Goulburn Murray Water
Capital Plan Validation Report

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> Document Control

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1. Scope and Deliverables

The engagement is a review of Goulburn Murray Water's (GMW) response to the Essential Services Commission review of their Water Plan. In particular, validate ICT's approach and forward look for the capital planning around renewal of ICT assets for Water Plan 4 (2016-2020)

The validation will consider the following:

- Whether GMW have followed best practices to inform the forward look for the next Water Plan
- Whether GMW have exercised sound judgement in their assessment on costs for the various programs that are part of the capital plan
- Whether GMW's submission for Water Plan 4 factors the technology advancements and changes in hardware & software procurement and hosting methods.

In essence GMW are looking at a 3rd party to review their submission for the Water Plan 4 funding. The engagement will require access to the following resources for this validation:

- Key resources in ICT
- Access to documentation related to the submission for Water Plan 4 funding.

Deliverable

A document that reviews and makes observations in relation to the GMW approach and processes (this document).

2. Activities performed

2.1 GMW DOCUMENT REVIEW

The following documents and artefacts were provided by GMW and reviewed and discussed:

Business case for dams and irrigation areas corporate server refresh project

Business case for test data centre relocation project

Business case for UPS replacement

Project closure report primary data centre expansion project

Project endorsement process diagram

INDEC draft audit report – response ICT capital

2.2 GMW KET ICT DISCUSSIONS

A number of phone interviews were conducted with the following people:

Alan Arthur	Chief Information Officer ICT
Dallas Aikman	ICT Technical Architect
Sabari Thankippan	ICT Program Manager

3. Observations

3.1 BEST PRACTICE FOLLOWED?

This section addresses the scope issues of:

- Whether GMW have followed best practices to inform the forward look for the next Water Plan
- Whether GMW have exercised sound judgement in our assessment on costs for the various programs that are part of the capital plan

Understanding the technology landscape

GMW ICT supports a sophisticated irrigation capability for their customer base. The modernisation of that system continues to advance rapidly. The primary consideration ICT planning must consider is the resilience of the ICT infrastructure supporting that system. Since the customer community is critically dependent on the real time availability of the irrigation systems then an approach that factors resilience as a major ICT quality measure, without gold-plating it, makes good business sense.

It is a challenge to forecast 5 years out when the technology is refreshing and renewing itself often within a one year cycle. GMW's approach to estimating considers the nature of the changing ICT landscape and in some cases plans for the worst case scenarios to ensure resilience. GMW's ICT would rather over estimate to protect resiliency and return un-spent money to avoid prices increases than under-estimate or bet on the as yet unknown and then have to request more funds and perhaps increase prices.

Observations of the forward planning processes

From the discussions with the GMW ICT team members and review of supporting documents provided it is the conclusion of this report that GMW have followed a best practice approach and exercised sound judgement in the process of preparing project estimates as input to Water Plan 4.

The rationale for this conclusion follows:

Project approval processes Business cases are all submitted for approval (or not) through an approval process that include processes that requires a financial review, project approval committee (PAC) review and project board approval for larger projects. This rigour provides governance across all project requests. Going through the process a number of times educates teams on the critical business criteria and the need to consider and provide cost-benefits for all solution options.

Business Cases for all projects. To support the PAC process it is standard operation for all projects to require approved business cases. Since all projects need to be justified and approved it means that solution options need to be considered, presented and costed, including Do Nothing options. Included in the business case preparation are preparation of project sizing as an indicator of complexity, finance and costing considerations including treatment of opex and capex, solution options with associated costs and benefits.

Project Closure reports While many organisations have a process for the way into a project, it can be said that many are not strong on the way out of projects. GMW follows a Project Closure process which also includes a review of benefits realised. This supports best

practices because it provides a comparison between estimated and actual costs as well as a summary of the performance of the project. This is a strong enabler to refine project estimation. Having a body of evidence of previous projects provides a basis for improved accuracy in future projects.

