Investment Decision Support - Whitepaper

ΣGO Portfolio Optimisation Engine

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EXECUTIVE SUMMARY

An organisation's ability to execute on its strategy is one of the greatest concerns for C level executives. The alignment of the organisation's strategy and change initiatives within a portfolio is vital to its successful delivery.

In a recent report on P3M3 maturity assessment[3], the establishment of a portfolio investment capability with Customer ABC was considered a key component in transforming corporate service delivery within the next three to five years as it would help increase the likelihood that programs and projects will deliver their intended outcomes and benefits.

To assist Customer ABC in maturing the successful delivery of investment outcomes, Systems Integrator XYZ under our strategic partnership with ACUITAS and Supplier ABC, proposes an Investment Decision Support solution which is based upon actual evidence based Business Architecture Methodology (*ΣGO*) and uses a portfolio optimisation engine delivered through a SaaS model. This solution has been developed to provide an innovative portfolio investment decision-making capability for Customer ABC as identified in the report on maturity assessment[3].

Systems Integrator XYZ is a large Australian owned ICT Services Company and over the last decade has developed a strong pedigree in delivering ICT solutions within Customer ABC,

Systems Integrator XYZ has successfully delivered Enterprise and Solution Architecture services in Customer ABCs industry sector through large projects and is focussing its Architecture services capability to deliver pragmatic solutions that address key areas of concern for customer organisations.

ACUITAS is an Australian owned Enterprise Architecture solutions company that was established to provide evidence guided optimisation solutions (*ΣGO*) by combining specific aspects of Enterprise Architecture with commercial mathematics. ACUITAS' *ΣGO* provides an Investment Decision Support solution for the optimisation of ICT and capital works portfolios.

Supplier ABC is an Australian owned and operated company that was established to help businesses operate more efficiently and profitably by using Operations Research methods to solve complex business problems. Supplier ABC has commercialised the delivery of its mathematical optimisation solutions through SaaS for large companies such as NBN Co Ltd (optimising fibre optic network design), Aurizon (yield optimisation) and Origin Energy (APLNG supply chain optimisation).

The proposed solution provides Customer ABC benefits including but not limited to:

- A transparent, evidence based decision-making capability that aligns investments with strategy, enabling repeatable optimised results.
- The ability to investigate complex "what if" scenarios that represent changes in assumptions or changes due to internal and external factors.
- Successful delivery of strategy due to ability to continuously align investments to reflect changes in the environment
- Ability to quantify the benefits realisation process through the *ΣGO* solution.
- Contribution to maturity in Customer ABCs capabilities in portfolio, programme and project management and complements existing methodologies in these areas.

The proposed pilot and any subsequent adoption would involve a relatively low level of financial investment from Customer ABC and could be implemented in a very short timeframe.

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1.0 INTRODUCTION

The development of a portfolio capability for Customer ABC has been identified as a key component in transforming enterprise service delivery within the next three to five years.

Due to the current economic climate (doing more with less), the correct selection of investment decisions in the corporate business units' ICT portfolios has become a priority.

In 2012, Customer ABC's CIO office undertook maturity assessments of Customer ABC business units in portfolio, program and project management. The assessments show that 12 out of 13 business units have low levels of maturity in portfolio, program and project management.

Systems Integrator XYZ under our strategic partnership with ACUITAS and Supplier ABC are proposing an Investment Decision Support Solution (*ΣGO)* which has been designed to provide corporate business units with an accurate portfolio (programs) solution to ensure investment is only directed at successful programs where the required outcome will be achieved. The *ΣGO* solution evaluates both ICT and capital works portfolios delivered through Architecture consulting and Software as a Service (SaaS).

The strategic alignment of the three organisations with diverse but complementary capabilities is required to collectively and successfully deliver upon the *ΣGO* solution for Customer ABC.

Systems Integrator XYZ proposes a pilot for the *ΣGO* solution. Such a pilot would demonstrate the capability and effectiveness of the portfolio decision-making delivered by *ΣGO* within Customer ABC, and will provide Customer ABC with a pragmatic way of addressing outcomes based investment decisions.

