and for some commodity hardware components a suitable spares program is used so that the hardware is run to failure and then replaced in order to minimise ongoing lifecycle costs to SA Water.
Mobile handsets and desk phones are run to failure	Suitable spare capacity is maintained of the technology hardware so that when an asset is broken or fails it is simply replaced and therefore increasing the running period and reducing the lifecycle costs to SA Water.
Systems with minor projected growth rates are to have storage and processing capacity to last 4 years.	Systems that only have very minimal increases in the use of storage and processing capacity do not require additional explicit capacity growth activities. For these systems the original system design and implementation or at the time of a major upgrade the suitable capacity can be designed and implemented. For systems that have large forecasted growth rates it is not cost effective to purchase all necessary capacity at the time of implementation / upgrade and therefore it is more cost effective for ongoing capacity growth activities to be scheduled.

In addition to the SA Water technology principles above the following methodology and supporting rules in Table 11 below are used to define the activities to be carried out within the IT Asset Lifecycle programs.

Table 11: IT Asset Lifecycle Rules

Methodology	Supporting Rules
Bottom up analysis for each system within SA Water considering their lifecycle approach, vendor support, criticality and complexity.	• **RULE:** No activities are to be conducted unless the activity is to address a risk to the business around, security, availability, integrity or to avoid increased costs. Other activities to implement new functionality, achieve business efficiencies through new products or versions of existing products are covered outside of this lifecycle program and justified in their own right. • **RULE:** Activities to be conducted based on applications lifecycle strategy, where no activities are conducted on applications identified to be DEPRECATED or RETIRED and only on applications classed as MAINTAIN or INVEST based on business need.
Upgrade activities based on vendor support dates	• **RULE:** Complete upgrades just prior to vendor's end of support date to maintain support and meet security compliance and OCIO compliance controls.
Criticality of the system	• **RULE:** Conduct maintenance activities to critical systems to ensure continued availability and reliability of key systems. • **RULE:** Conduct maintenance activities on non-critical systems based on the level of risk the business is exposed to that will result in a unmitigated risk level of HIGH or greater (using corporate risk methodology).

Methodology	Supporting Rules
Optimised Hardware Replacement Cycle with increased lifecycle period to reduce active replacement costs.	• **RULE:** Server infrastructure is replaced on a 5 year asset lifecycle to ensure parts availability and reduce the likelihood of system failure / outage (Industry norm is 4 years). • **RULE:** Desktop and User Computing devices are replaced on a 4 year asset lifecycle to ensure support of operating systems, devices and reduce the likelihood of failure and increased maintenance costs. • **RULE:** Networking hardware and hardware appliance are replaced based on recommended vendor lifecycle and the end of support dates for the hardware versions.
Technology lifecycle activities exclude functional enhancements.	• **RULE:** Implementing new functions and features requires independent / separate business justification and funding.
Activities are aligned to Business Change Initiatives to remove duplication	• **RULE:** Where practicable, technology application lifecycle initiatives are to be combined with business change initiatives requiring significant system enhancement in order to minimise duplication of effort and costs.
Activities to ensure suitable Technology Continuity / Disaster Recovery capability is in place.	• **RULE:** Costs are assigned according to size and complexity of test (large/standard) required ensuring ITC compliance of business systems and technology infrastructure. Where a business change initiative is being undertaken that impacts a particular system then ITC testing (and costs associated) will be undertaken as part of that project and therefore costs removed out of the IT Asset Lifecycle program.
Activities are aligned with the planned and forward projected incremental capacity growth.	• **RULE:** Based on historical growth and projected future growth of storage and processing utilisation for systems with larger growth rates capacity lifecycle activities are required. These capacity lifecycle activities will allow for additional storage and processing capability to be purchased when needed reducing the initial costs and ongoing costs for the system. • **RULE:** Systems with static projected growth or very minor growth should be designed with 4 years of storage and processing capacity at the time of implementation or major upgrade.
Systems need to current Technology Continuity plans and be regularly tested to ensure that in the event of a Technology Continuity event or disaster that services can be resumed within the agreed Service Levels.	• **RULE:** Complete Technology Continuity Plans, Test approach and conducting of initial test for all systems that have no previous record of being tested as per the Technology Continuity Testing Plan or as part of capital projects delivering major upgrades to systems or new systems. • **RULE:** Re-test Category A and B systems every 3-4 years • **RULE:** Re-test Category C systems every 2 - 4 years • **RULE:** Re-test uncategorised systems every 1-4 years • **RULE:** Re-test Infrastructure systems every 3-4 years

4.2.4 SA Water Technology Landscape

Figure 9 and Figure 10 on the following pages provide an overview of the technology landscape and business applications utilised within SA Water. The business application landscape does not show all applications in use as this it too complicated to show in a single diagram but a complete register of systems / applications is contained within the PlanningIT system.

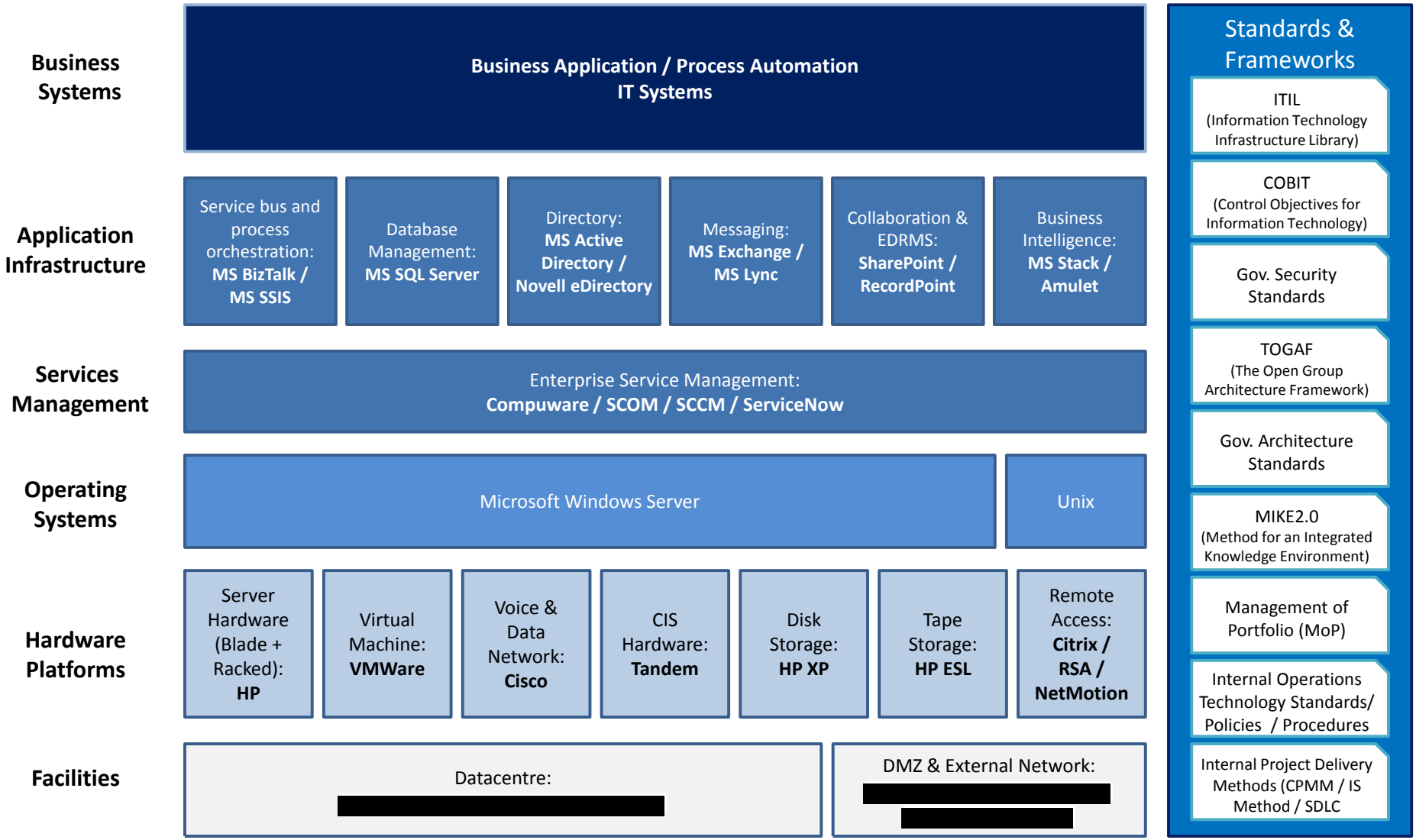


Figure 9: SA Water's Technology Landscape

4.3 Costing Estimation Approach

Full details on the Cost Estimation approach utilised in the RBP2016 planning process is contained in the "IS Cost Estimation Overview" document with a summary contained below. The process used to develop cost estimations for each of the initiatives / programs is shown in Figure 11 below.

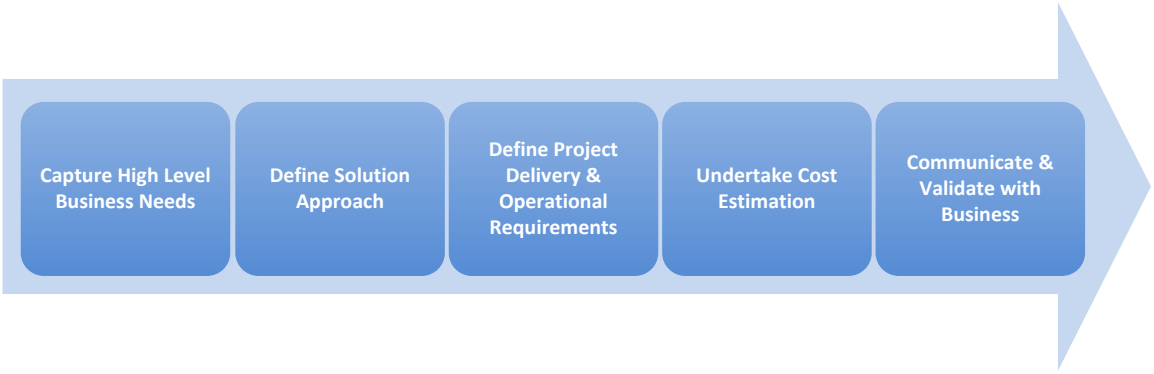


Figure 11: IS Cost Estimation Approach

In this process the following estimation activities were undertaken in parallel with the business change planning approach (see section 4.1):

- **Capture High Level Business Requirements**: As part of the Business Group Vision (Step 1) and Business Group Needs definition (Step 2) the first activity is to gather high-level Business needs and scope of the initiatives in partnership with each Business Group. The information establishes a shared understanding between IS and business stakeholder about the initiative and expected Business outcomes.

