

Advanced Survey and Title Services Project

Addendum to Detailed Business Case:
Alternative 'as a Service' Model

27 January 2016

Contents

- 1 Executive Summary 4**
 - Summary of impacts of alternative model..... 7
- 2 Introduction, Context and Purpose 9**
 - 2.1 The Advanced Survey & Title Services Project 9
 - 2.2 The Indicative Business Case 9
 - 2.3 The Detailed Business Case..... 9
 - 2.4 The DBC preferred option 9
 - 2.5 The purpose of this addendum paper10
- 3 Options Analysis 11**
 - 3.1 Investigation of alternative models11
 - 3.2 Research and analysis11
 - 3.3 Engagement with comparable international jurisdictions12
 - 3.4 The move towards 'as a Service' models.....13
 - 3.5 Identification of an alternative model14
 - 3.6 Commercial Off-The-Shelf components.....15
- 4 Alternative Model..... 17**
 - 4.1 Overview of impact17
 - 4.2 The alternative model.....17
 - 4.3 Key assumptions regarding the alternative model18
 - 4.4 Comparison with DBC preferred option19
 - 4.5 Strategic fit of alternative model.....20
 - 4.6 Change required to deliver alternative model20
 - 4.7 Risks associated with alternative model21
- 5 Strategic Case..... 25**
 - 5.1 Overview of impact25
 - 5.2 Case for change.....25
 - 5.3 Investment objectives and desired benefits.....25
- 6 Economic Costs and Benefits 27**
 - 6.1 Overview of impact27
 - 6.2 Costs of the alternative model27
 - 6.3 Quantitative Risk Assessment.....31
 - 6.4 Economic benefits.....34
- 7 Affordability and Funding 37**
 - 7.1 Overview of impact37

7.2	Approach to financial modelling	37
7.3	Cost of the alternative model	38
7.4	Funding sources and options	40
8	Commercial Case	43
8.1	Overview of impact	43
8.2	Proposed commercial model	43
8.3	Market engagement	44
8.4	Procurement strategy	44
8.5	Preferred go-to-market strategy	46
8.6	Risk sharing	47
8.7	Payment mechanism	47
9	Management Case	49
9.1	Overview of impact	49
9.2	Project management strategy	49
9.3	Stakeholder engagement and communications	50
9.4	Management of business change	50
9.5	Vendor management	50
9.6	External project assurance and monitoring	51
9.7	Risk and issue management	51
9.8	Benefits realisation	52
9.9	Project evaluation	53
10	Appendices	54
10.1	Implications and risks associated with COTS products	54
10.2	Inputs to the Quantitative Risk Assessment	54

1 Executive Summary

Land Information New Zealand (LINZ) proposes an investment in second generation technology to support the delivery of the economy-critical survey and title services that it provides. The proposed Advanced Survey and Title Services (ASaTS) investment will enable a move to a modular technology platform that is capable of introducing new and innovative services, as well as enhancements to existing services for customers.

The ASaTS Detailed Business Case (DBC) identified the development of a LINZ-owned modular technology solution as the preferred investment option. The DBC preferred option has a risk adjusted capital cost (including contingency) of \$ [REDACTED]. The DBC proposed that the capital costs of the DBC preferred option be funded through a combination of available depreciation funding and a Crown capital injection of \$ [REDACTED].

The ASaTS DBC and funding bid were deferred from Budget 2015 and LINZ was encouraged to investigate alternative funding and/or provision models for the ASaTS investment. This activity included stakeholder and technology vendor engagement (including engagement with LINZ's counterparts in comparable international jurisdictions), as well as research on market developments and innovation.

Market engagement activity has increased LINZ's awareness of certain Commercial Off-The-Shelf (COTS) components in the survey and title space. It is expected that these components will form part of vendor offerings under any investment approach but will require significant customisation. The need for customisation reflects the fact that the market does not yet offer an 'off the shelf' solution that meets LINZ's requirements.

The research and analysis undertaken, and in particular the engagement with comparable international jurisdictions, also evidenced a growing trend towards 'as a Service' models, including in the survey and title space. LINZ's counterparts in comparable jurisdictions are using (or investigating) 'as a Service' solutions, while the technology vendor market has expressed a willingness and ability to partner with LINZ in the development of an 'as a Service' solution.

LINZ has identified a low ownership 'as a Service' model as a viable alternative to the preferred option identified by the DBC. Under the alternative model, LINZ would retain separated control through ownership of the integration layer (which allows for integration across LINZ and other government systems) and the data, resulting in a significantly reduced level of capital investment. The other components of the ASaTS solution (including the core survey, title and geodetic components) would be owned by the vendor(s) and provided to LINZ for use on an 'as a Service' basis. LINZ would pay a service charge for 'use' of the vendor's system.

The 'as a Service' model identified by LINZ differs in key ways from a traditional 'Software as a Service' model. In particular, the solution will not be provided on a highly commoditised basis. Instead, a solution which meets LINZ's requirements will be developed for LINZ by the vendor(s), with an opportunity for the vendor(s) to subsequently commercialise core components (through arrangements with a small number of other customers). The need for specific customisation and/or bespoke product development means that the 'as a Service' model identified by LINZ has a higher risk profile than more traditional, highly commoditised 'Software as a Service' solutions.

The primary difference between the alternative 'as a Service' model and the DBC preferred option is the underlying ownership of the components of the ASaTS solution, which drives a change in the way in which project expenditure is treated (from an accounting perspective). Under the DBC preferred option, LINZ owns the solution that is developed and maintained for it by the vendor (involving predominantly capital expenditure). In contrast, under the alternative model, the large majority of solution components are owned by the vendor (involving predominantly operational expenditure). Importantly the two models are expected to be entirely consistent from a solution functionality and feature perspective.

If adopted for a system as critical and complex as the ASaTS solution, the alternative model would represent a significant step towards the future of IT procurement in the New Zealand public sector. While consistent with the Government's ICT Strategy and Action Plan to 2017 – which encourages the exploitation of opportunities and game-changing trends through partnerships with the private sector – the alternative model presents certain challenges (particularly in respect of commercial negotiation, vendor and relationship management capability, and risk management) that are important to acknowledge.

Because of the consistency in functionality and features, the alternative model does not impact the strategic fit or importance of the ASaTS investment. If delivered under the alternative model, the ASaTS investment will continue to enable and support a number of key government, ministerial and department priorities including the Better Public Services agenda, the Integrated Property Services future, the proposed Māori Land Service initiative and LINZ's ten year vision.

The customer and business impacts of the alternative model will be similar to those associated with the DBC preferred option. In addition, indicative analysis shows that there will be a need for new and/or increased capability and maturity in areas such as portfolio management, risk optimisation, quality management, relationship management, benefits delivery, and budget and cost management.

The alternative model has a higher overall risk profile than the DBC preferred option. The two models are considered to present comparable delivery risks but the alternative model introduces a number of new commercial and capability-related risks that are specific to 'as a Service' models. These risks increase the importance of negotiating the right commercial arrangements with the right vendor(s) and the importance of LINZ having the capability necessary to ensure the effective management of the contractual arrangement (and the vendor relationship that underpins it) over the life of the investment.

The alternative model is expected to deliver the same quantitative and qualitative benefits as the DBC preferred option. The alternative model is expected to deliver quantified economic benefits of between \$ [redacted] and \$ [redacted] as well as the qualitative benefits identified by the DBC. In addition, the alternative model is expected to deliver a range of additional qualitative benefits that are specific to 'as a Service' models. When the present valued quantified economic benefits are assessed relative to costs, the benefit cost ratio (BCR)¹ of the alternative model is calculated at between [redacted] (low benefits range) and [redacted] (high benefits range). The DBC preferred option has a similar BCR of between [redacted] and [redacted].

As a result of a Quantitative Risk Assessment (QRA), the whole of life cash costs of the alternative model are expected to fall between \$ [redacted] (QRA 50th percentile) and \$ [redacted] (QRA 85th percentile), incorporating capital expenditure of up to \$ [redacted]. The whole of life cash costs exclude depreciation but include capital charge, and are considered the most appropriate level at which to compare the costs associated with the alternative model and the DBC preferred option. In contrast, the DBC preferred option (funded by way of capital injection) has whole of life cash costs of between \$ [redacted] and \$ [redacted].

LINZ is able to fund the capital expenditure associated with the alternative model through available depreciation reserves, while the operating expenditure associated with the alternative model would be funded through third party user fees.² This can be contrasted with the significant Crown capital injection (\$ [redacted]) sought to deliver the DBC preferred investment option. Funding of the alternative model is expected to require an increase to third party fee levels of between [redacted]% and [redacted]% in FY [redacted]. In contrast, the DBC preferred option (funded by way of a Crown capital injection) is expected to require a higher fee increase of between [redacted]% to [redacted]% one year later (FY [redacted]).

¹ Consistent with the BCR calculation in the DBC, the costs are incremental to the minimum investment required (the 'Base case' of \$ [redacted]).

The alternative model does not materially impact the go-to-market strategy outlined in the DBC and an interactive procurement process remains central to the achievement of the procurement objectives. However, the alternative model may mean that the focus of the technical 'dialogue' engagement shifts to testing the vendor's ability to enhance, configure, customise and integrate pre-existing service offerings into LINZ's environment, rather than designing and delivering a fully-bespoke solution. In addition, the alternative model emphasises the need for robust and detailed engagement with vendors in respect of culture, capacity and commercial construct aspects.

The importance of the commercial and contractual arrangements – and the terms comprising these arrangements – is emphasised under the alternative model. As LINZ will not own the majority of ASaTS solution components, it will be more heavily reliant on the commercial terms, and the rights, obligations and liabilities that they provide, in mitigating key risks and ensuring business continuity. It is expected that some of the 'fundamental' commercial terms identified by the DBC, including those terms associated with control over the project road-map and development activities, may be impacted by the alternative model.

The alternative model does not materially impact the approach to project, benefit and risk management outlined in the DBC. The analysis undertaken indicates that the approach to implementation of the alternative model is unlikely to differ materially from the phased implementation approach identified in connection with the DBC preferred option.

Summary of impacts of alternative model

This addendum paper summarises the impact of the alternative model on each of the components of the DBC (and by reference to the DBC preferred option). A high-level overview of the impacts documented in the following chapters of this paper is provided in the table below.