2.0 ENGAGEMENT PROCESS

2.1 The Process

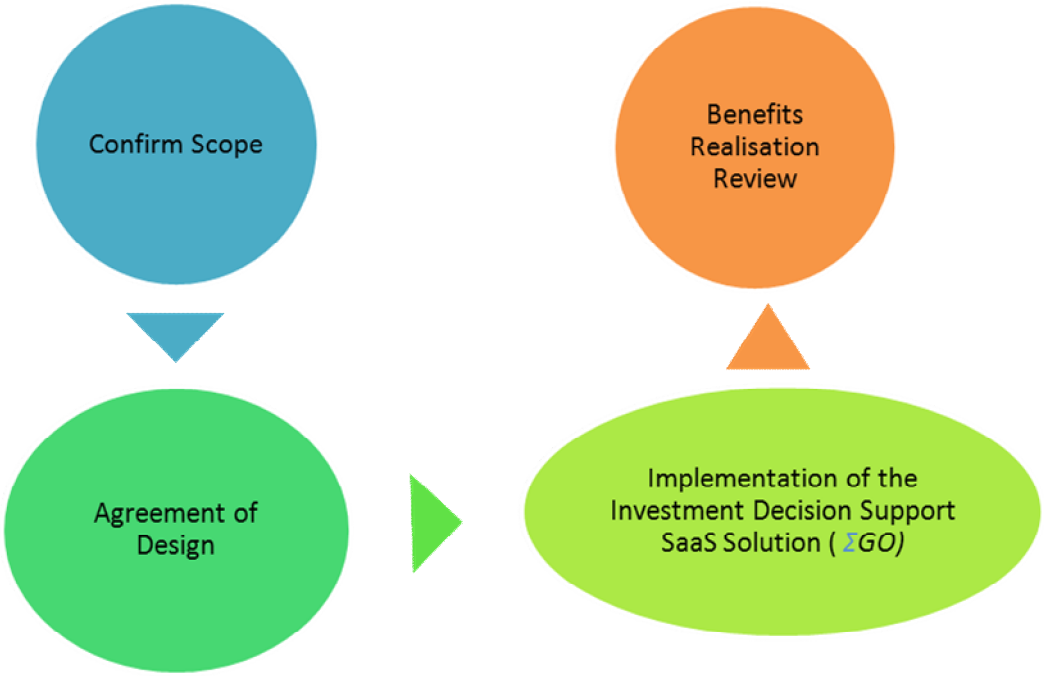
The proposed Systems Integrator XYZ engagement process has been designed as follows:

Confirm Scope: Systems Integrator XYZ's EA consulting team engage with the designated stakeholders of Customer ABC's agreed pilot group. The process is to gain a thorough understanding of the required scope and to confirm the outcomes sought, so that the pilot will yield useful results in terms of how the Investment Decision Support solution (*ΣGO*) will work in the context of Customer ABC.

Design: After signoff of the agreed baseline and pilot outcomes, the combined Architecture teams (Systems Integrator XYZ/ACUITAS) will design the mapping of concepts with the Corporate EA and other Customer ABC methodologies with the *ΣGO* internal Business Architecture model for review and acceptance by Customer ABC. Enhancements to *ΣGO* to suit the Customer ABC environment will also be identified.

Implementation: On signoff of the design, Systems Integrator XYZ will work with designated Customer ABC staff to implement the pilot using agreed, representative data. Any agreed enhancements to *ΣGO* will also be implemented. Full implementation of *ΣGO* follows on after agreement by Customer XYZ of the success of the pilot.

Benefits Realisation: Pilot results reviewed are to be measured against the baseline targets to ensure a Return on Investment to Customer ABC.



3.0 CURRENT STATE

An organisation's ability to execute on its strategy is one of the greatest concerns for C level executives. This is concisely summarised in the following points:

- 70% of strategic failures are due to poor execution[1]
- less than 10% of effectively formulated strategies are effectively executed[2]

Change initiatives (or projects) contained within an organisation's portfolio represent the primary method by which an organisation's strategy is delivered. The alignment of these change initiatives with the organisation's strategy is therefore vital.