- **Define Solution Approach**: Using the high-level business needs and initiative scope a solution approach is defined to support the cost estimation process. The objective of the solution approach is to highlight what technology components are likely to be changed or procured to achieve the desired business outcomes. This activity is aligned with the Technology Needs (Step 3) of the planning process. For some initiatives, where there are too many possible solution approach options or the time between now and when the initiative is planned to commence will result in wide variability then, only rough guidance on the possible solution is identified to facilitate the cost estimation process.

- **Define Project Delivery and Operational Requirements**: The delivery and ongoing operational requirements to support the proposed solution are defined using the high-level business needs and solution approach. These delivery and operating requirements cover:

    - Solution implementation costs – This information can be sourced from industry technology research organisations (e.g. Forester or Gartner), vendors or from historical projects.

    - Expected project duration, delivery complexity and resource profile required to deliver the business outcomes.

    - Business Change impact – The level of change management required for each project was determined in consultation with each Business Group.

    - Operational Requirements – Determine the ongoing support implications from the proposed solution with the identification of software licensing, hardware and application support costs.

- **Undertake Cost Estimation:** The information and analysis from the previous steps is used to develop the cost estimate for the initiative / program. To facilitate this process an excel spreadsheet cost estimation models is used and is described in section 4.3.1 below. This activity utilises expertise and experience from each discipline leads including project delivery, technology strategy, architecture, business analysis, testing, application support and infrastructure.

- **Communicate and Validate with the business:** Once there is agreement within the cost estimation team on the cost estimates for an initiative, the final step is to communicate the initiative costing to the respective Business Groups with the aim to confirm costs, validate project scope and validate solution assumptions.

As planning progressed, the cost estimation model was refined, initiatives prioritised out of the plan and scope of initiatives changed, resulting is changes to cost estimates.

4.3.1 Cost Estimation Model

In order to create a repeatable cost estimation process an Excel-based cost model was utilised by the IS planning team with input from the IS stakeholders (see Table 12) to define resources/costs specific to each IS discipline. These estimates of effort are captured in four levels to allow for flexibility when estimating each project. For example, some projects will require low level of effort from a Solution Architect but high level of effort from a Business Analyst, which can be captured in the model by anticipating the level complexity for Solution Architecture as Simple whilst the Business Analyst as Complex with the corresponding effort estimates being used for each.

Table 12: Contributors to Estimation Model Development

Discipline	[redacted]	[redacted]
Strategy Solutions Architecture Application Support ICT Infrastructure	[redacted]	[redacted]
Project / Program Delivery	[redacted]	[redacted]
Project / Program Delivery	[redacted]	[redacted]
Project / Program Delivery	[redacted]	[redacted]
Business Analysis	[redacted]	[redacted]
Strategy Solutions Architecture	[redacted]	[redacted]
Testing	[redacted]	[redacted]
ICT Infrastructure	[redacted]	[redacted]
Audit and Governance	[redacted]	[redacted]
Audit and Governance	[redacted]	[redacted]
Planning Business Analysis	[redacted]	[redacted]
Application Support	[redacted]	[redacted]

When conducting cost estimation for each initiative a variety of inputs and tools / techniques are used to determine the suitable variables within the cost estimation excel model as shown in Figure 12 below. The key inputs to the estimation are vendor research and the business needs / solution approach that are captured prior to commencing the cost estimation workshops. The output of this is a completed cost model that breaks the costs down into the various project delivery management costs, delivery resource costs, vendor costs and expected ongoing operating costs.

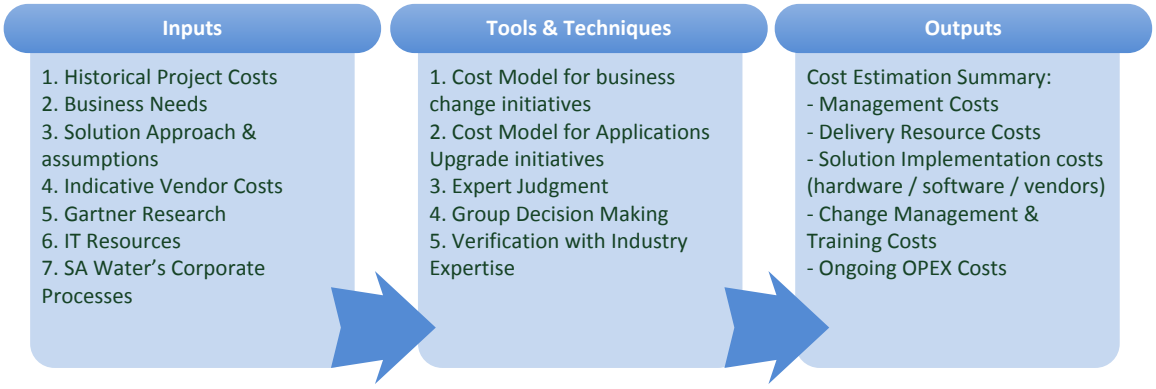


Figure 12: Cost Estimation Model

Further details of the costing model are contained in the "IS Cost Estimation Overview" document.

4.4 Strategy Alignment

The "FD0007 – RBP 2016-20 Strategy Submission" document presents our Vision, Corporate Goals (Strategic Priorities) and Key Performance Outcomes to deliver services to our customers in the most efficient means. Our Strategic Priorities together with the key performance outcomes through which we will measure our success are represented in Figure 13 below.

Figure 13: SA Water Strategic Priorities (Source: RBP 2016-20 Strategy Submission)

Not all these strategic priorities apply directly to technology initiatives; however 4 strategic priorities around customer experience, value for money, smart investment and reliable services are utilised to guide the technology plan. The remaining 3 SA Water strategic priorities are underlying priorities that are still considered when delivering outcomes in the technology plan but are not direct contributors in shaping the technology plan. These 4 relevant strategic priorities are used to guide and develop 3 technology investment themes to help structure the technology capital plan as shown in Figure 14 below.

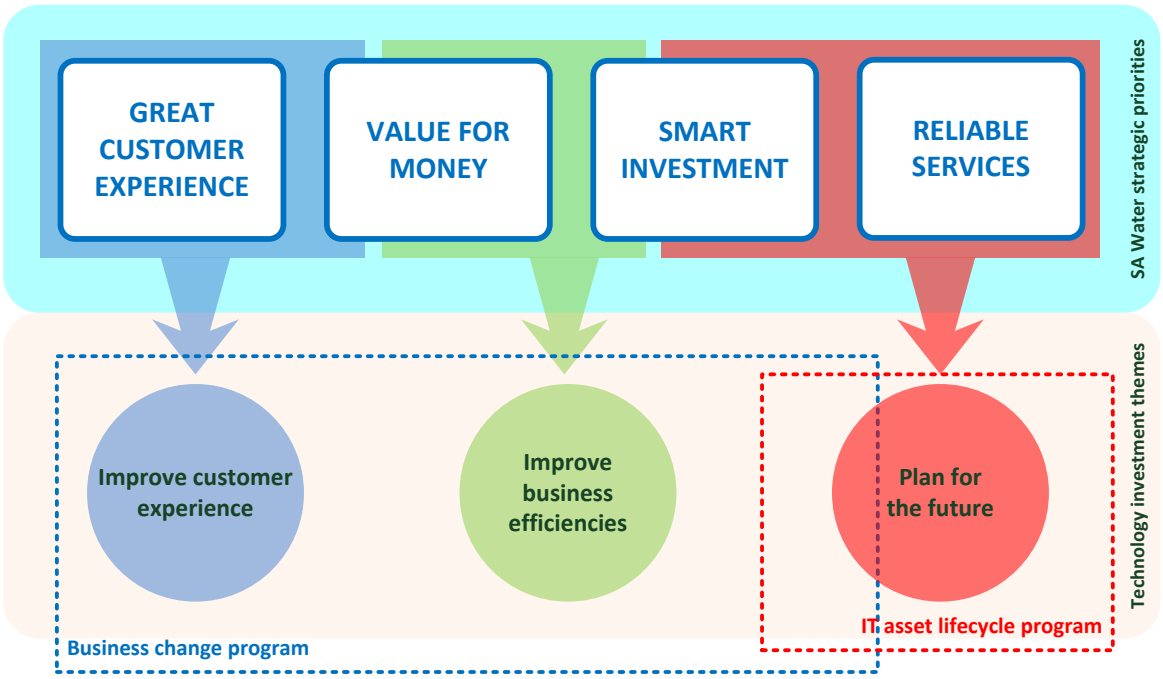


Figure 14: Alignment between SA Water Strategy and Technology Plan Priorities

This alignment ensures that when structuring the Technology plan and prioritising initiatives against the three technology plan priorities it can be assured that there is direct line of sight to the SA Water strategic priorities. Further details on the 3 Core Technology Plan investment themes and how they are utilised in the plan is contained in section 4.5 below.

Additional details on the methodology for technology strategy development and use in the technology planning and delivery activities is contained in section 8 on page 90.