Table 1: Summary of impacts of alternative model

BUSINESS CASE COMPONENT	IMPACT OF ALTERNATIVE MODEL
Strategic fit	No impact or change expected.
Business change	The alternative model will require new and/or enhanced capability and maturity across a range of IT governance and service management functions.
Risk profile	The alternative model is considered to have a higher overall risk profile than the DBC preferred option. While the delivery risks associated with the alternative model are comparable with those associated with the DBC preferred option, the alternative model introduces a number of commercial and capability-related risks that are specific to 'as a Service' models
Strategic Case	
Case for change	No impact or change expected.
Investment objectives and desired benefits	No impact or change expected, on the assumption that the alternative model is able to deliver a solution which meets LINZ's functional and non-functional requirements. ³
Economic & Financial Case	
Present valued quantified economic benefits	The whole of life present valued quantified economic benefits (of between \$██████ and \$██████) are consistent across the alternative model and the DBC preferred option.
Whole of life discounted costs	The alternative model has whole of life discounted costs of \$██████, which can be contrasted with whole of life discounted costs of \$██████ for the DBC preferred option.
Benefit cost ratio	The benefit cost ratio (BCR) is calculated relative to the minimum investment required (the 'base case' of \$██████). The alternative model has a BCR of between ██████ and ██████, while the DBC preferred option has a BCR of between ██████ and ██████.
Funding requirement (nominal cash cost)	The risk-adjusted whole of life cash costs of the alternative model are expected to fall between \$██████ (QRA 50 th percentile) and \$██████ (QRA 85 th percentile), with capital investment of up to \$██████ required. These costs exclude depreciation but include capital charge. While capital expenditure can be funded by available depreciation reserves, the operating expenditure will be covered by third party user fees. ⁴ In contrast, the DBC whole of life cash costs fall between \$██████ and

³ Functional requirements are those requirements relating to the delivery of a business service or process (such as e-lodgement of a title or submission of a survey). Non-functional requirements are those requirements relating to the delivery of operational aspects of the system (such as security configuration or transaction load/processing).

⁴ With the exception of a \$██████ Crown operating appropriation increase from FY██████ onwards which is required for ongoing costs associated with the Crown-owned land register.

BUSINESS CASE COMPONENT	IMPACT OF ALTERNATIVE MODEL
	<p>\$██████ (under a Crown capital injection funding scenario). Funding of the DBC preferred option requires a significant Crown capital injection of \$██████, with available depreciation reserves used to fund the remainder.</p>
<p>Increase to third party fee levels</p>	<p>Funding of the alternative model is expected to require an increase to third party fee levels of between █████% and █████% in FY 2021. In contrast, the DBC preferred option (funded by way of a Crown capital injection) is expected to require a higher fee increase of between █████% to █████% one year later (FY █████).</p>
<p>Commercial Case</p>	
<p>Proposed commercial model</p>	<p>No impact or change expected, noting a change in underlying ownership associated with the alternative model.</p>
<p>Procurement strategy</p>	<p>A heightened reliance on commercial terms under alternative model. Intention to engage professional advisory support remains unchanged.</p>
<p>Preferred go-to-market strategy</p>	<p>Interactive procurement remains the preferred approach, with a greater emphasis on 'testing' a vendor's ability to customise existing services for LINZ's benefit (i.e. possibly through an iterative co-design process). In addition, the alternative model emphasises the need for robust and detailed engagement with vendors in respect of culture, capacity and commercial construct aspects.</p>
<p>Risk sharing</p>	<p>No impact or change expected, as principle of optimal (rather than maximum) risk transfer remains preferred.</p>
<p>Payment mechanism</p>	<p>Significant difference in payment mechanism under alternative model. Focus becomes licensing and service charges payable upon delivery of specific functionality.</p>
<p>Management Case</p>	
<p>Project management strategy</p>	<p>No change to phased implementation approach currently anticipated.</p>
<p>Stakeholder engagement and communications</p>	<p>No impact or change expected.</p>
<p>Management of business change</p>	<p>No impact or change expected.</p>
<p>Vendor management</p>	<p>Increased vendor management capability and enhanced process maturity required under alternative model.</p>
<p>External project assurance and monitoring</p>	<p>No material impact expected. The need for regular engagement with representatives of MBIE (Commercial Pool) and GCIO is acknowledged.</p>
<p>Risk and issue management</p>	<p>Project risks remain largely consistent in terms of likelihood and impact, save for minor changes.</p>
<p>Benefits realisation</p>	<p>No impact or change expected.</p>
<p>Project evaluation</p>	<p>No impact or change expected.</p>

2 Introduction, Context and Purpose

2.1 The Advanced Survey & Title Services Project

LINZ proposes an investment in second generation technology to support the delivery of the economy-critical survey and title services that it provides. The proposed ASaTS investment will enable a move to a modular technology platform that is capable of introducing new and innovative services, as well as enhancements to existing services for its customers.

2.2 The Indicative Business Case

An Indicative Business Case (IBC) for ASaTS was approved by Cabinet in November 2013. The Cabinet Economic Growth and Infrastructure (EGI) Committee noted that LINZ needed to begin work on a second generation investment to improve the quality and range of the survey and title services LINZ provides to its customers, to upgrade the technology base to ensure system flexibility, and to enable integration with other central and local government property functions (EGI Min (13) 27/14). The EGI Committee directed LINZ to develop a DBC for ASaTS based on the preferred investment option (EGI Min (13) 27/14).

2.3 The Detailed Business Case

In 2014, LINZ explored the preferred option from the IBC, revisited the case for change (including surveying Landonline users about their needs), and developed initial future state business requirements and an architecture vision. LINZ also considered the resources, funding, and procurement processes required to deliver both the ASaTS project and seamless services to its customers. This analysis was documented in the ASaTS DBC which was presented to the EGI Committee for consideration in March 2015. Following deferral in March 2015, the DBC was re-presented for EGI Committee consideration in November 2015. The EGI Committee:

- endorsed the case for change for modernising survey and title services, as outlined in the DBC;
- noted the preferred investment option identified by the DBC;
- noted that final decisions on investment options, project funding and delivery approaches would be made as part of the Budget 2016 process; and
- noted that Budget 2016 Investment and Budget Ministers would be provided with additional information – in the form of this addendum to the DBC – on the viability, risks and benefits of an ‘as a Service’ model.

2.4 The DBC preferred option

The DBC preferred option involves the development of a LINZ-owned modular technology platform that is capable of introducing new and innovative services, as well as delivering enhancements to existing services to its customers. This option would also create, improve and increase the accessibility of location information data for use and re-use.

The DBC preferred investment option:

Delivers improvements while mitigating risk to economy

Will deliver improvements to the quality and efficiency of current survey and title services and will deliver other new and innovative services. This will be done whilst mitigating the risks associated with the continued use of a platform that has decreasing market support and is becoming increasingly difficult to maintain.

Supports Government and Ministerial priorities

Will support a number of Government and Ministerial priorities, including Better Public Services and the ICT Strategy and Action Plan, while supporting and enabling the Integrated Property Services vision, the [REDACTED] initiative and LINZ's 10 year vision.

Provides quantifiable benefits of \$ [REDACTED] - \$ [REDACTED]

Is expected to deliver between \$ [REDACTED] and \$ [REDACTED] (present value) in quantified economic benefits, together with a range of broader qualitative benefits. The majority of quantified economic benefits relate to direct time savings, over 90 per cent of which accrue to users of survey and title services.

Assures delivery by team with proven track record

Will be delivered by an organisation with experience in the successful delivery of business critical IT enabled projects (with specialist external support as required), for both the approaches to procurement and implementation. This support will mitigate the risks associated with transformational IT projects.

2.5 The purpose of this addendum paper

Following the deferral of the DBC, LINZ was encouraged to investigate alternative options for funding and/or provision of the ASaTS solution.

This addendum paper summarises the work undertaken by LINZ to identify and analyse alternative options to the DBC preferred option. Further information on the work completed is included in Chapter 3.

3 Options Analysis

3.1 Investigation of alternative models

Following the deferral of the bid for funding as part of Budget 2015, LINZ was encouraged to investigate alternative models for the funding and/or provision of the ASaTS solution.

To inform the investigation and consideration of alternative models, LINZ identified a set of high-level requirements that any alternative model must meet in order to be considered viable.



Solution requirements - An alternative model must be capable of delivering a solution which meets LINZ's requirements, and the business needs of LINZ's customers, as well as a solution which will achieve the overarching objectives of the ASaTS investment.



Market capability - An alternative model must be considered viable and achievable on the basis of evidenced market capability, capacity and interest.



Capital requirement - An alternative model must be effective in reducing the capital funding requirements of the ASaTS Project in a meaningful way.



IT governance and service management - An alternative model must be acceptable to government in terms of the scope and nature of IT governance and service management change.



Risk profile - An alternative model must have a risk profile that is acceptable to government, by reference to available mitigations and controls.

3.2 Research and analysis

The investigation and analysis of alternative models incorporated:

- targeted engagement with technology vendors who had previously expressed an interest in the ASaTS project and/or had participated in the Request for Information process undertaken by LINZ as part of preparation of the DBC in 2014; and
- engagement with LINZ's counterparts in comparable international jurisdictions (namely Canada and Australia);
- engagement with representatives of Central Agencies, primarily The Treasury, the Ministry for Business, Innovation & Employment (MBIE) and the Government Chief Information Officer (GCIO); and
- desktop-based research and analysis.