Specific concerns for C level executives include:

- The level of confidence that portfolio investments (ICT or capital works) will actually lead to expected business outcomes
- Understanding if current investments are optimised in terms of resources, costs and other parameters, across the portfolio
- Ensuring that all complex factors have been taken into account
- Ability to rapidly see the effect on the portfolio as assumptions change

Enterprise Architecture is recognised as having a key role in bridging the gap between strategy and delivery. A well formulated Enterprise Architecture helps identify the initiatives needed to successfully deliver on the strategy, the dependencies between these initiatives, and time-lines, risks, constraints, and assumptions that can influence the organisation's ability to successfully complete each initiative. Portfolio Management is a complementary discipline that also plays a pivotal role in this area.

The current state is expressed in terms of the Customer ABC's capabilities in these two areas.

3.1 P3M3 Maturity Assessments in Customer ABC

The CIO maturity assessments of Customer ABC's business units in portfolio, program and project management highlighted that all business units but one scored a maturity level of 1 (out of 5) for portfolio management, meaning that they had awareness of this process but had no capability at all to deliver in this space.

The CIO report[3] specifically states that *"The low levels of maturity presented in these maturity assessments reveal that there is a high risk of program and project failure across the enterprise. The results also provide evidence that the enterprise is neither effectively nor efficiently selecting and prioritising its investment in business change initiatives"*

3.2 Corporate EA and other CIO Methodologies

Customer ABC's Enterprise Architecture Framework (Corporate EA) was released and made available to Customer ABC business units in 2xxx.

The compliance activities associated with the Corporate EA are the most visible application of the Corporate EA. Compliance activities are considered difficult and are not seen as a core business outcome for a business unit. The current Corporate EA competing activities across the entire corporation are not aligned and do not provide the environment to achieve the outcomes of the overall vision.

Traditionally, business units embed the architecture function within ICT with focus on application and technology related architectural content and this causes a disconnect with the business decision-making activities. The

reason for this approach across corporate is that the lower levels of the Corporate EA were matured earlier, with the business architecture layers emerging in the later Corporate EA.

The CIO also has methodologies it provides to business units in support of strategy-ICT alignment: the ICT Planning and the Enterprise Portfolio Management Methodology (PFM). The goals of the ICT Planning Methodology include, but are not limited to, optimisation of ICT resources to achieve business goals and improved alignment of systems to business strategies and needs. This methodology is comprehensive and has been adopted at various levels of implementation across business units.

Although the methodology is detailed in its alignment methods, the static outputs provided do not address complex “what if” scenarios to ensure delivery and successful strategy-ICT alignment.

To summarise, there is low maturity in portfolio, programme and project management across the enterprise. The Corporate EA is used primarily as a compliance tool and to date has not been used effectively to align the entire corporation’s agenda. At the business unit level, the Corporate EA has primarily been applied at the technology rather than business-ICT alignment. Related CIO methodologies are directed more on the execution of a single portfolio rather than providing methods for ICT Portfolio-Strategy alignment to guide enterprise investment outcomes.

4.0 FUTURE STATE

4.1 Investment Decision Support

Due to the current economic climate (doing more with less), the correct selection of investments decisions in the corporate business units ICT portfolios has become a priority.

Portfolio investment decision-making involves the prioritisation of investments, and it is important to improve this capability to ensure projects deliver their intended outcomes and benefits. The development of a portfolio decision-making capability will be a key component in transforming corporate service delivery within the next three to five years.

The P3M3 Maturity Assessment[3] provided key recommendations which included the establishment of a central corporate portfolio management office and a Centre of Excellence. Portfolio decision-making will be an important part of the overall capability within these entities.

Systems Integrator XYZ proposes that its Investment Decision Support solution (*ΣGO* - Evidence Guided Optimisation) provide the foundation for this decision making capability. *ΣGO* is evidence based and can deliver repeatable results for the optimisation of portfolio investments. It also clearly identifies all the assumptions that underpin the decision-making, ensuring total transparency for investment governance and audit requirements.