4.5 Technology Capital Plan Structure

Our technology initiatives have been prioritised into technology investments themes aligned with our strategic priorities (see Figure 14 above). The investment themes consist of **improve customer experience** to meet customer needs, **improve business efficiencies** to maintain affordability and **plan for the future** to future proof our customer facing services and ensure supporting technology platforms are secure and reliable.

To successfully deliver against the above mentioned investment themes, the technology initiatives have been classified into a **Business Change program** that includes technology support for business improvement initiatives and an **IT Asset Lifecycle program** for managing our existing technology assets including technology applications and infrastructure. Figure 14 above illustrates how the initiatives align to the investment themes supporting the SA Water strategic priorities.

As shown there is overlap between the two programs but the structure assigned to an initiative within the plan is based on the primary investment theme, which is why in the IT Asset Lifecycle Program there are no customer or efficiency related initiatives even though some initiatives may deliver a secondary benefit relating to these investment themes. Details of the benefits being delivered within this structure is contained in section 5.1 on page 44.

4.6 Governance Approach

The development of the technology plan was governed, utilising a variety of existing governance bodies, in alignment with the process identified in sections 4.1 and 4.2 above and summarised in Figure 15 below (left side of diagram). Due to the difference in governance levels required between the planning phases, portfolio definition and portfolio delivery (to manage changes to the plan and project execution), two distinct, fit-for-purpose governance structures are required. This split allows for greater isolation of focus when developing the technology plan and ensures the organisation's strategic objectives and outcomes are being considered from two very different but interrelated perspectives. Project governance then works within the confines of this framework. These two distinct yet complementary governance structures are illustrated in Figure 15 below, including how each level is involved in the planning and delivery processes.

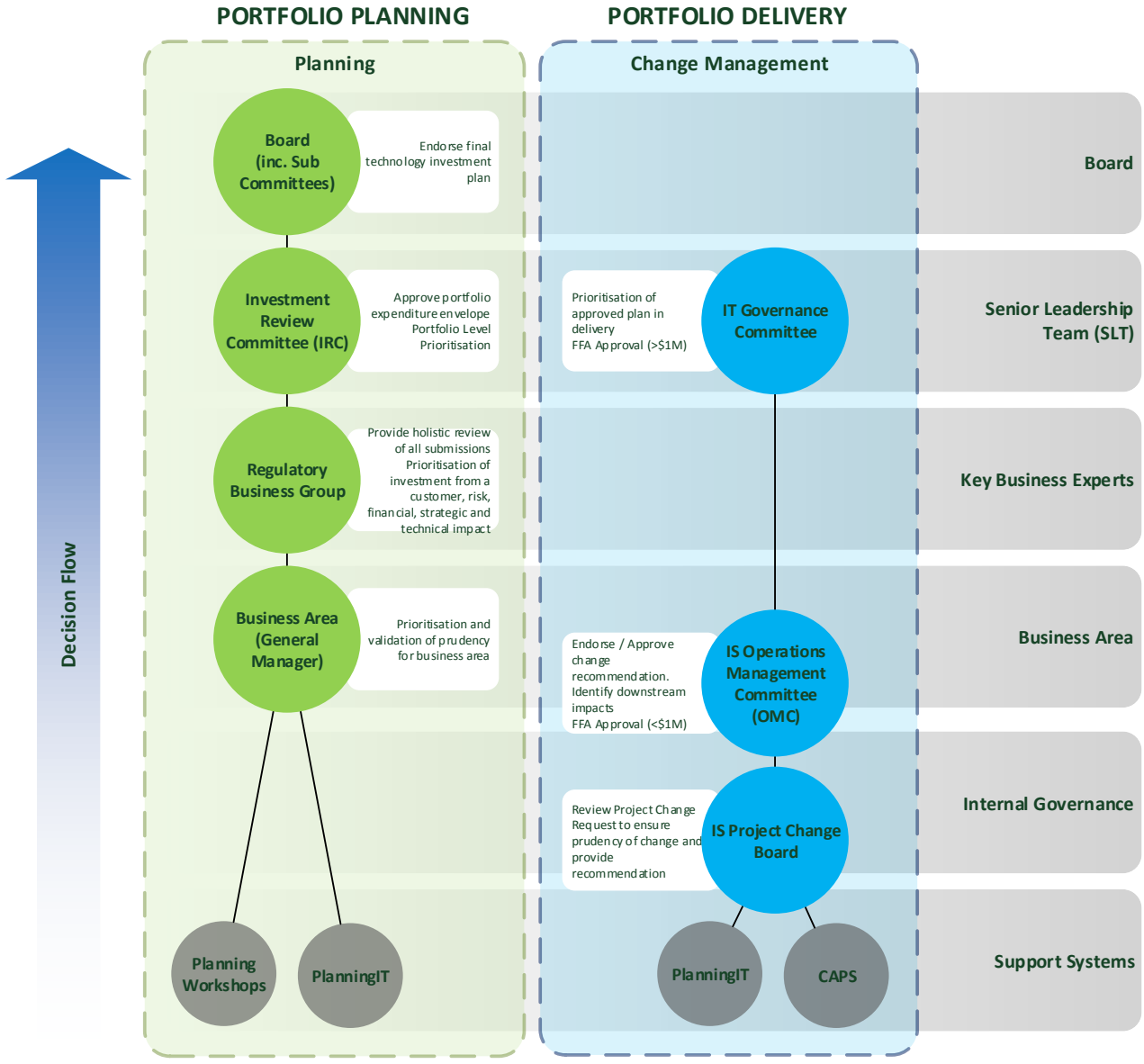


Figure 15: Governance Structure

The Portfolio Planning governance structure following the decision flow involves:

- **Supporting Systems** – Planning workshops (see Appendix A), PlanningIT and spreadsheets are utilised to capture and manage the portfolio throughout the planning process in development of the technology plan. This is to ensure that accurate data is always presented to each governance group at the correct level of detail. In addition, PlanningIT is utilised to support the prioritisation of initiatives based on the prioritisation criteria (see Appendix C) and is also the system used to manage the portfolio through to execution.
- **Business Area (General Manager)** – The business area provides the first level of governance through the review of potential initiatives to ensure that within a business group, proposed initiatives are prioritised and are aligned with business group's strategic priorities and corporate strategic priorities. The business area also considers the impact on their own business area and ensures that the justification for the proposed initiatives is justified and prudent.
- **Regulatory Business Group (RBG)** – The RBG reviews initiatives and considers the alignment to SA Water's strategic goals, customer impacts, risk exposure, financial implications and consistency across the whole portfolio and business areas. The primary objective of the RBG is to provide advice and recommendations on the relative priority of initiatives and to test the strength of the justifications for input into the Investment Review Committee (IRC).
- **Investment Review Committee (IRC)** – The IRC reviews the recommendations from the RBG and considers the whole of portfolio expenditure envelope and prioritisation between both Capital and Operating initiatives across the whole of SA Water. This governance body considers work programs not just within the technology domain but in all domains within SA Water. Ultimately this body approves the technology investment plan and implements any changes in other plans or within the technology investment plan itself to support the level of investment to achieve the desired outcomes.
- **Board (including Sub Committees)** – The board along with the various sub-committees considers the technology investment plan alongside both internal and external strategic directions to ensure alignment. The final outcome is an endorsement of the technology investment plan.

The Portfolio Delivery governance structure following the decision flow involves:

- **Supporting Systems** – PlanningIT is the primary support system used to govern the originating portfolio and any changes throughout execution of the portfolio (Capital Technology Plan) against the regulatory baseline. The financial management of programs / projects is supported by the Capital Planning System (CAPS), which tracks the budget allocated, forecast spend, milestone and approved documents. Additional systems such as Excel Spreadsheets, Project Server and Mercury are also utilised but not listed as they are peripheral to the governance process.
- **IS Project Change Board** – All project changes are reviewed by this working group to consider the flow-on impact from a program delivery, strategy / architecture, whole of portfolio, future plans, and resourcing perspectives. This committee is to ensure that all changes are fully justified and prudent and control that the original outcomes that support the business justification for the project are upheld. This is also a working group to review and approve minor changes (e.g. change in project manager) are handled quickly and efficiently. For decisions that have a wider impact (e.g. change of scope, change in delivery timeframes or change in scope) this committee is responsible for ensuring that the impacts are correctly captured and a recommendation made for review by the Operations Management Committee (OMC).

- **IS Operations Management Committee (OMC)** – The majority of governance activities relate to the review and approval of change requests (scope, financial, schedule). In addition, the OMC is responsible for the review and approval of Full Financial Approval (FFA) requests below $1M for projects that have completed their requirements, design and full cost analysis and are requesting financial approval to commence with the delivery against the project objectives and outcomes. FFA requests above $1M are reviewed and a recommendation that is subsequently reviewed at the IT Governance Committee (ITGC) (see below). For significant change requests resulting in impacts against multiple business initiatives (e.g. delay to project resulting in subsequent delays to other projects or the introduction of new initiatives into the portfolio) the OMC is responsible for using the input from the IS Project Change Management Committee and to develop a recommendation and options for review by the ITGC. The delineation of approval between the OMC and ITGC allows for smaller impact decisions to be made quickly at the OMC level while ensuring that large impact changes that have the potential for affecting the whole portfolio to be decided at the ITGC where a greater context can be applied to the decision.
- **IT Governance Committee (ITGC)** – ITGC is comprised of General Manager from each business areas and provides a whole of corporation governance for the execution of technology initiatives. This governance body is responsible for ensuring that business strategic outcomes and objectives of the portfolio are being met and aligned with business priorities. This is achieved through the review of significant changes to the execution of projects within the portfolio, prioritisation of any new initiatives to be introduced within the portfolio and the approval of projects requesting delivery funds at FFA of greater than $1M. This governance body is the escalation point for all unresolved decisions from supporting governance bodies.