At the outset, a range of alternative funding and/or provision models were identified for consideration. These models included:

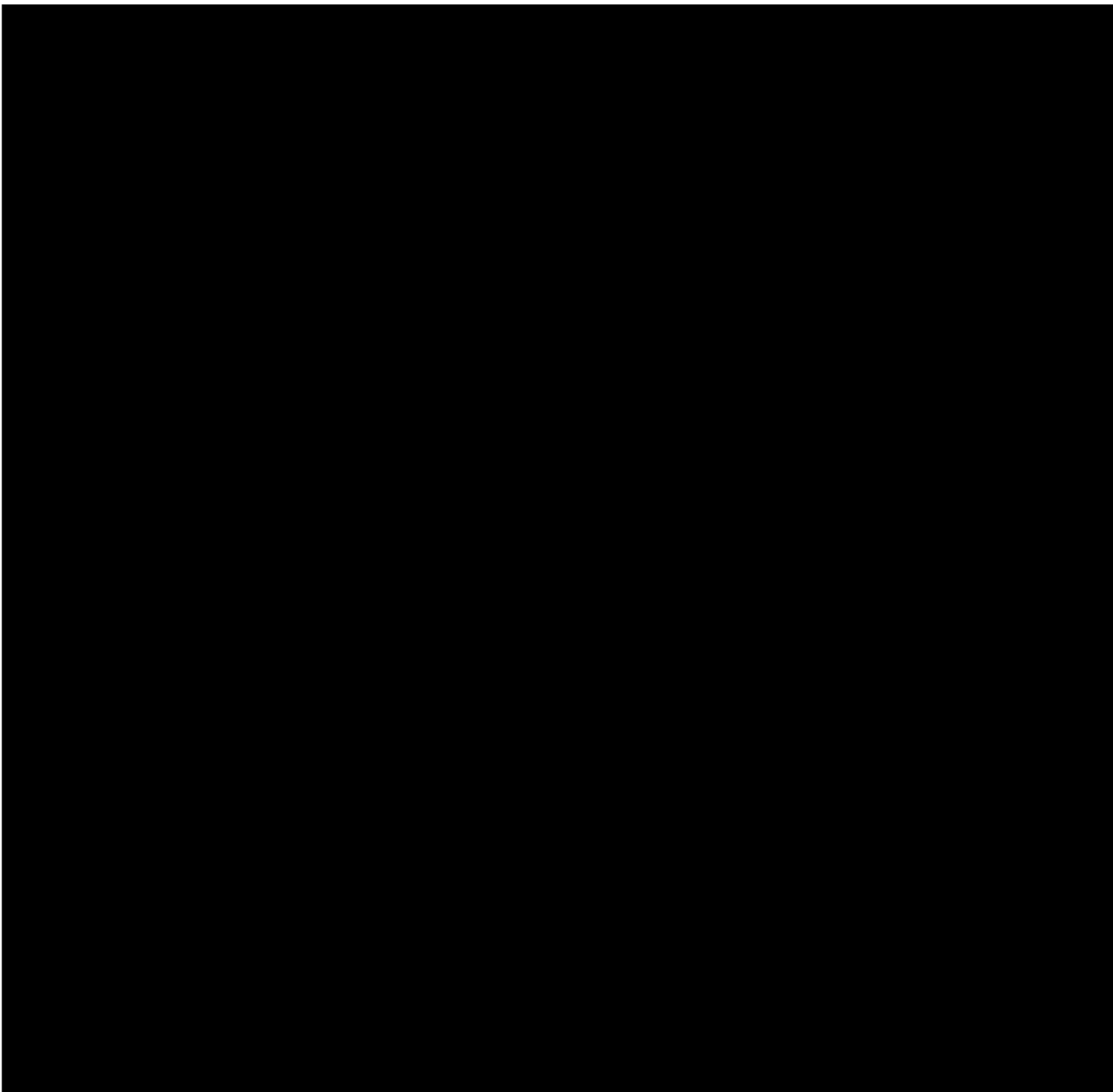
- an operating lease
- a finance lease

- an 'as a Service' model
- various third-party funding arrangements; and
- a Public Private Partnership model.

3.3 Engagement with comparable international jurisdictions

Engagement with agencies that deliver survey and title systems in comparable jurisdictions was important to understand the viability and desirability of alternative models, as LINZ seeks to move to a second generation electronic land administration system. LINZ engaged with agencies and stakeholders [REDACTED]

While providing a range of valuable insights, the engagement undertaken indicated that the market does not currently offer a complete or near complete solution which meets LINZ's requirements (meaning a bespoke build and/or significant customisation of existing products is required).



3.4 The move towards 'as a Service' models

The research and analysis undertaken, and in particular the engagement with comparative jurisdictions, evidenced a growing trend towards 'as a Service' models.

'as a Service' models

Gartner, a leading information technology research and advisory firm, defines a traditional 'Software as a Service' model as involving "software that is owned, delivered and managed remotely by one or more providers. The provider delivers software based on one set of common code and data definitions that is consumed in a one-to-many model by all contracted customers at any time on a pay-for-use basis or as a subscription based on use metrics."

It is important to acknowledge that an 'as a Service' model for the ASaTS solution would differ in certain key ways from a traditional 'Software as a Service' model (as described above). In particular, the solution will not be provided on a highly commoditised basis. Instead, a solution which meets LINZ's requirements will be developed for LINZ by the vendor(s), with an opportunity for the vendor(s) to subsequently commercialise core components (through arrangements with a small number of other customers).

The need for specific customisation and/or bespoke product development also means that the 'as a Service' model identified by LINZ has a higher risk profile than more traditional, commoditised 'Software as a Service' solutions.

An 'as a Service' model for the ASaTS investment is outlined at a high-level below:

- Some or all components of the ASaTS solution would be built by a vendor for LINZ but ownership of those components would remain with the vendor.
- LINZ would pay the vendor a service charge (akin to a rental) for the use of the system components owned by the vendor.
- LINZ and the vendor would negotiate and agree a contractual arrangement for the use of those components, ensuring each party has the appropriate rights, controls, obligations and liabilities.
- The service charges payable by LINZ would be operational (rather than capital) expenditure, and LINZ would not be required to fund the initial build/customisation of the vendor-owned components as a capital expense.
- The vendor would have an opportunity to commercialise the core components of the ASaTS solution, through arrangements with other customers.

Towards 'as a Service'

The research and analysis undertaken evidenced the fact that 'as a Service' is the "direction of travel" for technology platforms both nationally and internationally, as shown in the below diagram.

Peer jurisdictions are using (or investigating) 'as a Service' solutions



The market is willing and able to partner with LINZ in the development of an 'as a Service' solution

The vendor market is interested in, and capable of, partnering with LINZ in developing and implementing an 'as a Service' solution which responds to LINZ's requirements.

There have been advancements in the quality of offerings in the survey and title space

Since the 2014 RFI market engagement process, there have been significant advancements in the solution offerings in the survey and title space.

The New Zealand Government has encouraged a move towards 'as a Service' models

The New Zealand Government's ICT Strategy and Action Plan to 2017 encourages the exploitation of opportunities and game-changing trends through partnerships with the private sector.

3.5 Identification of an alternative model

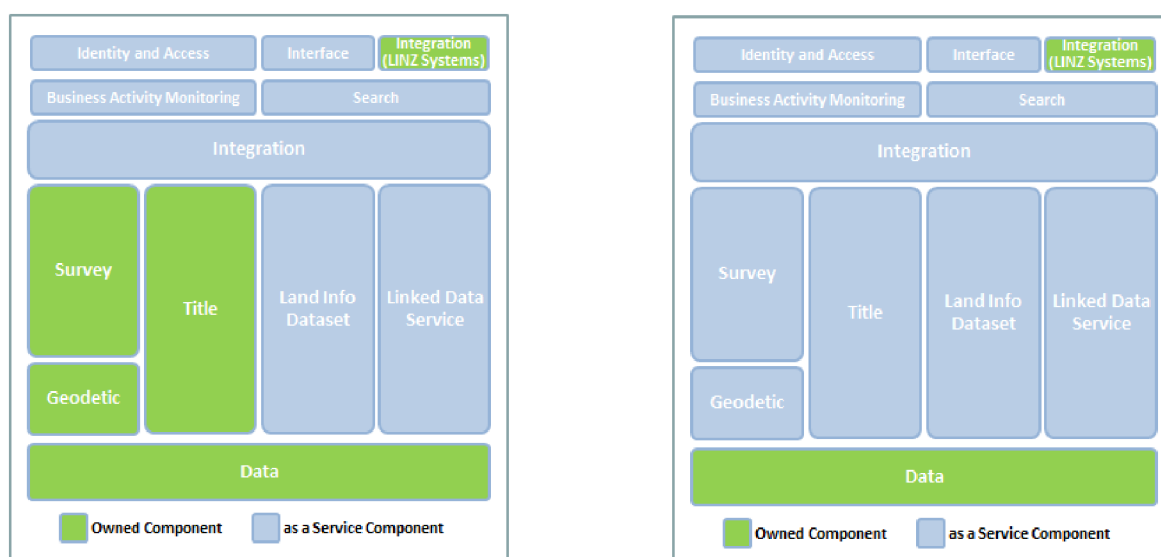
As a result of market engagement and analysis, it was determined that an 'as a Service' model represented the most viable alternative to the fully-LINZ owned solution identified as preferred by the DBC. The identification of an 'as a Service' model as the preferred alternative is predicated on the notion that control (i.e. in terms of product development and enhancement activity) can be achieved through commercial arrangements, and is not necessarily reliant on underlying ownership of system components.

LINZ then identified two variants on the 'as a Service' model for initial consideration and analysis:

- A **medium ownership** 'as a Service' model, under which LINZ would own the core title, survey and geodetic components of the ASaTS solution. LINZ would also own the integration layer and the underlying data. The other non-core components of the solution (i.e. foundation capabilities and the data service) would be provided to LINZ by the vendor on an 'as a Service' basis.
- A **low ownership** 'as a Service' model, under which LINZ would retain ownership of the underlying data and the integration layer only. All other components of the system (including the core title, survey and geodetic components) would be provided to LINZ by the vendor on an 'as a Service' basis.

The two models are represented diagrammatically below.

Figure 1: Diagrammatic representation of 'as a Service' models



1. Medium ownership 'as a Service' model

2. Low ownership 'as a Service' model

As a result of analysis, the low ownership 'as a Service' model was identified as the preferred alternative model (and is referred to as 'the alternative model' for the purposes of this addendum). The low ownership 'as a Service' model is less complex (from a technology and operational perspective) and therefore presents a lower level of risk than the medium ownership model. The low ownership model will have a significantly lower capital cost than both the medium ownership option and the DBC preferred option, with the majority of project expenditure being operational costs (in the form of 'rental' or right to use payments) over the term of the contract. The low ownership model meets the identified requirements (refer section 3.1), as outlined in the table below.

Table 2: Analysis of alternative model against requirements

REQUIREMENT	MEETS?	SUMMARY
Solution requirements	✓	The alternative model is capable of delivering a solution that is consistent with the DBC preferred option in terms of services, functionality and features.
Market capability	✓	Technology vendors have the capability to partner with LINZ in developing an 'as a Service' solution.
Capital requirement	✓	Financial analysis indicates that the alternative model will materially decrease the level of capital expenditure associated with funding of the ASaTS investment.
IT governance and service management	✓	The nature and scope of IT governance and service management change associated with the alternative model is acceptable to LINZ.
Risk profile	✓	While introducing a range of specific commercial risks, the risk profile of the alternative model is acceptable to LINZ (on the basis of currently available information).