More specifically the *ΣGO* solution is comprised of:

- Business Architecture (provides the *Evidence Guided* component)
- Commercial Mathematics (provides the *Optimisation* component)

Business Architecture is an emerging discipline and is a part of Enterprise Architecture. Business Architecture provides business transparency that allows management teams to streamline planning, evaluate the value of funded initiatives against strategies, and develop more effective transformation roadmaps.

The use of Business Architecture provides a formalised, structured and consistent way of aligning the proposed initiatives within a portfolio with the desired business outcomes. Business Architecture represents a significant improvement over current methods of alignment which are in a large part subjective and therefore deliver varying results. Business Architecture provides a complete picture that represents an evidence based set of inputs for the optimisation of a portfolio.

The optimisation of a portfolio is an extremely complex problem. There are a range of real world constraints for example resources, finances, dependencies and timing. There are many ways to optimise a portfolio:

- by maximising benefit
- minimising cost
- minimising time
- maximising resource utilisation
- synchronising delivery with on-going changes in the organisation

Note

All this translates to an exponentially large number of possible solutions that would be totally impossible to properly optimise via standard algorithms, let alone manually. Current best practices use simplifications such as subjective measures (e.g. assigning a priority to a project) in order to overcome this problem – however the trade-off is a sub-optimal solution for the portfolio. Commercial mathematics however provides the ability to address this complex problem space and deliver optimised solutions for portfolio investments.

4.2 Solution Delivery

Systems Integrator XYZ has an Enterprise Architecture consulting practice that has the capability to deliver the *ΣGO* Investment Decision Support solution. The following sections detail how this solution is delivered.

4.2.1 Business Architecture Consulting

Business Architecture Components

Business Architecture is an emerging discipline and there are many associated standards in use today. The following diagram shows what would be generally considered as the main components of Business Architecture.

The *ΣGO* Investment Decision Support solution uses the components shown in blue, as they are directly relevant to the subject of portfolio optimisation. *ΣGO* also uses the Archimate 2.0 standard for architecture representation, as it is the standard used by TOGAF, which is a world recognised and leading Enterprise Architecture Framework.

Stakeholders

The range of stakeholders that would have an interest and benefit from *ΣGO* includes:

- C Level Executives (CEO, COO, CFO, CIO etc)
- Senior Executives
- Senior Directors
- Strategy and Planning
- Portfolio Management
- PMO
- Enterprise Architecture
- Benefits Realisation

Stakeholders from each of these areas would be engaged in the Business Architecture consulting required for the implementation of *ΣGO.*

Consulting

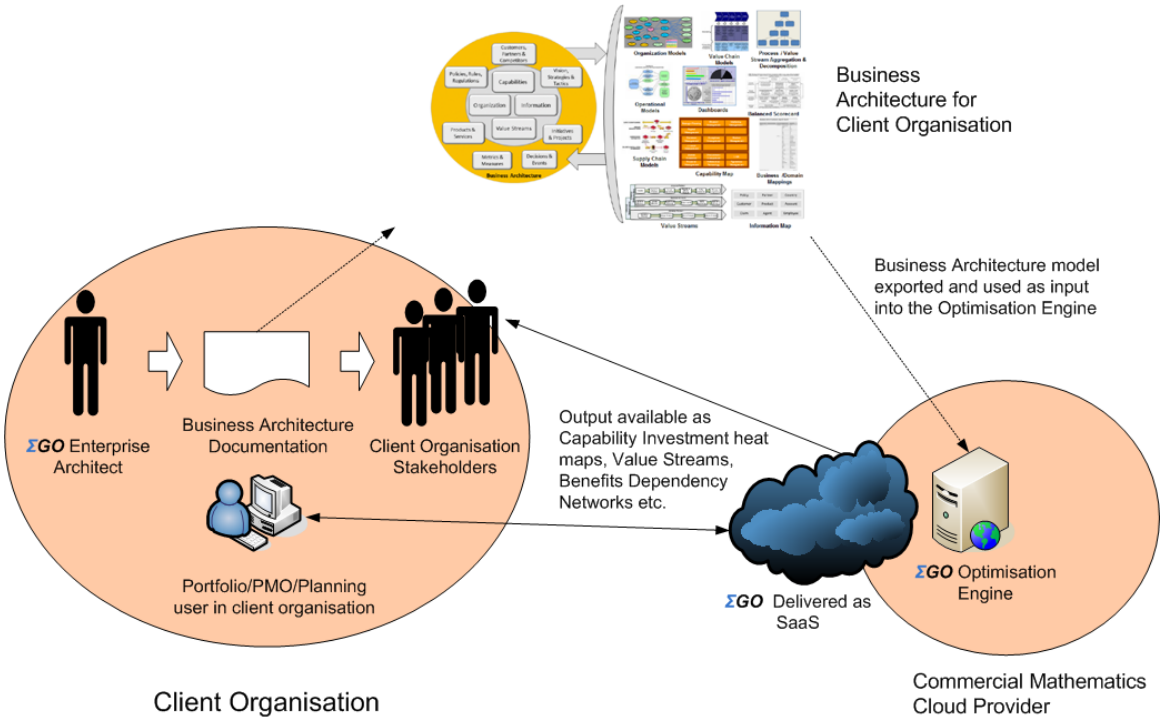
The *ΣGO* solution utilises the following as elements into the business architecture consulting:

- The existing set of defined projects and attributes associated with these projects such as benefits, project costs etc.
- Organisation strategies, goals and objectives
- The constraints relevant to the portfolio, such as timing, project dependencies, financial (capital and operating costs), resource constraints etc.

The consulting exercise conducts a deep dive review of each project to confirm dependencies, expected benefits, costs, resource requirements and other available parameters. Using modelling techniques within the specific areas of Business Architecture, alignment between projects and objectives, business capabilities, goals and strategies will be defined. The resulting *ΣGO* Business Architecture model is used as the evidence based input into the optimisation engine.

4.2.2 SaaS Delivery

The *ΣGO* IDS solution is a combination of Business Architecture consulting and portfolio optimisation delivered through a SaaS model, as described in the following diagram.



The *ΣGO* Business Architecture describes the alignment of the portfolio with the organisation's strategy, goals and objectives and is provided in the form of documentation and a model. The *ΣGO* Business Architecture model is exported and used as the evidence based input into the portfolio optimisation engine, which is provided through Supplier ABC's cloud services.

The output of the optimisation engine is the optimised portfolio, represented by a series of projects that are selected within the solution and the sequencing and dependencies between the projects. The Optimised Portfolio also provides information such as the utilisation of resources and expenditure of money over time. Output is also provided in the form of Capability investment heat maps and Value Streams etc.

4.2.3 Investment Decision Support Benefits

Evidence Based Portfolio Optimisation

The development of a portfolio decision-making capability for Customer ABC will be a key component in transforming corporate service delivery within the next three to five years.

ΣGO provides this portfolio decision-making capability that is:

- Evidence based via use of Business Architecture
- Provides transparency of key assumptions Provides repeatable results as the optimisation is performed on structured data delivered from the Business Architecture model, not subjective measures.

ΣGO provides the ability for stakeholders to ask complex "what if" questions that represent changes in assumptions or changes due to external factors. Portfolio optimisation is a repeatable process; the speed of this process is facilitated by *ΣGO,* enabling the prompt development of the final optimised solution that can be agreed across all stakeholders.

Successful Execution of Strategy

ΣGO provides a structured, business architecture approach to the alignment of organisation objectives and goals to the initiatives within a portfolio.

As *ΣGO* can be updated with new parameters to reflect changing environmentals, the portfolio can be re-optimised to provide continuous alignment with organisation strategy, thereby providing the foundation for successful delivery of the strategy.

Complements Existing CIO Methodologies

ΣGO complements existing CIO methodologies such as ICT Planning and Portfolio Management. For example, the ICT Planning Methodology is primarily concerned with the development of an ICT Resources Plan which guides how the ICT solutions will be developed to support business outcomes.