Although the decision flow is depicted above as being linear there is typically a cyclic nature between the governance levels to incorporate feedback, achieve alignment, prioritise initiatives, or seek additional details to make a decision / recommendation.

This governance structure covers both the planning and execution for technology programs and projects. Lower level governance bodies are also utilised to ensure technical completeness, robustness and optimisation of solutions such as the IS Architecture Review Committee (ARC), Design Authority (DA) and IS Change Approval Board (CAB). These lower level governance structures provide the necessary control over both operational and capital works and management programs. These are day-to-day operations and delivery activities and therefore further details are provided in section 7.2.

6 Prudency and Independent Review

KPMG was engaged to provide an independent review of the SA Water Technology Capital Plan to:

- Compare SA Water Technology Plan with industry benchmarks.
- Test whether the SA Water Technology Plan is Prudent and Efficient.

Full details of the analysis are contained within the "KPMG Independent Prudence and Efficiency Review of the RBP 2016 Technology Submission". An extract of these efficiency and prudency test against a sample of initiatives is contained in Table 19 below.

Table 19: IS capital expenditure initiatives and the principle test criteria (SOURCE: KPMG)

Assessment	Principle Test alignment	02. Consolidation of Budget Information Systems	39. Field Process Re-engineering	18. IS Business & Management Application Lifecycle Program	33. Digital Program	40. SCADA Architecture & Security Review & System Renewal
Non-standard costs included have been market tested and evidence provided	Prudence and Efficiency	Non-standard vendor costs have been included, with evidence from the vendor provided		Costs based on specific vendor guidance where applicable and assessment of complexity of program.	Non-standard vendor costs have been included where applicable. 3 of the 7 sub-projects are currently funded through a top down allocation.	Historic costs used as highly specialised area and requires mainly internal effort.
Delivery timeframes have been estimated	Prudence and Efficiency	Delivery time frames have been estimated and included				
Financial benefits analysis demonstrates that benefits outweigh the costs	Prudence and Efficiency	Whilst the financial benefits identified do not outweigh the cost of the project it is recognised that the key driver is the mitigation of business risk associated with various budgeting processes.	Benefits summary has been provided within business case. Financial benefits identified outweigh the cost of the investment	Whilst the financial benefits identified do not outweigh the cost of the project it is recognised that the key drivers and benefits are aligned to delivering customer expectations and mitigating identified business risks.		
Qualitative benefits are clearly articulate and are appropriate	Prudence	Qualitative benefits have been articulated and included within the Business Case.				
The proposed expenditure is the least cost solution (investment option) to achieve the intended outcome	Efficiency	Business case provides a rough order of magnitude cost estimate (as required by the SA Water project methodology). Options then considered are to meet the project objectives in RBP2016, RBP2020 or not at all. Further work to assess viable solution options and to confirm the most cost efficient option is to be performed prior to Full Financial Approval (FFA) of the business case.		Each individual system is assessed against defined rules addressing risk and costs in order to determine if expenditure is required at all so prudent decision can be made on need for investment.	Business case provides a rough order of magnitude cost estimate (as required by the SA Water project methodology). Options then considered are to meet the objectives in RBP2016, RBP2020 or not at all. Further work to assess viable solution options and to confirm the most cost efficient option is to be performed prior to Full Financial Approval (FFA) of the business case.	
The 'need' for investment is articulated and justified	Prudence	The need for investment is articulated and well presented				
Business risk analysis has been performed as part of investment options analysis	Prudence	The business case has been justified to mitigate the identified risks, with risks assessed for pre and post program delivery.	A business risk assessment has been presented. This assessment has identified no risks for this investment.			
Evidence of business involvement and acceptance of benefits	Prudence	Management have advised that the business cases have been written by the business and there is evidence allowing for business sign off in document. We note that the documents are in Draft, and that the formal acceptance of benefits by the business and management will follow SA Waters Capital Approval methodology. Furthermore, there is evidence of the regulatory teams review with via comments within the document. SA Water's integrated budgeting system ensures that the business benefits proposed for these initiatives are accounted for in the relevant business areas' Opex forecasts.				
Detailed costing is evident or available with unit costs comparable to market rates	Prudence Efficiency	Detailed costing spreadsheet is available and unit costs included are appropriate			Detailed costing spreadsheet is available for 4 of the 7 projects which make up the Digital Program. The other 3 projects have been given a top down funding allocation due to the early stage of their business planning process. Unit costs included in documents available are appropriate.	Detailed costing spreadsheet is available and unit costs included are appropriate

In regards to the benchmarking results for the SA Water Technology Capital plan the independent review highlights the following comparisons

- **ICT Capex as a percentage of Corporate CAPEX**
  "When we compare the benchmarks for each of the year for the first and second regulatory periods, the results suggest IT capital investment at below the industry mean for the first regulatory period and the planned increases in the second regulatory period are not too high compared to industry mean. Additionally, the benchmark indicates planned IT Capex will return to the level of 2012/13 industry mean."

- **ICT Capex per employee**
  "In 2012/13, SA Water's IS Capex is at $13,129 per FTE employee, slightly above the industry mean of $11,219 per employee. The result again suggests SA Water's level of IT capital investments are comparably in line with industry over the benchmarking period."
- **ICT Capex per end user**
  "This benchmark compares the level of IS Capex per end user supported. In 2012/13, SA Water's IS Opex is at $7,788 per end user, below the industry mean of $8,998 per end user. The result suggests SA Water's level of IT Capex are comparably in line with industry over the benchmarking period."
- **ICT Capex per device**
  "This benchmark compares the level of IT Capex per client device supported by the IS team. In 2012/13, SA Water's IS Capex is at $6,582 per client device, below the industry mean of $8,955 per end user. The result suggests SA Water's level of IT Capex is below or in line with the industry over the benchmarking period.

7 Delivery Approach

All Projects follow the IS Method for project delivery that builds on the Corporate Program Management Methodology (CPMM). The following activities are included in the IS Method and build upon the standard program and project delivery activities contained within CPMM:

- **Business Analysis:** Business Requirements Definition, Functional Requirements Definition and Non-Functional Requirements definition to clearly articulate the business needs for the project outcomes.
- **Solution Options:** Solution Options Description (SOD) developed – reviews current system availability and also possible vendor and custom software solutions to meet the defined business needs. Ensures that the best fit, cost effective and appropriate solution is used in alignment with the SA Water IS Guiding Principles. This information is a key input into the Options Endorsement process as part of the CPMO process.
- **Conceptual Design:** Development of Conceptual Design documented in the Solution Architecture Definition (SAD). To ensure a full understanding of the solution to meet the recommended solution option and to provide full context for suppliers, vendors and delivery teams to complete costing analysis for Full Financial Approval (FFA) as part of the CPMO process.
- **Detailed Design:** Detailed design documented in the Solution Architecture Definition (SAD) to further refine the design and ensure that the final implemented / as-constructed design is fully documented and incorporated into the Technology Landscape / Baseline for use in future capability planning and analysis activities.
- **Testing, Verification and Validation:** Development of Test Strategies and detailed testing approach to ensure that the implemented solution meets the architectural design and the originally defined requirements so that there is full traceability between implemented components back to the original business need.
- **Handover to Support and Execution:** Completion of the handover to support checklist (and associated documentation) to ensure that all components have an appropriate level of support once the system goes live.

A more detailed process flow of the IS method is contained within Figure 21 below. This figure shows both CPMM gates and IS Method gates in a single flow and the various documentation outputs that are expected of projects to facilitate delivery, handover and documentation of the solution for inclusion into the systems baseline. This is in alignment with the top level corporate project management methodology, CPMM, which is shown in Figure 20. Further details of IS Method and CPMM can be found in the following locations:

- **Corporate Project Management Methodology (CPMM)** - http://intranet.sawater.sa.gov.au/managementsystems/cpmm/Pages/CPMM.aspx
- **IS Method** - http://river.sawater.sa.gov.au/workspaces/wsr/ws0074/IS%20Method/Home.aspx