3.6 Commercial Off-The-Shelf components

Recent market engagement activity has increased LINZ's awareness of certain Commercial Off-The-Shelf (COTS) components in the survey and title space. Indications are these products will

require significant customisation, reflecting the fact that the market does not yet offer an 'off the shelf' solution that meets LINZ's requirements.

COTS components are expected to form part of vendor offerings irrespective of the investment approach ultimately adopted by LINZ. In addition, clarity around the underlying product composition of the ASaTS solution will only be derived from formal procurement activity.

For this reason, this addendum focuses on the impact and implications of the alternative model from an ownership – rather than product – perspective. However, reflecting the fact that the costing exercise undertaken for the purposes of this addendum makes certain indicative assumptions in respect of COTS components, a high-level overview of the implications and risks associated with the adoption of a COTS-based solution is set out in Appendix 10.1.

4 Alternative Model

4.1 Overview of impact

The table below summarises the strategic fit, change impact and risk profile of the alternative model, relative to the DBC preferred option.

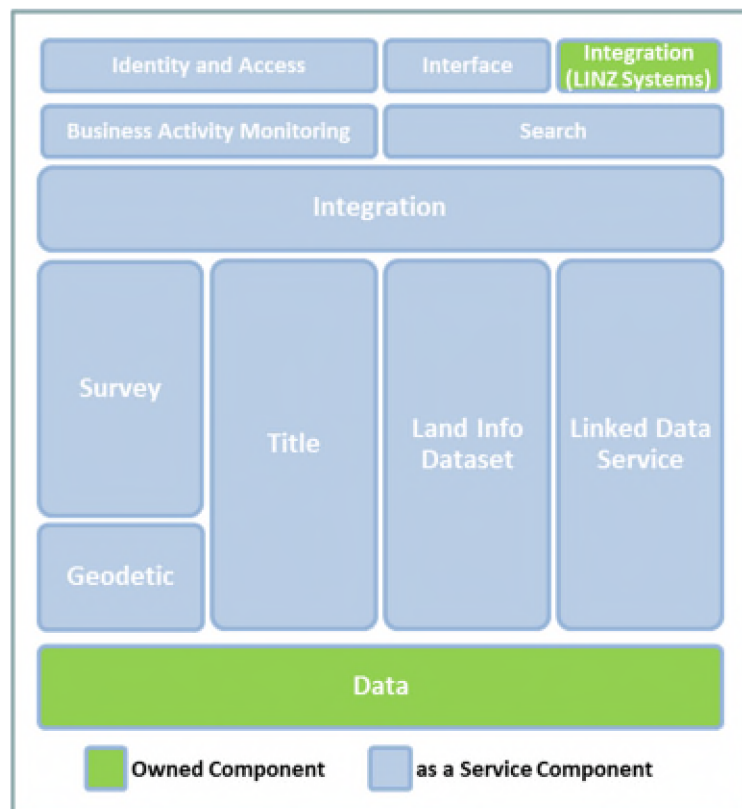
Table 3: Strategic fit, change impact and risk profile of alternative model

BUSINESS CASE COMPONENT	IMPACT OF ALTERNATIVE MODEL
Strategic fit	No impact or change expected.
Business change	The alternative model will require new and/or enhanced capability and maturity across a range of IT governance and service management functions.
Risk profile	The alternative model is considered to have a higher overall risk profile than the DBC preferred option. While the delivery risks associated with the alternative model are comparable with those associated with the DBC preferred option, the alternative model introduces a number of commercial and capability-related risks that are specific to 'as a Service' models

4.2 The alternative model

The low ownership model is represented in the below diagram.

Figure 2: Diagrammatic representation of alternative model



As shown above, in the alternative model:

- the integration layer⁶ and the underlying data are owned by LINZ (refer additional note below); and
- all other system components, including the core survey, title and geodetic components, are owned by the vendor(s).

The vendor-owned system components will be provided to LINZ on an 'as a Service' basis. LINZ will pay a 'service charge' to the vendor for the use of the vendor-owned system components. This service charge represents an operational (rather than capital) expense. The vendor would be responsible for the management and maintenance of the entire ASaTS solution (both LINZ-owned and vendor-owned components).

Ownership (as well as commercial separation) of the integration layer is required to mitigate the risks associated with any future change of vendor. Ownership will also enable re-use of this component for other integration services in the wider LINZ eco-system, maximising the value of the investment.

4.3 Key assumptions regarding the alternative model

In identifying and assessing the alternative model, LINZ has made certain key assumptions with regard to its viability and desirability. These assumptions are outlined in the table below, and will be validated through the procurement process. It should be noted that these assumptions are separate from the more detailed assumptions made for the purposes of costing the alternative model, which are outlined in further detail in Chapter 6.

Table 4: Key assumptions regarding alternative model

ASPECT	KEY ASSUMPTION
Accounting treatment of alternative model	The commercial arrangements entered into under the alternative model must comply with applicable accounting standards in order to be treated (for accounting purposes) as a service (operating expenditure) – rather than financing (capital expenditure) – arrangement. LINZ is particularly aware of the need to cross-check contractual rights and controls against the applicable accounting standards, in order to ensure the accounting treatment of the alternative 'as a Service' model is not compromised.
Functionality, services and features of solution	A key expectation underpinning this addendum is that the solutions delivered under both the DBC preferred and alternative models are entirely consistent from a solution functionality and feature perspective. While the underlying ownership of the asset resides with the vendor under the alternative model, it remains LINZ's expectation that the vendor-owned solution meets LINZ's functional and non-functional requirements (and ultimately delivers the outcomes sought by LINZ from its arrangement with the vendor).
'as a Service' model	The ASaTS solution will not be provided on a highly commoditised basis. Instead, a solution which meets LINZ's requirements will be developed for LINZ by the vendor(s), with an opportunity for the vendor(s) to subsequently commercialise core components (through arrangements with a small number of other customers). As a result, LINZ will constitute a key survey and title customer of the chosen vendor(s).

⁶ The integration layer is the component of the ASaTS solution that enables communication and data exchange between ASaTS and other systems in the LINZ environment. This will enable existing other LINZ IT systems to access services and information hosted within the ASaTS system.

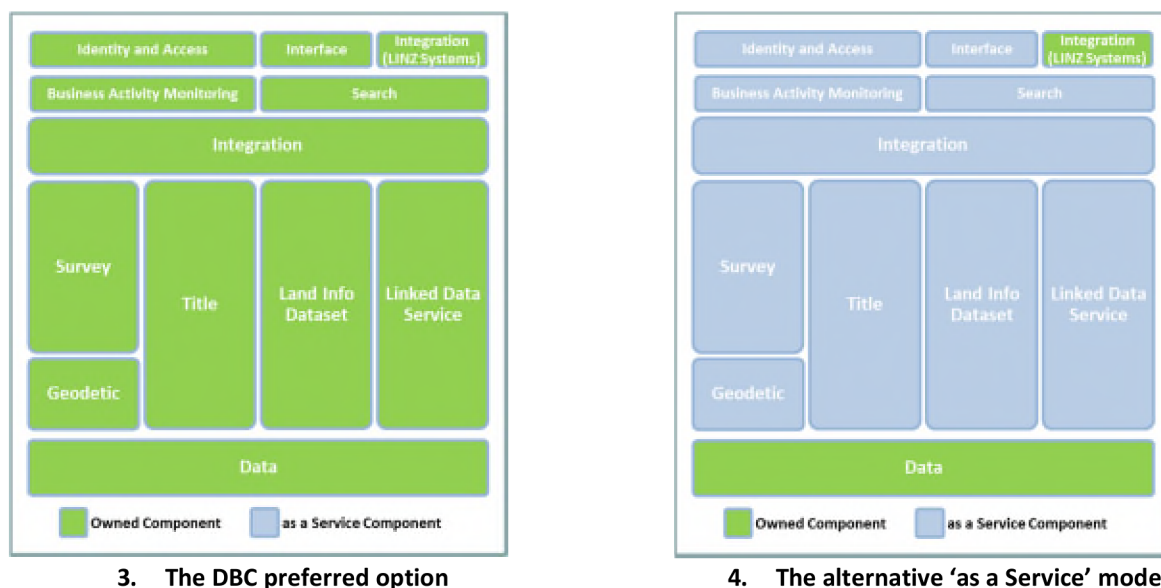
ASPECT	KEY ASSUMPTION
Product composition of solution	The solution developed under the alternative model may be a COTS-based solution (with customisation) or a 'bespoke build' solution. For the purposes of cost modelling <u>only</u> (and on the basis of available market information), LINZ has assumed a level of COTS componentry. It is acknowledged that the inclusion of COTS components (with significant customisation) in the ASaTS solution presents particular risks and implications, which are outlined at a high-level in Appendix 10.1.
Vendor experience and pre-existing capability/offering	The opportunity to leverage solutions and advancements in functionality from other jurisdictions will depend on the identity of the chosen vendor, and specifically whether the vendor has a pre-existing survey and title service offering. LINZ has made no assumption about the experience and/or pre-existing capability of the ASaTS vendor.
Commercialisation opportunity	It is expected that the development of the ASaTS solution in partnership with LINZ will provide the vendor(s) with an opportunity to on-commercialise at least the core components of the solution to other customers. The nature and extent of this opportunity, as well as any opportunity on the part of LINZ to share in associated up-side, will only become apparent during the procurement process.
Service fee	LINZ expects that, consistent with the approach taken to fee arrangements in other long-term service arrangements entered into by the Crown (i.e. PPPs), it will be possible to negotiate a structure that provides LINZ with the necessary level of visibility and control of service fee levels over the life of the ASaTS contract. This expectation will be validated as part of procurement activities.

4.4 Comparison with DBC preferred option

A key expectation that underpins the analysis of the alternative model documented is that it is entirely consistent – from a functionality, service and feature perspective – with that delivered under the DBC preferred option.

The primary difference between the models is the underlying **ownership** of the components of the ASaTS solution, as represented in Figure 3 below. Under the DBC preferred option, LINZ owns the system that is built and maintained for it by a vendor. In contrast, under the alternative model, the large majority of system components are owned by the vendor.

Figure 3: Diagrammatic comparison of DBC preferred option and alternative model



4.5 Strategic fit of alternative model

The DBC emphasises the importance of the ASaTS investment in delivering the Integrated Property Service future – a joint agency work programme that aims to future proof building and property information by improving its quality and quantity, and assisting agencies to make it more open and accessible. The ASaTS investment will provide the foundations for linking location information held by LINZ and other agencies – building footprints, addresses, land parcels, rating units, titles and ownership data.