As part of this methodology, a "business profile" is developed which articulates alignment of the proposed projects with the business. The development of this business profile however incorporates measures and concepts that can be rather subjective. The evidence based approach that *ΣGO* provides delivers a richer output than the traditional business profile, complementing the ICT Planning methodology.

In terms of the Portfolio Management methodology, *ΣGO* provides the optimised portfolio solution, which addresses certain outcomes within the Defining and Assessing the Portfolio sections of this methodology. The subsequent management and controls sections in this methodology are of course important for the delivery of the portfolio.

In summary, the existing CIO methodologies are very much still required; *ΣGO* significantly enhances certain areas of these methodologies, providing for a better overall solution set for Customer ABC.

Benefits Realisation

The *ΣGO* solution effectively incorporates a benefits dependency network within its Business Architecture model. The linkages between ICT enablement through to business capabilities and business benefits are explicitly defined in the model that is used as input to the portfolio optimisation engine. The work in developing the business architecture model is done with full engagement with the benefits realisation team within the

organisation. This provides a significant head start for the benefits realisation process, as the benefits dependency network is effectively an output from *ΣGO.*

The result is an optimised portfolio that is fully cognisant of how benefits are derived. This translates into a higher achievability for the realisation of benefits, which is an important focus area for Customer ABC.

Contributes Towards P3M3 Maturity

The P3M3 method assesses portfolio, programme and project management control against seven perspectives. The way in which *ΣGO* specifically contributes towards P3M3 maturity for portfolio management is as follows:

1. **Organisational Governance** – one of the key strengths of *ΣGO* is that it provides decision support for the initiation and alignment of investments with the corporate strategy. More importantly, alignment of investments can be quickly re-optimised when key assumptions change, thereby providing total transparency and repeatability.

2. **Management Control** – a portfolio may have combination of in-flight and new projects. *ΣGO* is designed to be run continuously in order to re-optimise the portfolio – key decisions can be made such as possibly stopping in-flight projects that are no longer viable due to changed parameters such as lower expected benefit and/or increased costs and timeframes.

3. **Benefits Management** – the *ΣGO* model effectively incorporates a Benefits Dependency Network within its Business Architecture model. The linkages between ICT enablement through to business capabilities and business benefits are explicitly defined in the model that is used as input to the portfolio optimisation engine.

4. **Finance Management** – *ΣGO* contributes towards finance management, especially in the initial stages as costs are an important constraint built into the model as well as an objective that can be minimized to produce the optimal portfolio solution.

5. **Stakeholder Management** – the dynamic visualizations of output from *ΣGO* provide an important communication tool for stakeholders. The full transparency for how portfolio decisions are made will positively contribute to the engagement with stakeholders.

6. **Risk Management** – the risk of delivery for individual projects is another parameter used in the model. A portfolio can be optimized for maximum achievability (i.e. minimum risk).

7. **Resource Management** – the *ΣGO* model uses resources and resource types as a key constraint against which the optimal portfolio solution is derived. It will ensure that the portfolio is achievable given dynamic resource constraints over time. It can also assist in workforce planning by identifying peaks and troughs in resource demands.

5.0 CONCLUSIONS

Customer ABC currently has a low level of maturity in portfolio, programme and project management, which has a direct negative impact on the delivery of programs and projects across the enterprise. Other related CIO methodologies are comprehensive but are directed more on the execution of a derived portfolio rather than providing effective methods for ICT Portfolio-Strategy alignment to guide enterprise investment outcomes. Current portfolio alignment methods use subjective measures and produce static outputs which do not lend themselves well to complex "what if" scenarios. The Corporate EA is used primarily as a compliance tool and to date has not been used effectively to align the entire corporation agenda.

Customer ABC has recognised that the establishment of a portfolio decision-making capability is key to transforming corporate service delivery. Portfolio investment decision-making will help increase the likelihood that programs and projects will deliver their intended outcomes and benefits. Current methodologies however will not provide this capability due to shortcomings in their ICT Portfolio-Strategy alignment methods.

An Investment Decision Support solution will provide Customer ABC with a pragmatic way to address this capability gap in portfolio decision-making. Such a solution should be evidence based, transparent, and provide an optimisation capability that can provide repeatable results.