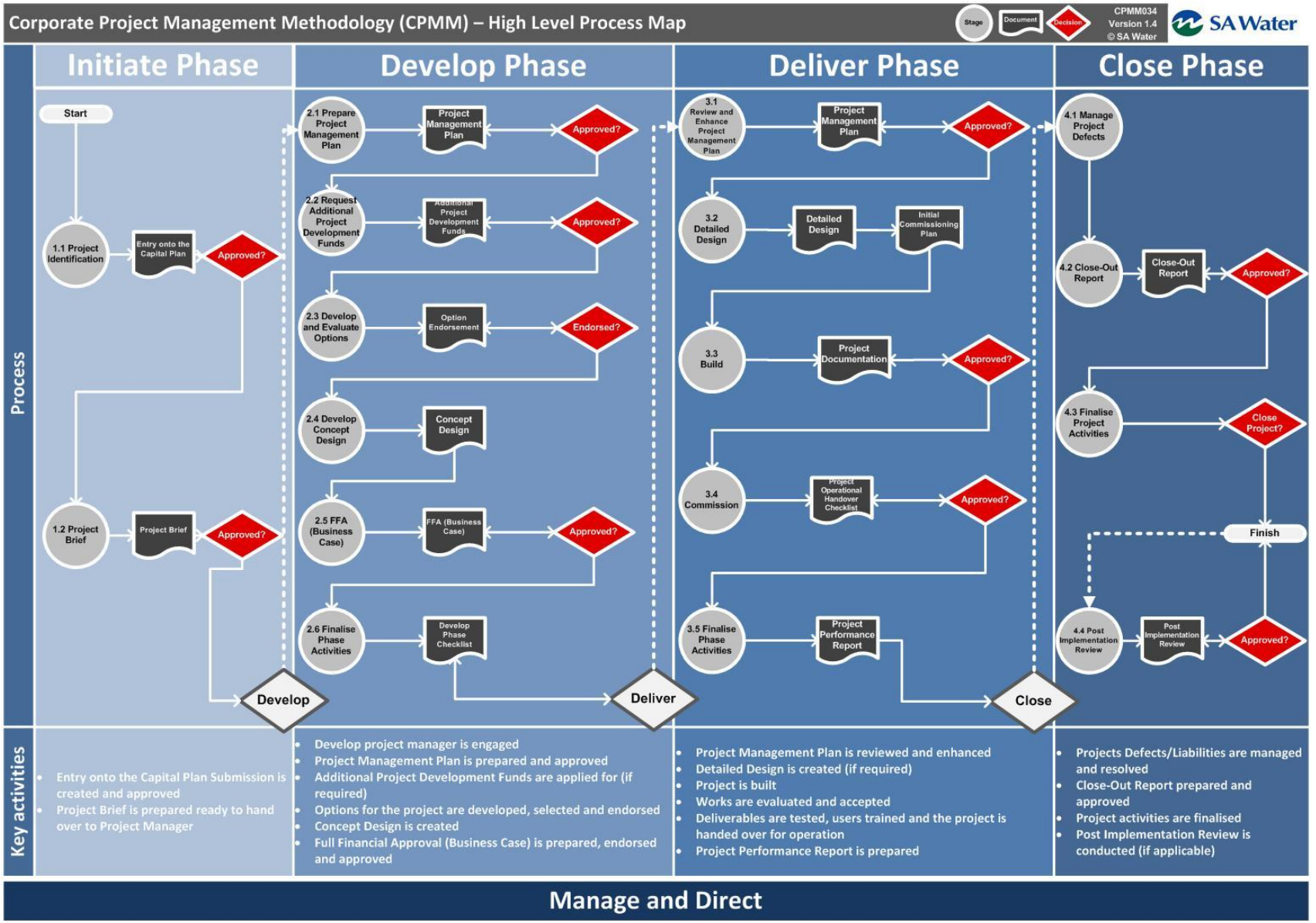


Figure 20: CPMM High Level Process Map

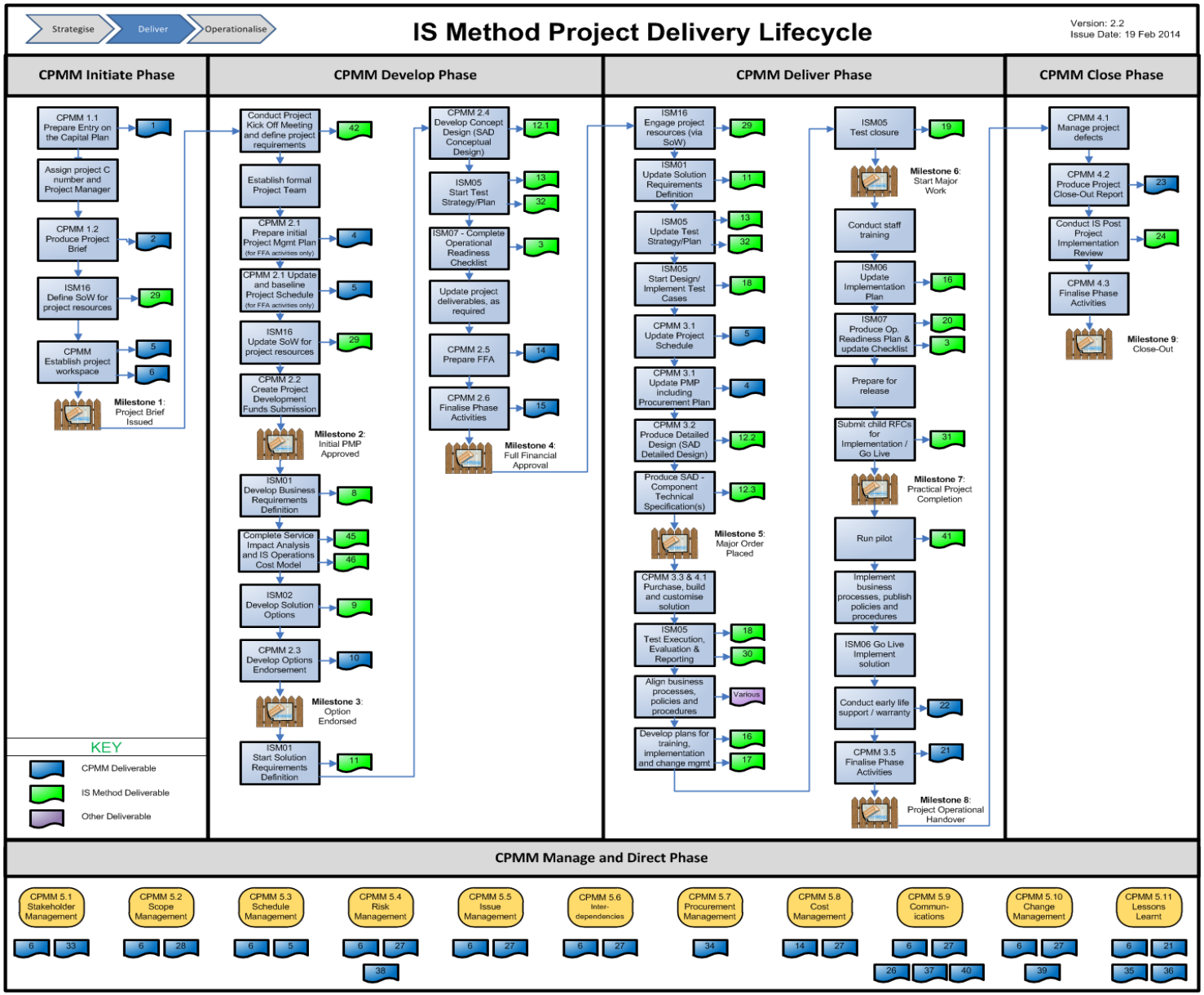


Figure 21: IS Method Project Delivery Lifecycle

7.1 Program and Project Delivery Manage and Direct

The underlying concept is the Plan – Do (Execute) – Check (Monitor) – Act (Control) cycle. These four tasks are cyclical in nature and the cycle will continue through its rotations throughout the life of the project. All the components interact with each other. These components must be integrated for the project to be successful.

Best practice project management principles combined with SA Water customised processes encompasses those activities that are repeated throughout the life of a project, such as management of: issues, change, risks, stakeholders, schedule, costs, communications etc.

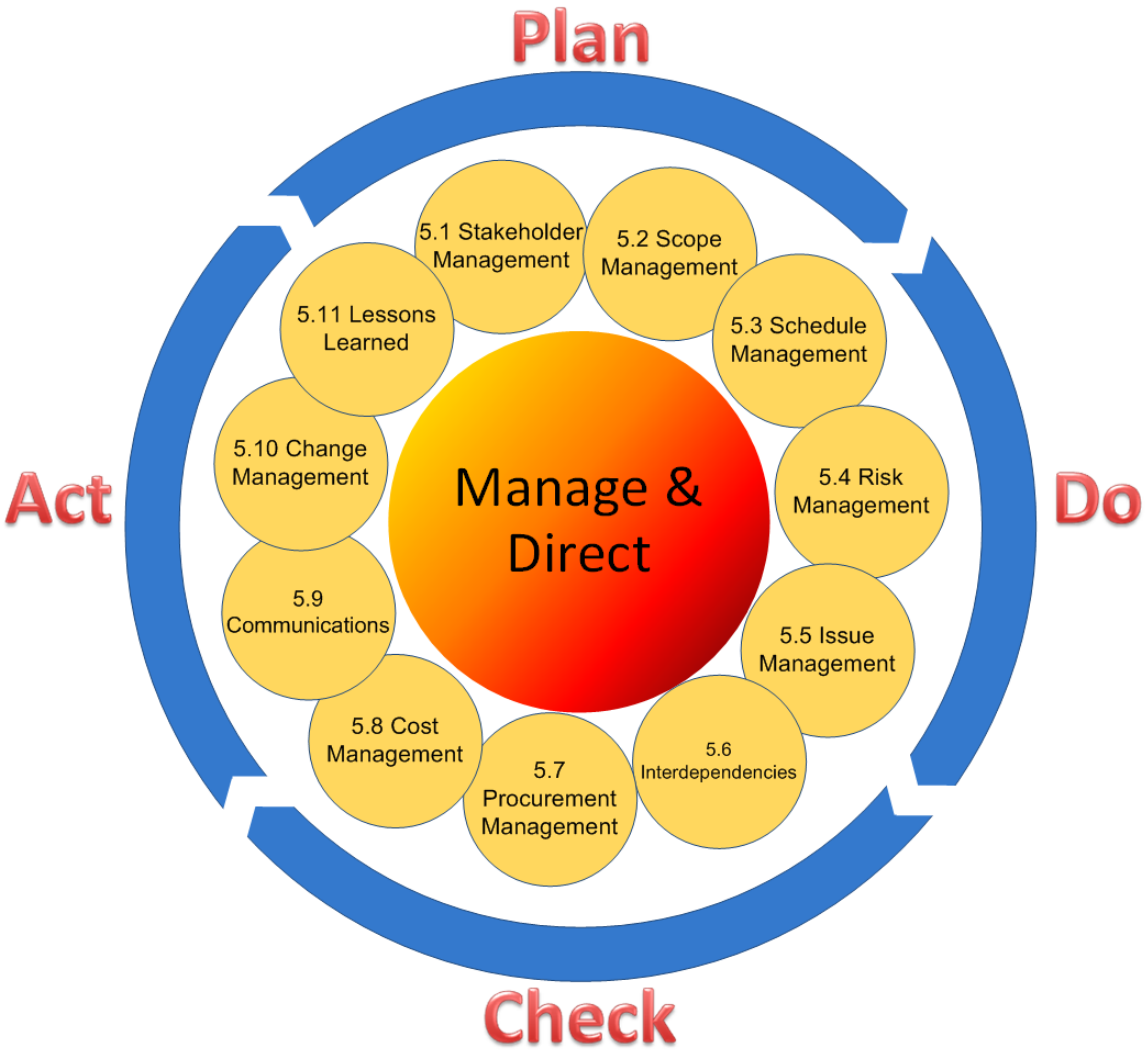


Figure 22 - Manage and Direct Cycle

7.2 Technology Delivery

Supporting these delivery methodologies is the project change management governance structure as described in 4.6 on page 41 and the following operational governance bodies that handle ongoing changes to the technology baseline and architecture:

- **IS Architecture Review Committee (ISARC)** – The IS Architecture Review Committee (ISARC) governs the Technology Strategy, IS Principles and Architectural Baseline within SA Water in accordance with the endorsed IS Principles, IS Policies and Procedures. This includes the review of solution options, architecture designs and changes/updates to strategies. This group is primarily involved in the early stages of project delivery (conceptual design) and working with the business around technology strategy and alignment with corporate strategy.
- **Design Authority (ISDA)** – The IS Design Authority (ISDA) governs the Technology software and hardware baselines in accordance with the IS Policies, Procedures and Principles. This includes the review of customer work requests that are outside of normal service desk guidelines e.g. larger system customisations, new functionality requests or anything not within the standard service catalogue. In addition, any projects (capital and/or operationally funded) that are to make significant changes to the SA Water Technology Landscape are to be reviewed and endorsed by the ISDA. This group is primary involved with reviewing new requests from within the business for technology changes and determining the technical impact of these changes. Requests that are outside of standard services (typically delivered as part of the operational program of work) then the ISDA will escalate these to the portfolio management team and handled through the IS OMC governance processes as documented in section 4.6.
- **IS Change Approval Board (CAB)** – This governance group is comprised of all technical support disciplines and reviews all technical changes to the software and hardware environment from project related changes an operational changes. The primary purpose of the board is to manage the risk exposure to the production technology environment and to ensure that requests for technology changes have completed all due diligence tests and all dependencies have been considered and catered for prior to system go-live. The CAB is the final review and approval before a system goes live or a change to an existing system is implemented.

The ISARC has a close relationship with the IS Design Authority (ISDA) - the primary differences between the two governance bodies is identified in Figure 23 below. Primarily, the ISARC is responsible for managing the overarching Technology Strategies, Principles and solution options / designs for new capabilities. In comparison the ISDA is responsible for the management of the technical baseline and analysing how new work affects the technical baseline (including existing applications and systems). Separation of the two governance bodies allows the ISARC to focus on the strategic, long term and broader architectural implications of changes to the SA Water technology landscape and the ISDA to focus on the more pressing needs of the short term environment.

To ensure alignment between the two governance bodies the Chair for both Committees is the same along with key positions in the information management and information security domains. This common membership is so that the detailed technical decisions and strategic high-level decisions can be covered in both governance groups.

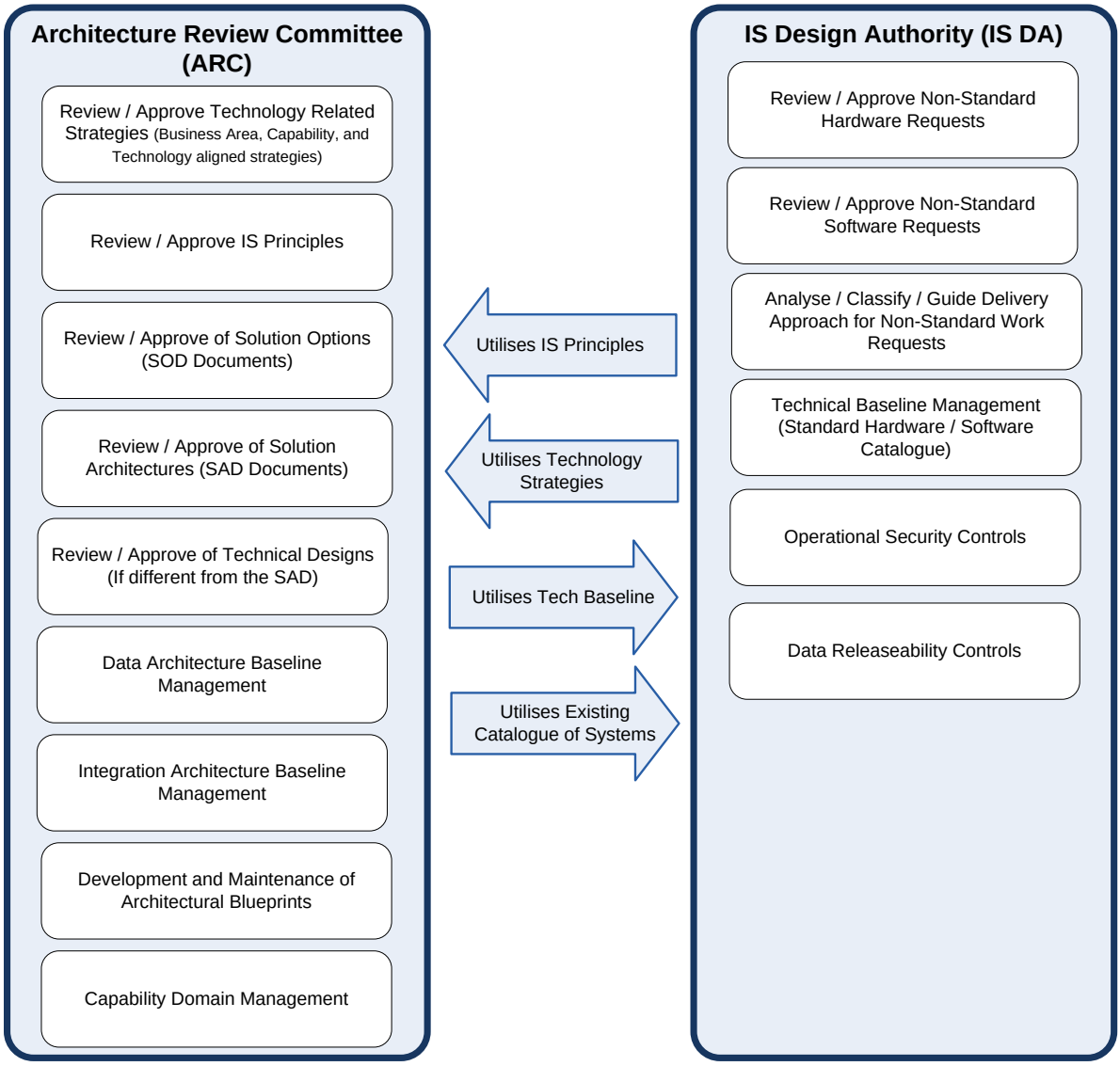


Figure 23: Relationship between the ISARC and ISDA

8 Technology Strategy Approach

Figure 24 below depicts how the corporate strategic objectives and outcomes are aligned to the technology strategies through to the planning and execution. Strategy development is achieved through both a top down and bottom up approach with the creation of the whole of corporate strategies (top of diagram) with the creation of the Corporate Strategy, Mega Trends, Customer Strategy and supporting Business Area strategies. In conjunction the bottom up technology / capability domain strategies that are focused on the individual technologies is completed. To ensure alignment between the two strategy development approach the Application Strategy area considers both the bottom up technology strategies and the top down corporation strategies to ensure there is continued alignment, which includes updates and guidance implemented within the Capability Domain Strategies. This strategic approach results into strategic thinking being applied in the Initiative Planning and Initiative Execution activities. Initiative planning utilises the strategic direction to identify which activities are required using the roadmaps contained within the strategies (see below). Initiative Execution utilises the core IS Guiding Principles (rules) as part of the Solution Options definition / analysis work conducted within the Deliver phase of project execution.