The ASaTS investment will support and enable a range of other government, ministerial, public sector and LINZ-specific priorities, including:

- Better Public Services Result Areas 9 and 10;
- the Maori Land Service;
- LINZ’s ten year vision, centred on ‘The Power of Where’;
- the Declaration on Open and Transparent Government; and
- the Government Chief Information Officer’s ICT Strategy and Action Plan to 2017.

The alternative model does not impact the strategic fit or importance of the ASaTS investment. By delivering a system that meets the requirements of LINZ’s customers, the alternative model will:

- deliver a customer focused online system for transacting property rights;
- enable high quality, accessible, linked location information; and
- support cross-government initiatives (including the Integrated Property Services future and the Better Public Services initiative).

4.6 Change required to deliver alternative model

The DBC identified the impact that the ASaTS investment will have on LINZ. Each area of business capability is expected to undergo at least some change, with 10 new business capabilities introduced, 12 existing business capabilities undergoing major change, and 16 existing business capabilities undergoing minor change.

The ASaTS investment will have an impact on Property Rights, the business group that is responsible for delivering survey and title services. This business group represents approximately 40 percent of LINZ's FTEs. The ASaTS investment is expected to have an impact on the day-to-day work of these FTEs, as a result of changes to both business processes and technology.

While noting that the exact nature and scope of change will not become apparent until completion of the ASaTS procurement process, it is anticipated that the alternative model will result in a similar degree and scope of change (both to business capabilities and processes) anticipated by the DBC. It is also expected under that there will be an impact on the areas of LINZ that are responsible for the on-going support of the technology component, and that new roles and skills may be required.

In addition, the *Control Objectives for Information and Related Technology* (COBIT) and *Information Technology Infrastructure Library* (ITIL) framework analysis evidenced the need for new and/or enhanced capability and maturity in particular areas if LINZ proceeds with the alternative model. In particular, enhanced capability and/or maturity is required in the areas of:

- **Portfolio management:** The processes that control the execution of strategic investment in the ASaTS system by the vendor(s).
- **Risk optimisation:** The processes that manage risk and risk reduction associated with the ASaTS system.
- **Quality management:** The processes that manage the quality of the ASaTS service, including controls, practices and standards.
- **Relationship management:** The processes that control the management of the relationship between LINZ business groups/units, the IT organisation and the vendor(s).
- **Benefits delivery:** The processes that control delivery of the benefits from IT investment.
- **Budget and cost management:** The processes that manage the budget and costs associated with the ASaTS service.

In each instance, changes to people, training and processes are expected to be required in order to best position LINZ for effective management of an 'as a Service' model.

It is anticipated that a more detailed assessment of the expected change impacts will be undertaken as part of the proposed procurement process. The extent of change, and the detailed approach to change management, will be a key focus of the Implementation Business Case.

For both the DBC preferred option and the alternative model, parallel operation of the Landonline system and the ASaTS system will be required during the project period. At the end of the project period, the Landonline system will be decommissioned.

4.7 Risks associated with alternative model

Risk profile of alternative model

The alternative model is considered to have a higher overall risk profile than the DBC preferred option. While the delivery risks associated with the alternative model are comparable with those associated with the DBC preferred option, the alternative model introduces a number of commercial and capability-related risks that are specific to 'as a Service' models.

- **Commercial risk:** The risk profile of the alternative model is impacted primarily by LINZ's ability to negotiate the right commercial arrangement with the right vendor(s). If LINZ is unable to negotiate a commercial arrangement that delivers the necessary level of control and protection, the risk profile of the alternative model will significantly

increase, as LINZ would be unable to rely on its underlying ownership of the solution as leverage in the management of the contractual arrangement.

- **Capability risk:** If adopted for a system as critical and complex as the ASaTS solution, the alternative model would represent a significant step towards the future of IT procurement in the New Zealand public sector. The need for new and/or enhanced capability in particular areas (including vendor/contract management) has been emphasised. The low level of existing capability in the New Zealand market place presents a heightened risk in this respect; capability will need to be developed rather than acquired at the outset.

While acknowledging the heightened risk profile associated with the alternative model, it is also noted that:

- the alternative model is effective in transferring primary financing and asset-related risks to the vendor – under the alternative model, it is the vendor that owns the majority of the solution and is responsible for financing the build/development of the solution for use by LINZ on an ‘as a Service’ basis;
- LINZ has identified viable and practical mitigations to the key risks associated with the alternative model;
- a number of the service level, performance and business continuity risks associated with the alternative model are considered comparable with those under the DBC preferred option (as well as under LINZ’s current ICT outsourcing arrangements); and
- under both the alternative model and the DBC preferred option LINZ will retain responsibility for frontline service delivery and customer interface, as well as control over business processes.

Overview of key risks

An identification and assessment of the key risks has informed the analysis of the alternative model. The focus has been on those risks that:

- are specific to the alternative model;
- differ (in terms of likelihood or impact) from the DBC preferred option; and/or
- have been specifically identified as an area of concern during the analytical process.

The table below presents a high-level summary of these risks, together with an initial view on possible mitigations. It should be noted that LINZ continues to investigate the practicality and effectiveness of particular mitigations. As with the DBC preferred option, a comprehensive understanding of the risks associated with the alternative model (and associated mitigations) will only be derived during the procurement process.

Table 5: Key risks associated with the alternative model

RISK	LIKELIHOOD	POSSIBLE MITIGATIONS	RESIDUAL IMPACT
Vendor becomes insolvent	Similar	<ul style="list-style-type: none"> • Interim escrow to third-party agent • Platform hosting in government data centre • Pre-contract due diligence • Annual financial health check for vendor 	Similar
There is a lack of future investment in service by vendor	Specific to alternative model	<ul style="list-style-type: none"> • Annual development reviews of future innovation and product roadmap • Joint investment fund • Reliance on LINZ-funded/requested developments and enhancements 	Specific to alternative model

RISK	LIKELIHOOD	POSSIBLE MITIGATIONS	RESIDUAL IMPACT
LINZ has reduced control over timely change and product roadmap	Specific to alternative model	<ul style="list-style-type: none"> Contractual obligation to respond to any changes that LINZ considers critical within timeframes System design to enable changes to workflow and business rules without product updates 	Specific to alternative model
Vendor causes a business continuity failure	Similar	<ul style="list-style-type: none"> Commercial agreement to include business continuity plan Operational audits on vendor processes 	Similar
Vendor does not meet required performance levels of service	Similar	<ul style="list-style-type: none"> Commercial agreement to provide incentives for performance Commercial penalties for poor performance 	Similar
LINZ has insufficient technical vendor management and governance capability	Similar	<ul style="list-style-type: none"> Consistency between commercial arrangement (i.e. roles and responsibilities) and target operating model 	Similar
LINZ has insufficient contract/commercial management and governance capability	Greater	<ul style="list-style-type: none"> Recruitment of specialist, experienced 'as a Service'/cloud service management capability 	Greater
Vendor fails to ensure the protection/security of data	Similar	<ul style="list-style-type: none"> Clear contractual definition of where data is hosted Clear access controls and authentication requirements Data audits 	Similar
LINZ cannot maintain control of opex costs over contract life	Similar	<ul style="list-style-type: none"> Contractual agreement stipulates limitations to, or an agreed structure around opex service charge increases over term of contract 	Similar
Reduced competition within procurement process due to a smaller pool of potential 'as a Service' vendors	Specific to alternative model	<ul style="list-style-type: none"> Structure Expression of Interest (EOI) to enable wider range of vendors to respond, including those that have no current survey or title offerings and allow them to build it specifically to offer 'as a Service' 	Specific to alternative model
There is a change in control/ownership of the vendor or a member of the vendor's consortium	Similar	<ul style="list-style-type: none"> Standard change of control provisions providing LINZ with specific rights in the event of a change of control. 	Similar

Key mitigations

In addition to the specific mitigations identified in Table 5 above, a number of other (more general) mitigations have been identified as part of the analysis of the alternative model.

- **Procurement process:** The ASaTS procurement process has been designed to ensure that there is prominence given to matters of relationship and cultural fit, as well as technology capability and commercial matters. LINZ will also ensure that a combination of both internal and external experts is available to support the ASaTS procurement process (including the negotiation and contracting phases).
- **Evolution v transformation:** The adoption of the alternative model would represent a further 'evolution' (rather than transformation) of LINZ's ICT function. LINZ has effectively managed the current survey and title outsourcing arrangements and has developed capability in this area; at 49% of all services, LINZ has the highest degree of outsourcing in the New Zealand public sector. This experience, and the existing capability and experience, will provide a sound basis if the alternative model is adopted.
- **Hands-on engagement:** Under the current model, LINZ retains a close day-to-day working relationship with the vendor responsible for IT service provision (including the maintenance of, and support for, Landonline). Under the alternative model, it is expected that there will be an arrangement that allows LINZ the level of insight and solution knowledge necessary to ensure the outcomes sought by customers and government can be derived from the commercial arrangement with the chosen vendor(s).
- **Key customer:** Under the alternative model, LINZ is expected to be one of only a handful of key survey and title customers of the vendor. As a result, and given New Zealand's status as a world leader for ease of transacting property, it is expected that a vendor seeking to develop a commercial proposition in the survey and title market will behave and/or perform (from a commercial perspective) in a way that enhances, and promotes the success of, its relationship with LINZ.

5 Strategic Case

5.1 Overview of impact

The table below summarises the impact of the alternative model on the Strategic Case, as outlined in the DBC.

Table 6: Impact of alternative model on DBC Strategic Case

BUSINESS CASE COMPONENT	IMPACT OF ALTERNATIVE MODEL
Case for change	No impact or change expected.
Investment objectives and desired benefits	No impact or change expected, on the assumption that the alternative model is able to deliver a solution which meets LINZ's functional and non-functional requirements.