Project Delivery capability The observations relating to the ICT team's commitment to producing project closure reports, following of project management methodologies and discussions with the ICT team identified that GMW ICT has a record of successful project delivery pertinent to the establishment and commissioning of data centres.

Enterprise Architecture GMW ICT exhibits a best practice approach through the development of Enterprise Architecture (EA) artefacts. Although the EA documentation isn't complete it's substantive and is able to illustrate the thought process behind the decision making associated to infrastructure and other architecture domains.

Asset Life Cycle management The ICT team follows a regime of supporting the life cycle of ICT Asset Life. In an environment where the customer base relies heavily on the resilience of the supporting ICT communications network it is a critical criteria that all ICT components, including hardware, applications, network and communications do not fall out of maintenance or into a high failure zone. It was observed through the interviews with the key ICT team members that GMW consciously plan for the worst case scenarios to ensure that resilience. Further, although this may change, GMW's approach to investing in the full cost of the project including maintenance for the period of the investment results in good outcomes for GMW in terms of vendor discounts.

Project management method GMW uses a standard project management methodology PRINCE2. This provides an on-going standard for projects to follow a consistent approach and therefore creates a basis for estimating projects of a similar nature.

Contingency GMW ICT generally follow the corporate standard for estimating contingency. There are also rules applied for contingency dependent on whether there is previous experience in the purchase of hardware and software. Hardware purchases that are repeat purchases have a 5 % contingency applied. Software purchases have a contingency of 15% if there has been a market scan performed and 25% if not. It should also be considered that the area, technology and customers that GMW support is quite diverse and often that causes complexities that require provision for contingency.

Estimating The discussions around project estimating indicated that the ICT is following good estimating practices. ICT is able to leverage previous projects, experience, vendor input and factors sufficient project components to develop prudent project plans and estimates. Another key factor that was noted in the discussions was that GMW take advantage of the procurement benefits realised by the ability to utilise the Victorian State Government ICT panel.

The combination of these factors demonstrate a sufficient level of ICT best practice. The ICT team also provided a good understanding of the complex customer environment that ICT is required to support.

3.2 FACTORING IN TECHNOLOGY ADVANCEMENT

This section addresses the scope issues of:

- Whether our submission for Water Plan 4 factors the technology advancements and changes in hardware & software procurement and hosting methods.

From the discussions with the GMW ICT team members and review of supporting documents provided it is the conclusion of this report that GMW have made considered provisions for technology advancement in hardware & software procurement and hosting methods in both the previous and this Water Plan cycle.

Most technology advancement considerations include a conversation about Cloud. In such discussions we need to consider cloud and communications together.

Cloud

In the previous Water Plan period GMW invested in the construction of on-premise Primary & Secondary Data Centres located in Tatura. The GMW ICT data centre facilitated ICT's evolution which included moving from physical servers to virtualised servers. This enables greater flexibility and cost effectiveness, it is also a pre-requisite step towards being 'Cloud-ready'.

GMW's hypothesis is that a move to the cloud is not cost effective unless there is a full move to the cloud. It is most cost effective if all done at the same time. Provisions have been made in the next water plan period to test that hypothesis.

Communications

Moving to cloud is critically dependent on communications. GMW support of the irrigation networks requires management across a diversity of sites and locations. The challenge is that the communications network must support continuity of service across that diversity. Disaster recovery parameters in this critical environment must be measured in minutes rather than hours. GMW expects that the NBN roll out will improve carrier reliability and has factored that into its future planning. Until then GMW need to make sure the communications equipment is supported and reliable.

4. Summary

It is the observation of this report that the GMW ICT team have followed best practice approaches to inform the forward look for the next Water Plan. The ICT team have a good understanding of the business they support and have considered the costs for various programs in the capital plan. That consideration is primarily based on maintaining a resilient ICT environment to support GMW's customers and business. Finally, the ICT team are aware of the factors impacting technology advancements and have made sufficient provision in the plans to test their hypotheses for cost effective transition into a future-proof ICT environment.