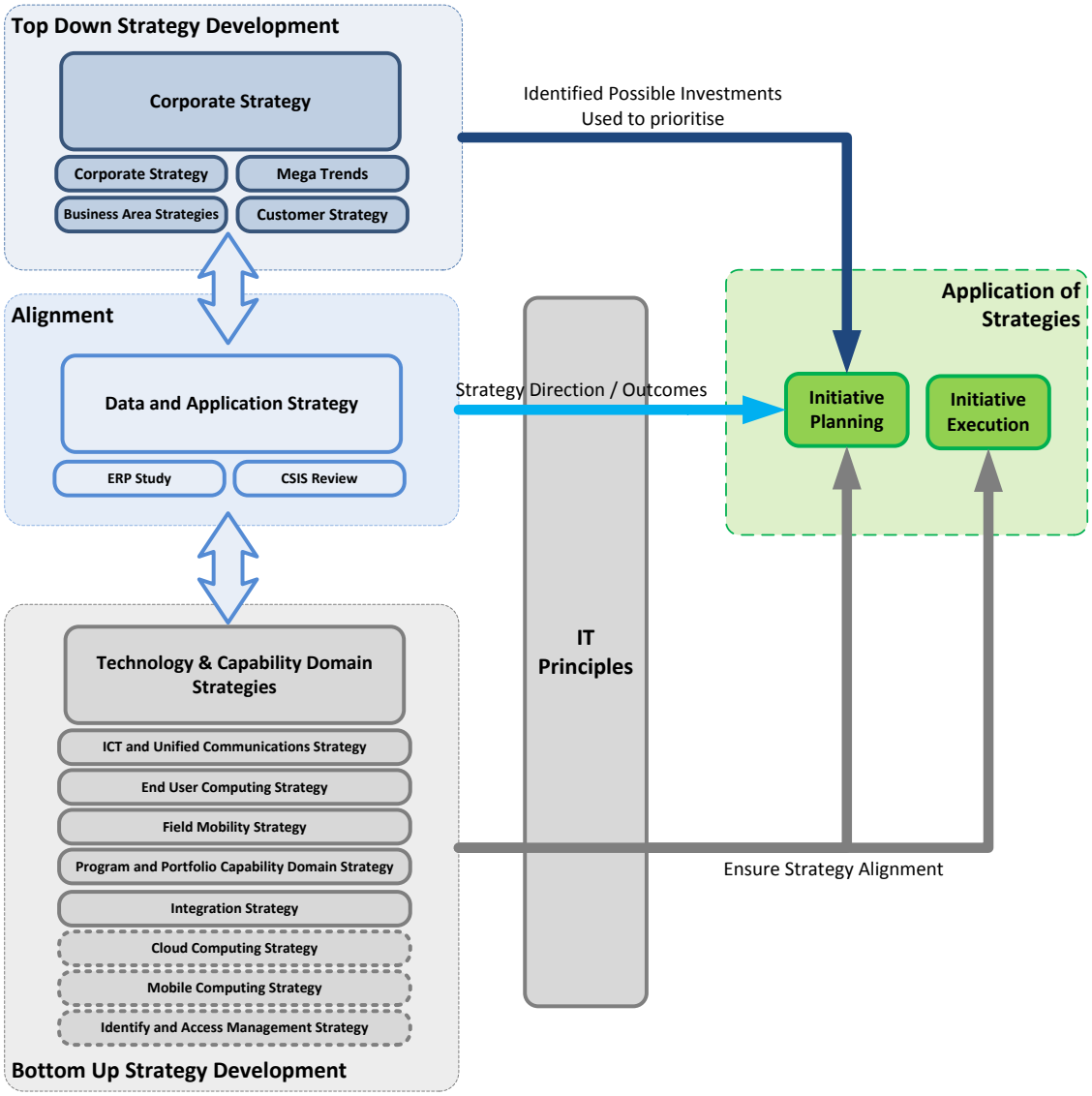


Figure 24: Strategy Map

The Technology and Capability Domain Strategies are developed using the process shown in Figure 25 below. This follows the approach of:

1. **Current State Analysis:** Analysis of the current technology landscape, business strategies, issues and scope of the strategy to identify what is the current level of maturity within SA Water. This activity is to capture a complete analysis of the current state and level of maturity SA Water already is operating at.

2. **Industry Analysis:** Review of research literature, discussion with peer water utilities and technology industry to identify the trends, common technologies and forecasted technology capabilities within the strategies scope. This is to help understand the current and future context and highlight the areas of possibility of future increased maturity needs.

3. **Future State Analysis:** Considering the business strategies and related technology / capability domain strategies this activity is to identify what is the required level of maturity and technologies that is required by SA Water. It should be noted that sometime this highlights SA Water has currently having a higher level of maturity than what is necessary, which highlights an opportunity for efficiency gains. The outcome of this activity is a definition of the desired future state for SA Water.

4. **Roadmap and Principles:** Using the future state analysis and the identified gaps with the current state a series of roadmap activities are identified, which are utilised to feed into initiative planning activities. In addition a set of core IS principles that are used as rules that are applied during solution options analysis and design work throughout project execution.

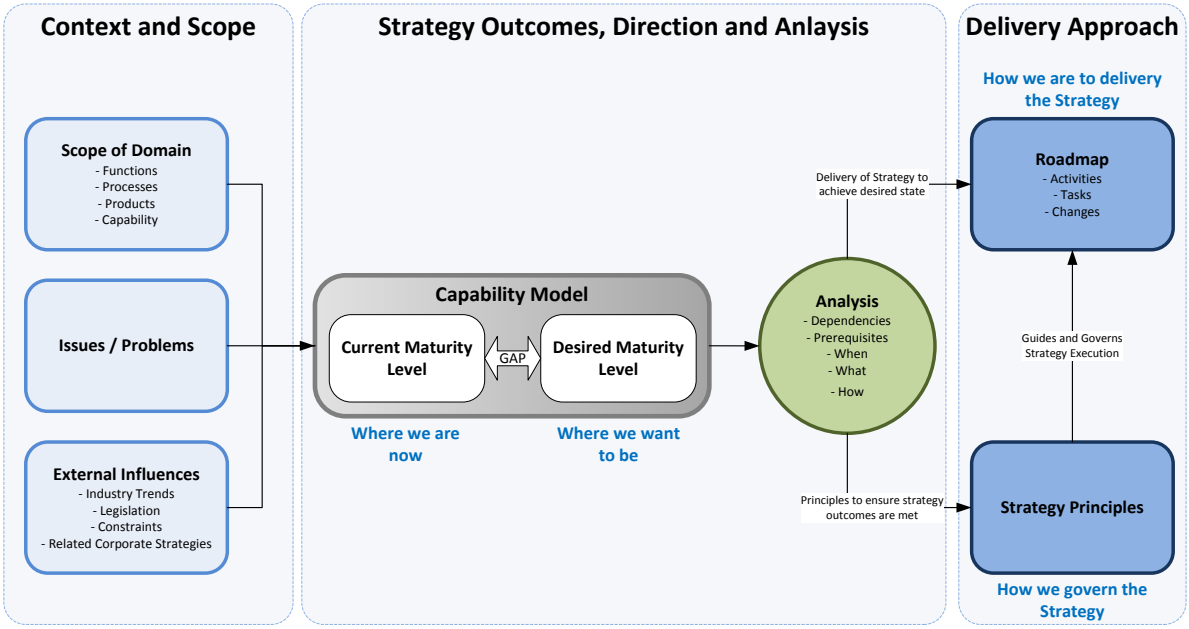


Figure 25: Strategy Development Methodology

IS Guiding Principles are a core mechanism to ensure alignment between project execution and the solutions selected and implemented and the various business and technology strategies. As all strategies are devolved into a series of principles that are tightly controlled (either via the Application Strategy alignment or directly from a technology strategy) it is possible to ensure all technology solutions are aligned to all strategies simultaneously by being compliant with all IS Guiding Principles. Therefore IS Guiding Principles are tightly governed through the IS Architecture Review Committee (ARC) and IT Governance Committee (ITGC).

Appendix A RBP2016 Technology Capital Planning Workshops

The following tables contain details of the workshops and review meetings held as part of the planning process in developing the RBP2016 Technology Capital Plan. The process used is documented in section 4.1 for the business change program and section 4.2 for the IT Asset Lifecycle Program.

Table 20: Step 1 - Brainstorm Phase Workshops held

Meeting Date	Business Area	Attendees
29 July 2014	Customer Community & Relations	[redacted]
29 July 2014	People & Culture	[redacted]
30 July 2014	Office of the CE	[redacted]
1 August 2014	Strategy & Planning	[redacted]
1 August 2014	Commercial Business Development (Lab Services)	[redacted]
5 August 2014	Business Services (Procurement)	[redacted]

Meeting Date	Business Area	Attendees
7 August 2014	Information Services (Applications)	[redacted]
11 August 2014	Operations & Maintenance (Network Operations)	[redacted]
14 August 2014	Business Services (Finance)	[redacted]

Table 21: Step 2 - 1st Round Consolidation Workshops

Meeting Date	Business Area	Attendees
18 August 2014	Commercial Business Development (Lab Services)	[redacted]

Meeting Date	Business Area	Attendees
19 August 2014	Strategy & Planning (Asset Management)	[redacted]
19 August 2014	Information Services (ICT)	[redacted]
19 August 2014	Customer Community & Relations	[redacted]
20 August 2014	Commercial & Business Development (PMO / Project Controls / Project Delivery)	[redacted]
20 August 2014	Commercial & Business Development (Stakeholder Engagement)	[redacted]

Meeting Date	Business Area	Attendees
20 August 2014	Business Services (Procurement)	[redacted]
21 August 2014	Commercial Business Development (Business Development)	[redacted]
22 August 2014	Commercial Business Development (Engineering Services)	[redacted]
22 August 2014	Office of the CE	[redacted]
25 August 2014	Strategy & Planning (Environmental Services)	[redacted]
26 August 2014	Strategy & Planning (Research & Innovation)	[redacted]

Meeting Date	Business Area	Attendees
27 August 2014	Strategy & Planning (Water Security & Supply)	[redacted]
28 August 2014	Strategy & Planning (Water Quality & Treatment Strategy)	[redacted]

Table 22: Step 4 – Cost Estimation Workshops

Meeting Date	Attendees
22 September 2014	[redacted]
23 September 2014	[redacted]
24 September 2014	[redacted]
25 September 2014	[redacted]

Meeting Date	Attendees
26 September 2014	[redacted]
29 September 2014	[redacted]
30 September 2014	[redacted]
1 October 2014	[redacted]
2 October 2014	[redacted]
3 October 2014	[redacted]

Table 23: RBG Review Meetings

Meeting Date	Attendees
8 October 2014 *RBG-Post Business Planning Meeting(Day 1)*	[redacted]

Meeting Date	Attendees
9 October 2014 *RBG-Post Business Planning Meeting(Day 2)*	[redacted]
17 October 2014 *RBG-Review of CCR technology proposal for RBP2016*	[redacted]
20 October 2014 *RBG-Review of P&C technology proposal for RBP2016*	[redacted]
20 October 2014 *RBG-Review of Finance technology proposal for RBP2016*	[redacted]
20 October 2014 *RBG-Review of Office of CE technology proposal for RBP2016*	[redacted]

Meeting Date	Attendees
20 October 2014 *RBG-Review of Office of Strategy & Planning technology proposal for RBP2016*	[redacted]
21 October 2014 *RBG-Review of Commercial & Business Development technology proposal for RBP2016*	[redacted]
21 October 2014 *RBG-Review of Operations & Maintenance technology proposal for RBP2016*	[redacted]

Meeting Date	Attendees
22 October 2014 *RBG-Review of Procurement technology proposal for RBP2016*	[redacted]
22 October 2014 *RBG-Review of IS technology proposal for RBP2016*	[redacted]
23 October 2014 *RBG: Review of RBP16 technology Proposals post Business prioritisation*	[redacted]

Table 24: IRC Review Meetings

Meeting Date	Attendees
3 November 2014	[redacted]

Table 25: IT Asset Lifecycle Costing Workshops

Meeting Date	Attendees
July – August 2014 *Adhoc Meetings with Application & Infrastructure Specialists*	[redacted]
24 September 2014	[redacted]

Meeting Date	Attendees
26 September 2014	[redacted]

Appendix B System Classification Attributes

The following tables contain a description of the attributes used in the Application Classification and Impact Analysis as described in section 4.2.1 on page 26.