5.2 Case for change

The ASaTS case for change is based on the following three key drivers:

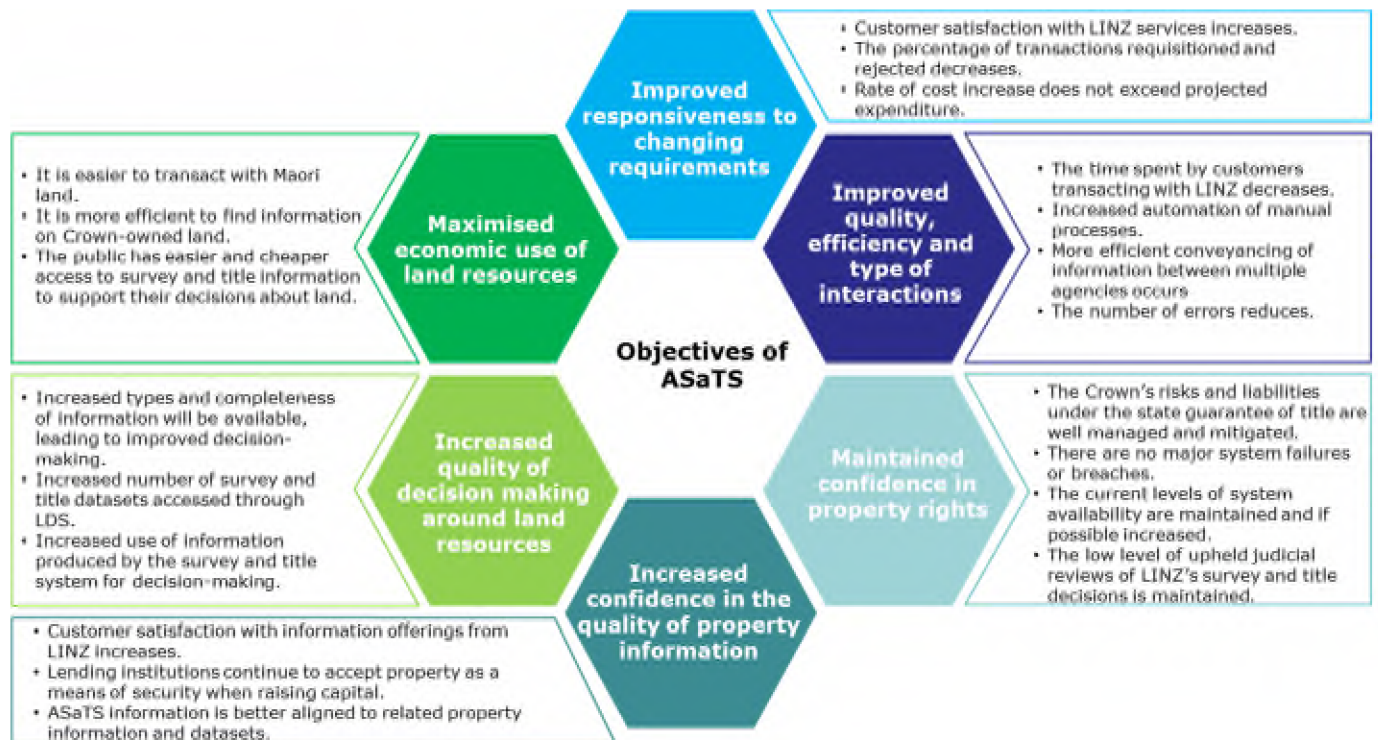
- **Business driver:** It is not possible to easily adapt Landonline to meet business needs, and there are concerns about the potential risks of decreasing market support for key Landonline components.
- **Customer driver:** Customers are frustrated with the current service offering and the subsequent impact it has on their efficiency.
- **Information driver:** Property information is not easily integrated across organisations and this has an impact on the quality of decisions made about land and location.

The alternative model will address all three drivers for change to the same level as the DBC preferred option.

5.3 Investment objectives and desired benefits

The DBC identified a number of key objectives (and associated benefits) of the ASaTS investment. These objectives and benefits are set out in the diagram below.

Figure 4: Objectives and benefits of ASaTS investment



The solution delivered under the alternative model will provide a set of services, functionality and features consistent with the DBC preferred option. As a result, the ASaTS investment objectives – and associated benefits – are not impacted by the alternative model.

6 Economic Costs and Benefits

6.1 Overview of impact

The table below summarises the economic costs and benefits of the alternative model, relative to the DBC preferred option.

Table 7: Comparison of economic costs and benefits

BUSINESS CASE COMPONENT	ALTERNATIVE MODEL	DBC PREFERRED OPTION
Nominal costs*		
Project period modelled costs	\$ [REDACTED]	\$ [REDACTED]
Whole of life modelled costs	\$ [REDACTED]	\$ [REDACTED]
Present value*		
Whole of life costs (PV at 50 th percentile)	\$ [REDACTED]	\$ [REDACTED]
Quantitative economic benefits (present value)	Estimated at between \$ [REDACTED] and \$ [REDACTED] (present value) across both models/options	
Qualitative economic benefits	Consistent across both models/options, with additional qualitative benefits realised from the move to an 'as a Service' solution	
Benefit Cost Ratio (relative to the base case of \$ [REDACTED])	[REDACTED]	[REDACTED]

* Excluding capital charge and depreciation

6.2 Costs of the alternative model

The DBC cost model

The detailed cost model developed for the purposes of the DBC has been used as the basis for costing of the alternative model. The DBC cost model is based on:

- developing a five-phase transition plan that sets out the planned approach to project implementation;
- separating each of the five project phases into the different stages of the solution development lifecycle: analyse, design, build, test and implement;
- identifying required personnel types (LINZ and contractor), along with the number of FTEs and expected utilisation by project phase and stage; and
- identifying non-personnel costs.

An ASaTS-specific resource plan, as well as the information gathered from the RFI and other engagement activities, has also informed the cost estimation process.

Conversion of DBC cost model

Changes to the DBC cost model have been necessary to reflect both the specifics of the alternative model, as well as new and/or updated information made available to LINZ through its recent engagement with both international counterparts and technology vendors. In particular, this engagement evidenced the availability of certain COTS components which may be appropriate for inclusion in the ASaTS solution. As a result, it was deemed appropriate to

move (for the purposes of cost modelling) from a fully bespoke solution (as per the DBC) to a solution incorporating certain COTS components.

The revision of the DBC cost model was undertaken in two key steps, and subject to the assumptions outlined below.

1. **Step 1:** The configuration of the modelled solution was changed from a fully bespoke to a COTS-based solution.
2. **Step 2:** The COTS-based solution was transferred to an 'as a Service' model.

Table 8 below summarises the assumptions applied at each step as well as the justifications behind the assumption.

Table 8: Alternative model costing assumptions

	ASSUMPTION	JUSTIFICATION
<p>STEP 1: <i>Cost assumptions associated with a change from a bespoke to COTS-based solution</i></p>	<p>Foundation phase: Reduction of █% in resource effort across phase, compared to the DBC preferred option.</p>	Reduction in survey & title detailed design effort in phase due to COTS products.
	<p>Geodetic phase: No change in costs compared to DBC preferred option.</p>	Market analysis shows that there is no comparable product; a bespoke service is still required.
	<p>Survey phase: Reduction of █% in technology and business process costs, compared to the DBC preferred option. Addition of \$█ in licence costs.</p>	Reduction in effort due to COTS product, however high amount of customisation still required. Licence for Survey COTS product added.
	<p>Title phase: Reduction of █% in technology and business process costs, compared to the DBC preferred option. Addition of \$█ in licence costs.</p>	Reduction in effort due to COTS product, however high amount of customisation still required. Licence for title COTS product added.
	<p>Data migration: Addition of \$█ in data migration costs across survey and title phases.</p>	Originally a QRA risk (rather than in the base cost model) for the DBC Preferred. This is now included in the base cost model because it is required for migration to COTS products.
<p>STEP 2: <i>Cost assumptions associated with a change to an 'as a Service' model</i></p>	<p>Capital costs: Only costs relating to LINZ owned components are attributed as capex; this includes all licencing and resource costs required to deliver that component.</p>	Accounting rules require owned components to be capitalised, whereas any costs which do not result in an asset are operationalised.
	<p>LINZ owned components: LINZ retains ownership of the integration layer (which includes an enterprise service bus and the resource costs associated with the build of the integration component. The costs associated with the Crown owned land register are also considered LINZ owned as this is largely the data collection of this digital dataset.</p>	The integration layer, which connects ASaTS to other LINZ applications is important for LINZ to maintain control of. The data collection of the Crown-owned land register will be owned by LINZ (as is consistent with all other Landonline datasets).
	<p>Vendor service fee: All other solution components are assumed to be owned by the vendor and provided to LINZ on an 'as a Service' basis. LINZ will pay a service fee for the provision and use of these system components. █</p>	Any cost relating to an asset not owned by LINZ (and therefore owned by the vendor) is treated as an operating cost.
	<p>Vendor premium: A █% vendor premium/ profit margin is applied to</p>	This assumption has been tested and validated against market standards.

	ASSUMPTION	JUSTIFICATION
	vendor costs within the operational service charge.	
	Vendor finance charge: An [redacted] % vendor finance charge is applied per annum on the outstanding balance of the vendor capital outlay (this reduces as the service fee allows the vendor to charge for their capital investment).	This assumption has been tested and validated against market standards.

Nominal costs of the alternative model

The project period costs are those estimated over the four and a half year implementation period (midway through FY 2017 through to the end of FY 2021). This is the period that was focused on for the costing information in the DBC, as the majority of costs associated with the DBC preferred option are incurred in the project period.

However, the project period view of cost is not an appropriate timeframe to focus on for the alternative model. In this model, the upfront capital investment is borne by the vendor, with the service fee charged to LINZ by the vendor over the whole of life period.

Given this difference in cost profile, the analysis of costs associated with the alternative model has focused on the whole of life period (FY 2017 to FY 2028), covers an additional seven years after the end of the project period in FY 2021.

Costs incurred during the whole of life period can be separated into the following three categories:

- 1. Capital expenditure:** Costs associated with the LINZ-owned integration layer and the Crown-owned land register.
- 2. Operating expenditure:** Those costs incurred by LINZ during the project period that are not included in the vendor service fee (e.g. change management, decommissioning of Landonline etc.).
- 3. Vendor service fee:** The fee for service incorporates the charge for the vendor capital outlay (to be fully cost recovered over the ASaTS whole of life period), as well as the [redacted] % vendor premium and the [redacted] % per annum vendor finance cost.

[redacted] As a result, a portion of the project period costs relates to the service fee charged by the vendor.

Table 9 shows the breakdown of the modelled estimated costs of the alternative model. For comparison purposes, the table includes both project period and whole of life costs. These costs are exclusive of capital charge and depreciation (which is considered separately in Chapter 7).

As highlighted, the service fee charged by the vendor represents the [redacted] costs associated with the alternative model.