Leveraging the core capabilities of Systems Integrator XYZ, ACUITAS and Supplier ABC, as strategic partners we have been working together to deliver an Investment Decision Support solution (*ΣGO*). The *ΣGO* solution would be delivered through a combination of a consulting engagement and SaaS. The goal of this Investment Decision Support solution proposal is to deliver a pilot program to gain direct understanding of how *ΣGO* would work in the context of the Customer ABC environment and to identify any solution customisation required.

The *ΣGO* Investment Decision Support solution has been developed to address a recognised need across industry in general for increased capability in portfolio decision-making that is aligned with the organisation's strategy. This alignment will lead to better confidence in the successful execution upon an organisation's strategy. The *ΣGO* Investment Decision Support solution will greatly assist in the transformation of service delivery for Customer ABC. Apart from providing evidence based portfolio decision-making to increase successful execution of strategy, it will also complement existing methodologies, ensure benefits realisation and contribute significantly to P3M3 maturity across the enterprise.

ΣGO is unique in that it provides an innovative approach to address the portfolio optimisation challenge; it is the only solution that combines Business Architecture with commercial mathematics to provide a resulting solution where the outcome is much greater than the sum of the parts. *ΣGO* represents an important opportunity for Customer ABC to rapidly and effectively increase capability that will yield significant bottom line results, which is of vital important in these challenging economic times.

APPENDIX A – SPECIFICATIONS

ΣGO - Investment Decision Support

ΣGO Investment Decision Support is a solution for portfolio decision-making that is delivered through a combination of Architecture consulting services and Software-as-a-Service (SaaS). The Business Architecture model within this solution aligns organisation elements such as strategies, goals and objectives with the outcomes provided by the change initiatives or projects within an organization's ICT or capital works portfolio. The Business Architecture model leverages key concepts such as:

- Capability Maps
- Value Streams
- Business Motivation
- Initiative Mapping
- Strategy Mapping

ΣGO - Investment Decision Support provides optimization based on the following parameters

- Dependencies
- Project Costs
- Project Risk
- Operating Costs
- Project Benefits
- Mandatory Projects
- Resources (multiple types)
- Budget constraints
- Time Slots
- Time constraints
- Optimisation/Investment Objective
- Architecture Alignment

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GLOSSARY

Term	Description
ACUITAS	An Australian owned Enterprise Architecture solutions company that provides evidence guided optimisation solutions (*ΣGO*) by combining specific aspects of Enterprise Architecture with commercial mathematics.
Archimate 2.0	TOGAF standard for a modeling language that provides a uniform representation for diagrams that describe Enterprise Architectures.
Supplier ABC	An Australian owned and operated company that was established to help businesses operate more efficiently and profitably by using Operations Research methods to solve complex business problems.
ΣGO	Evidence Guided Optimisation. The *ΣGO* Investment Decision Support (IDS) solution is proposed as the foundation for the future portfolio investment decision-making capability for Customer ABC.
ICT	Information Communication and Technology
P3M3	Portfolio, Programme and Project Management Maturity Model.
PMO	Project Management Office
Portfolio	The totality of an organisation's investment (or segment thereof) in the changes required achieving its strategic objectives. A portfolio may include any number of projects, or programmes, from the same or different business units of the organisation.
CIO	Customer ABC Chief Information Office.
PFM	Customer ABC Portfolio Management Methodology
SaaS	Software as a Service – fully managed delivered service provided to the customer on a per user basis under an OPEX model of finance.
TOGAF	The Open Group Architecture Framework
Systems Integrator XYZ	An ICT company providing ICT services to Customer ABC as a trusted partner for over a decade, and channel partner for ACUITAS.

REFERENCES

Endnotes

[1]Charin, R. and Colvin, G. “Why CEOs Fail”, Fortune, June 21, 1999

[2] Kaplan, Robert. “Less than 10% of formulated strategies are executed effectively”, Fortune, 2003

[3]Customer ABC CIO office. “P3M3 Maturity Assessments in Customer ABC’s ICT Portfolios”