Table 26: Attribute - Business Use

Value	Description
Core / Line of Business System	The system is used to provide direct services to customers or without the system the business will be unable to deliver products to our customers. Examples include the core works management system, SCADA control systems, monitoring systems and billing systems.
Business Support System	The system is used to ensure that SA Water continues to operate efficiently and within the mandated regulation, controls and guidelines. Examples include, financial management system, incident management systems, planning systems, analysis systems and records management systems. This is the primary type of system in use within SA Water.
Infrastructure Support System	This class of system provides the underlying services required to ensure all technology components can operate correctly. Without this class of systems the technology environment within SA Water would not operate efficiently or provide the base services used by the core and business level systems. Examples include networking services, Directory Services, IT Management Services, computing hardware.

Table 27: Attribute – Functional Layer

Value	Description
System of Innovation	This is the least established application area and is reserved for a class of application that is currently under research and development or provides an emerging functionality that may be useful for SA Water to deliver increased customer services or achieve efficiencies in the future.
System of Uniqueness	This layer of applications may be transactional or more management or analytical. We are seeing many of these applications shift to cloud-based deployments because of the funding model, deployment speed, and the desire for much more rapid enhancement cycles. This is the category where many of the best-of-breed packaged applications belong. They need to coexist with the big packaged suites and share data and extend processes, but they also tend to have much more of a departmental focus and specialized functionality. In some cases, they may be considered a more tactical purchase with a different investment perspective and life cycle expectation. Attributes of systems in this layer include: • Best of breed packages suits this layer • Well suited for cloud deployment
System of Record	This is the most established application area, and one that deserves careful examination. System of record attributes include: • Manages critical master data. • Often subject to regulatory control, outside audit or significant legal liability. • Centralized "corporate standard" systems. • Often available as a packaged suite (or at least packages) that should be deployed as "plain" as possible. • Benefit from tight integration. • 15- to 20-year useful life • Most likely to be deployed on-premises, but cloud options are emerging
System of Intelligence	Provide analysis and insight into the operation of the business through either unique reporting, analysis techniques or real-time analytics.

Value	Description
System of Support	Underlying system required to enable other systems. For example, Active Directory, SAN, Backup Systems, Virtualisation, etc. Systems in this category allow for systems in all other categories to operate.

Table 28: Attribute – Number of Users

Value	Description
Large	Used by a wide variety of people across the corporation including whole business units or common roles in multiple business units.
Medium	Used by a specific group of people or large team.
Small	Used by a small number of individuals or small team of people.

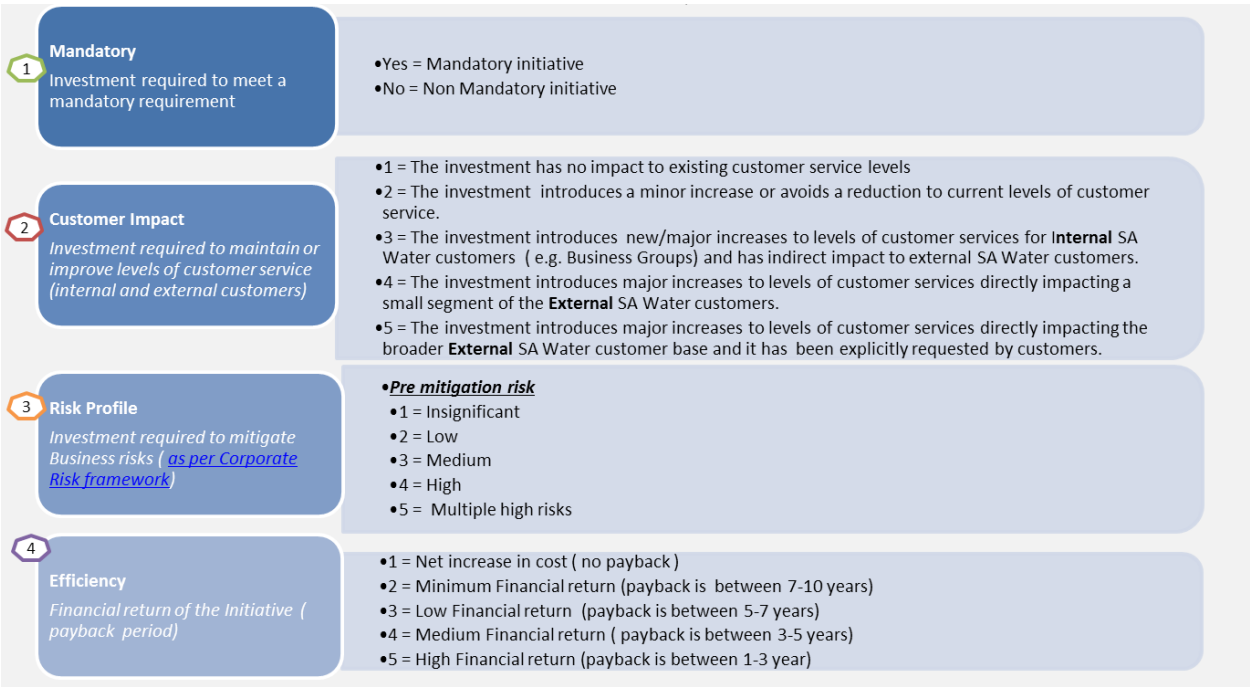
Table 29: Attribute – Technical Complexity

Value	Description
Shared Application Platform	Utilises multiple server components and infrastructure components to house multiple business applications within the shared environment. Examples include SharePoint or Maximo.
Multi-Server Application	Utilises multiple server components and infrastructure to deliver a single business application. Can be an application that reuses functionality provided by a Shared Application Platform. The distinction between this application class and the "Simple Client/Server Application" is that this class contains additional production services for dedicated disaster recover, or high availability or performance requirements. Examples include Chris21, Network Status Display (NSD), Ellipse, etc.
Simple Client / Server Application	Application utilises a client and server component, such as a web browser (client), application server (server) to deliver the required application functionality. This application type typically includes third tier for data in the form of a database. Examples include PlanningIT, Aquanet, Aquamap, etc.
Cloud Application	Application that is treated as a black box from the perspective of maintenance and support as it is managed and hosted externally to the SA Water technology environment. Typically Cloud applications are accessed via a web browser; although some may require desktop applications or add-ons to operate correctly.
Desktop Application	Application that is installed and run directly on the users computing devices and does not connect to any server or external system to operate.
Mobile Application	Application that is installed and run directly on the user's mobile device and does not connect to any server or external system to operate. Note that many mobile applications are a client application for backend servers and therefore would be classed as either a "Simple Client/Server Application" or "Multi-Server Application".
Infrastructure Service	Infrastructure servers are underlying applications that are utilised by other applications and provide no direct business user functionality but are critical to ensuring business applications continue to operate as required. This category also includes data flows within the BI Platform or between systems that provide the necessary data for business applications. These include networking services, data flows within BI Platform, active directory, security incident management services, etc.

Table 30: Attribute – Technology Continuity Categories

Category	Availability / Technology Continuity Provisions
Category A	**Availability** • High priority applications for SA Water business • High Availability design, 99% availability for 24 x 7 period **Technology Continuity** • 12 hour Application recovery in event of disaster (RTO) • Data loss not to exceed 12 hours (RPO) • Functional DR capability
Category B	**Availability** • High Availability, 99%, Monday – Friday, 8am – 6pm • Medium priority applications for SA Water business **Technology Continuity** • RTO and RPO of less than 24 hours • Functional DR capability
Category C	**Availability** • Medium availability, 98%, Monday – Friday, 8am – 6pm **Technology Continuity** • RTO of less than 72 hours and RPO of 24 hours, last backup • Lower priority applications for SA Water business
Category D	**Availability** • Medium availability, 98%, Monday – Friday, 8am – 6pm. **Technology Continuity** • RTO of greater than 7 days and up to 6 months, and RPO of 7 days, last backup. • Lower priority applications for SA Water business.
Uncategorised	**Availability** • Medium availability, 98%, Monday – Friday, 8am – 6pm. **Technology Continuity** • Where no Technology Continuity strategy is required to be implemented and operation will resume only after the Primary Data Centre has been re-instated.
Infrastructure Category	This category is specific to ITC Infrastructure and acknowledges that there are certain components that, in the event of a disaster, must be brought back to an operational state as soon as possible in order for Category A applications to be restored.

Appendix C Prioritisation Criteria



Appendix D References

The following table identifies the documents and/or articles that are referenced in this document:

Title/URL	Version	Date
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IRC Agenda Item 4 – Technology Plan Presentation Pack http://river.sawater.sa.gov.au/teamsites/ispr/Business Planning/IS Portolio Management/Plan/RBP 2016/ADMIN/IRC 30-10-14/IRC Agenda Item 4 - Technology Plan Presentation Pack.pptx	1.0	30/10/14
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Appendix E - SA Water IS Guiding Principles

Figure 26 below list SA Water's IS Guiding Principles.

Figure 26 – SA Water's IS Guiding Principles