Table 9: Breakdown of project period and whole of life cost for alternative model

Expenditure category (\$ ██████████)	Project period	Whole of life period
Capital expenditure		
Crown Land Register		
ESB license + integration		
Total capital expenditure		
Operating expenditure		
ASaTS personnel		
ASaTS vendor service fee		
ASaTS hardware / software		
ASaTS Crown-owned land register		
ASaTS fit-out and office costs		
Reduction in existing Landonline service provider costs		
ASaTS cost savings		
Landonline license cost savings		
Total operating expenditure		
Total expenditure (excluding capital charge & depreciation)		

For comparison purposes, Table 10 sets out both the project period and whole of life costs for the DBC preferred option.

Table 10: Breakdown of project period and whole of life cost for DBC preferred option

Expenditure category (\$ ██████████)	Project period	Whole of life period
Capital expenditure		
Crown Land Register		
ASaTS asset		
Total capital expenditure		
Operating expenditure		
ASaTS personnel		
ASaTS maintenance, support and licences		
ASaTS hardware / software		
ASaTS Crown-owned land register		
ASaTS fit-out and office costs		
Reduction in existing Landonline service provider costs		
ASaTS cost savings		
Landonline license cost savings		
Total operating expenditure		
Total expenditure (excluding capital charge & depreciation)		

For the alternative model, the whole of life total expenditure is \$ ██████████. This can be contrasted with whole of life total expenditure for the DBC preferred option of \$ ██████████ (a difference of \$ ██████████ at this level).

It is however important to note that the costs associated with the alternative model include a vendor finance charge of \$ ██████████. Under the DBC preferred option, LINZ incurs a capital charge expense that is charged by the Crown (rather than the vendor). This capital charge

expense is not considered or reflected in this section, but is included in the assessment of funding and affordability set out in Chapter 7.

Timing of costs

Figure 5 shows the timing of ASaTS expenditure (both capital and operating) over the whole of life period, for both the alternative model and the DBC preferred option. This highlights the difference in the cost/expenditure profile of the two options. Under the DBC preferred option, the majority of capital expenditure is incurred up front (i.e. in the first four and a half years). In contrast, the costs for the alternative model gradually increase over the four and a half years as the vendor delivers the service for each of the modules, with expenditure flattening out over the remainder of the useful life to FY 2028.

Figure 5: ASaTS expenditure phasing - Alternative model versus DBC Preferred



Excluding capital charge and depreciation

6.3 Quantitative Risk Assessment

The modelled costs of the alternative model were subject to a Quantitative Risk Assessment (QRA). The objective of the QRA process was to develop a picture of the potential impact that risk could have on the costs of the ASaTS investment (both positive and negative). A QRA quantifies the probability of occurrence and the potential impact of key risks.

The QRA exercise in respect of the DBC preferred option captured 10 key risks, along with their cost impact. The QRA exercise for the alternative model included the addition of eight extra risks (listed 1 – 8 below), capturing a total of 18 key risks overall.

Risks quantified

The following risks were used in the QRA exercise. The uncertainty in the cost drivers affected by these risks was first explored by considering what would constitute the absolute best and worst case values (to establish the extremities of the probability distribution function). The optimistic, pessimistic and most likely risk scenarios were then captured. The QRA inputs are detailed in Appendix 10.1.

- 1. Foundation phase resource uncertainty:** A reduction of [redacted] % in vendor resource effort has been included. This is related to a reduction in required detailed design effort for an existing vendor product compared with a fully bespoke build. There is a risk that this estimated reduction could be too high.

- 2. Survey phase resource uncertainty:** A reduction of █% in resource effort for an existing vendor product has been included, when compared to a bespoke build. There is a risk that this estimated reduction could be too high.
- 3. Title phase resource uncertainty:** A reduction of █% resource effort for an existing vendor product compared to a bespoke build has been included. There is a risk that this estimated reduction could be too high.
- 4. Licence cost uncertainty for survey and title software:** A one-off fee for survey and title software licences has been assumed for the alternative model. There is a risk that there could be a variance in the cost of this fee depending on which product is selected.
- 5. Vendor risk/profit margin premium uncertainty:** A risk/profit margin premium of █ percent has been applied to the vendor service fee, based on existing case studies. There is a risk that there could be a variance in this premium dependent upon what is agreed with the vendor during procurement.
- 6. Vendor finance rate uncertainty:** A finance rate of █% on the cost of capital charged by the vendor has been assumed, based on existing case studies. There is a risk this premium could vary dependent upon what is agreed with the vendor during procurement.
- 7. Exchange rate uncertainty:** There is a risk of variance in costs relating to exchange rate fluctuations if an international vendor is used.
- 8. Ongoing operating cost uncertainty:** An operating cost has been assumed to be incurred by the vendor to operate and maintain the services, which is passed through in the overall service charge. There is a risk of this cost varying depending on the actual contracted rates charged by the vendor, which may affect the service charge.
- 9. IT support cost uncertainty:** No reduction in costs for LINZ IT support has been assumed after the transition to a new ASaTS vendor. █
█
- 10. Data migration cost uncertainty:** It is assumed that a continuous requirement for data migration is required to migrate to an existing vendor platform. There is a risk that there could be an increase in resources required to address the quality of the underlying data as part of the migration effort.
- 11. Duration uncertainty:** There is a risk that a number of factors could impact on ASaTS project timelines. These include dependencies with other systems, increased government scrutiny on ICT projects, legislative change impacts, and delays in delivery of all-of-government services if required for ASaTS.
- 12. Vendor resource cost uncertainty:** █
█
- 13. Internal resource cost uncertainty:** Internal resource requirements for ASaTS have been fully costed. The extent of backfilling required for resources used by ASaTS may be less than what has been costed.
- 14. Change management uncertainty:** A significant amount of change management was required during the implementation of Landonline. Although the change management needs are expected to be less because ASaTS is a second generation investment (current users are familiar with electronic processing), there is still a significant amount of change management included in the model. There is a risk that the change management resources required will be lower than expected.
- 15. Business process resource uncertainty:** There is a risk that the business process resource requirements may vary. Factors include the extent LINZ can reuse existing business processes, the capability of the vendor and their knowledge of the LINZ business environment.

- 16. Uncertainty of level of development resources required:** A level of development and customisation effort has been assumed throughout the project to make the COTS solutions meet requirements. The level of development effort required will be dependent on the vendor solution selected and the extent of customisation and development required for that specific solution. There is a risk that the level of development effort assumed could vary.
- 17. Cost of ongoing support and licensing:** There is a risk that the support and licensing arrangement will cost more or less than budgeted for due to the uncertainty around the final solution.
- 18. Cost of ongoing hardware:** The ongoing hardware costs are based on an Infrastructure as a Service (IaaS) arrangement. There is a risk that the performance and capacity requirements, volume uncertainty and 3D hardware costs may result in LINZ paying more or less than allowed for in the ongoing project costs.

Relative significance of risks

The key risks that have had an impact on costs under the QRA are represented graphically in Figure 6. The dominant uncertainties affecting these results (in order of relative significance) are the duration, data migration, vendor effort reduction in the foundation phase and the vendor resource rates.

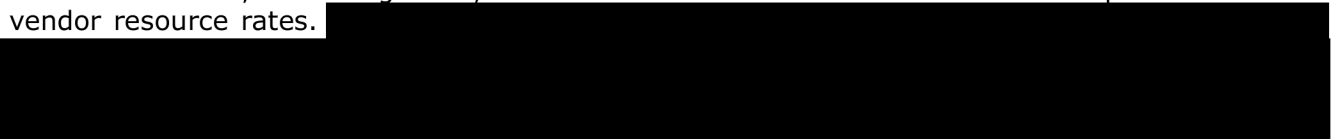
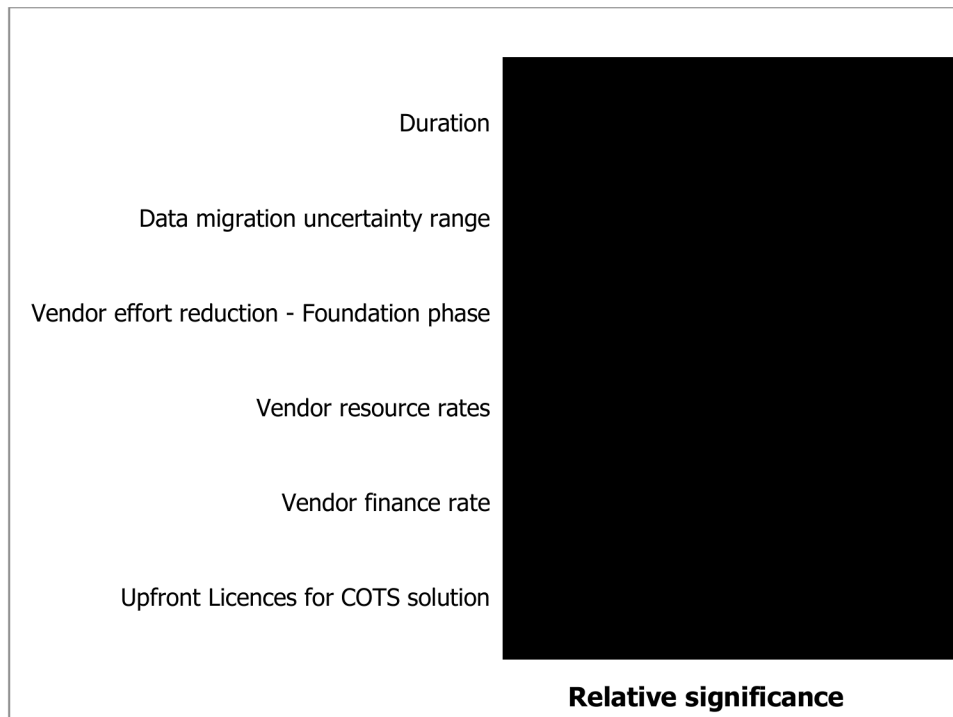


Figure 6: Rank order correlation of whole of life cost (alternative model)



Results of the QRA

The results of the QRA relate to whole of life costs (Table 11), at the 50th and 85th percentiles. Consistent with the cost ranges in the DBC, the QRA 50th percentile has been adopted as the expected project cost for the alternative model. The QRA 85th percentile results have been included to estimate the level of contingency, which is used to inform the funding delegations for the project spend.

The whole of life costs of the alternative model have increased from the modelled cost of \$ [REDACTED] to the expected cost point of \$ [REDACTED] (QRA 50th percentile). At the 85th percentile, whole of life costs increase to \$ [REDACTED]. In comparison, the DBC preferred option had whole of life costs of \$ [REDACTED] at the 50th percentile and \$ [REDACTED] at the 85th percentile.

Table 11: Quantitative risk assessed whole of life costs for alternative model

Expenditure category (\$ [REDACTED])	Modelled cost	Expected cost (QRA 50 th percentile)	Cost including contingency (QRA 85 th percentile)
Whole of life costs *			
Capital expenditure	[REDACTED]	[REDACTED]	[REDACTED]
Operating expenditure	[REDACTED]	[REDACTED]	[REDACTED]
Total project period costs	[REDACTED]	[REDACTED]	[REDACTED]

* Excluding capital charge and depreciation expenditure

6.4 Economic benefits

Quantitative economic benefits

The DBC notes that the preferred investment option is expected to deliver between \$82.4 million and \$100.3 million (present value) in quantified benefits, when compared to the 'do minimum' option identified by the DBC.⁷ The majority of the quantified economic benefits relate to direct time savings, over 90 per cent of which accrue to users of survey and title services.⁸ The quantifiable benefits include:

- reducing the time users spend interacting with LINZ per transaction, by removing duplication of effort between users' software and Landonline [REDACTED]
- reducing survey requisition (error) rates, resulting in less re-work, decreased costs and quicker turnaround times for property developers;
- providing notice of sale information direct to territorial authorities, reducing re-work and the time conveyancers and territorial authorities spend manually providing this information and increasing the currency and accuracy of information to territorial authorities;
- providing mortgage registration information directly to lending institutions, removing the need for conveyancers to manually provide this information and lending institutions to manually update records; and
- reducing time spent interacting with LINZ, by introducing a search service available via the web.

⁷ The base case identified by the DBC mitigates technology risks and issues, but does not deliver any quantifiable benefits.

⁸ Wider economic benefits were unable to be quantified.

These quantifiable benefits are summarised in Table 12 below.

Table 12: Present value of the range of whole-of-life quantified economic benefits

Benefit area	PV of Benefits to Customers (\$ [REDACTED])		PV of Benefits to LINZ (\$ [REDACTED])	Total PV of benefits (\$ [REDACTED])	
	Low range	High range	Total	Low range	High range
Better interface with customer systems	[REDACTED]				
Reduced survey requisition rate					
Notification of sale to territorial authorities					
Notification of mortgage registration direct to lending institutions					
Crown-owned land register					
Improved interactions with the Māori Land Court					
Easier searching of property information through web-based searching					
Survey and title process efficiencies					
Improved survey and title business reporting					
Testing time savings					
Total					

As outlined previously, a key assumption of the analysis documented in this addendum paper is that the solution delivered under the alternative model would deliver a set of services, functionality and features consistent with the preferred option identified by the DBC. As a result, the alternative model is not expected to impact the quantifiable benefits outlined by the DBC.

Benefit cost ratio

The benefit cost ratio (BCR) expresses the ratio of the monetary benefits of a project relative to its monetary costs (expressed in present value terms). The higher the BCR, the greater the marginal economic benefits of the investment option relative to its costs. A BCR of greater than one indicates that the marginal quantitative economic benefits of the ASaTS investment would exceed the marginal quantitative costs of ASaTS.

The BCR analysis has been completed for the alternative model using a QRA risk adjusted whole-of-life cost over and above the base case (minimum investment required) to allow an assessment of the expected benefits against the expected whole of life costs (at the QRA 50th percentile) and whole of life costs including contingency (at the QRA 85th percentile). This BCR calculation is consistent with the analysis included in the DBC.

As outlined in Table 13, the BCR for the alternative model ([REDACTED] to [REDACTED]) is very similar to the BCR calculated in respect of the DBC preferred option ([REDACTED] to [REDACTED]).

An important point to note is that even though the whole of life nominal costs show a large variance between options (\$ [REDACTED] at the 50th percentile cost), discounting the costs back to present value results in a minimal difference of \$ [REDACTED] between the alternative model and the DBC preferred option (\$ [REDACTED] under the alternative model and \$ [REDACTED] for the DBC preferred option at QRA 50th percentile).

Discounting the costs to present value takes into account the time value of money (with the initial costs worth a lot more than expenditure in out-years). As displayed in the whole of life expenditure phasing graph (Figure 5), the costs for the alternative model are spread relatively evenly (as each service is delivered) over years four to twelve, whereas the costs associated

with the DBC preferred option are largely incurred over the first four years (during the project build phase).

Table 13: Benefit cost ratio for alternative model and DBC preferred option

Benefit cost ratios	Alternative model			DBC Preferred option		
	No QRA	QRA 50th percentile	QRA 85th percentile	No QRA	QRA 50th percentile	QRA 85th percentile
Benefits						
Present value whole of life benefits (high) (\$■)						
Present value whole of life benefits (low) (\$■)						
Costs						
Present value whole-of-life costs (\$■)						
Present value whole-of-life costs (base case) (\$■)						
Incremental present value whole-of-life costs against base case (\$■)						
Benefit cost ratio (against base case)						
Benefit cost ratio (high)						
Benefit cost ratio (low)						

Qualitative economic benefits

In addition to the identified quantitative time savings benefits, the DBC identified a number of qualitative economic benefits that would be delivered by the DBC preferred option, including:

- enabling LINZ to respond more quickly to changing customer and business needs e.g. making the technology that survey and title services are delivered through compatible with modern office systems and mobile devices;
- making it easier to interact with LINZ in a digital environment, reducing customer frustration;
-
- supporting better investment decisions about Crown-owned land, by providing higher quality information; and
- enabling key LINZ, MBIE and local government property datasets to be linked, enabling accurate property identification e.g. for insurance and disaster recovery efficiency.

The alternative model is expected to deliver the qualitative economic benefits identified by the DBC. There are both customer and LINZ benefits associated with the functionality and services delivered by the ASaTS solution and there is no change in the level of benefits expected to both under the alternative model.

Benefits specific to the 'as a Service' model

The infrastructure that supports Landonline is outsourced and LINZ is already realising the benefits associated with this move. These benefits include those associated with the reduction in the level of in-house capability/functionality (and associated resourcing).

The move to an 'as a Service' model is expected to deliver additional (currently unquantifiable) benefits. These benefits are associated with a vendor operating a solution/system utilised by a number of customers, including anticipated product roadmap efficiencies (i.e. a lower error rate in releases through broader testing of product updates and features, and a lower time to market). There is also the possibility that LINZ will be in a position to benefit from new features that are developed by the vendor as a result of interactions with and/or co-design activities undertaken with customers other than LINZ.

Benefits realisation profile

Given the alternative model is not expected to drive changes in the implementation approach documented in the DBC, the benefit realisation profile also remains consistent with that outlined in the DBC.

7 Affordability and Funding

7.1 Overview of impact

The table below summarises the funding and affordability aspects of the alternative model, relative to the DBC preferred option.

Table 14: Comparison of funding and affordability aspects

CATEGORY	ALTERNATIVE MODEL	DBC PREFERRED OPTION	
Main capital funding source	Landonline depreciation funding	Crown capital injection	Crown capital loan
Expected whole of life cash cost (QRA 50th percentile)*	\$ [REDACTED] <ul style="list-style-type: none"> Capex: \$ [REDACTED] Opex: \$ [REDACTED] Capital charge: [REDACTED] 	\$ [REDACTED] <ul style="list-style-type: none"> Capex: \$ [REDACTED] Opex: \$ [REDACTED] Capital charge: \$ [REDACTED] 	\$ [REDACTED] <ul style="list-style-type: none"> Capex: \$ [REDACTED] Opex: \$ [REDACTED] Capital charge: \$ [REDACTED]
Whole of life cash cost including contingency (QRA 85th percentile)*	\$ [REDACTED] <ul style="list-style-type: none"> Capex: \$ [REDACTED] Opex: \$ [REDACTED] Capital charge: \$ [REDACTED] 	\$ [REDACTED] <ul style="list-style-type: none"> Capex: \$ [REDACTED] Opex: \$ [REDACTED] Capital charge: \$ [REDACTED] 	\$ [REDACTED] <ul style="list-style-type: none"> Capex: \$ [REDACTED] Opex: \$ [REDACTED] Capital charge: \$ [REDACTED]
Impact on third party fee payers (between QRA 50th percentile and QRA 85th percentile)	Total whole of life costs charged to fee payers of \$ [REDACTED] - \$ [REDACTED] Estimated fee increase of [REDACTED]% - [REDACTED]% in FY [REDACTED]	Total whole of life costs charged to fee payers of \$ [REDACTED] - \$ [REDACTED] Estimated fee increase of [REDACTED]% - [REDACTED]% in FY [REDACTED]	Total whole of life costs charged to fee payers of \$ [REDACTED] - \$ [REDACTED] Estimated fee increase of [REDACTED]% - [REDACTED]% in FY [REDACTED]
Impact on the Crown⁹ (between QRA 50th percentile and QRA 85th percentile)	Crown Operating appropriation increase of \$ [REDACTED] from FY [REDACTED] onwards for the Crown-owned land register.	Crown capital injection of \$ [REDACTED] Crown Operating appropriation increase of \$ [REDACTED] from FY [REDACTED] onwards for the Crown-owned land register.	Crown capital injection of \$ [REDACTED] (for Crown-owned land register). Crown capital loan (repaid) of \$ [REDACTED] Crown Operating appropriation increase of \$ [REDACTED] from FY [REDACTED] onwards for the Crown-owned land register.

*: Depreciation (which is a non-cash expense) has been excluded for comparison purposes.

7.2 Approach to financial modelling

The financial model developed for the DBC has also been used to assess the impact and affordability of the alternative model. The financial model includes baseline modelling that takes:

- revenue and expenditure associated with third party and Crown funded services for LINZ from the FY 2015 budget; and
- forecasted revenue and expenditure over the next 13 financial years from FY 2016 to FY 2028.

⁹ Note depreciation funding of \$ [REDACTED] is available for capital investment in ASaTS under all options.

The financial model has been used to analyse the whole of life impact of the alternative model on the Survey and Title category (which is fully third party funded), as well as LINZ's wider financial position.

The modelling exercise undertaken for the purposes of both the DBC and this addendum paper is underpinned by a large number of assumptions. Please refer to the DBC (appendix 10.6) for a complete set of these assumptions.

7.3 Cost of the alternative model

As noted in section 6.2, the costs and funding request in the DBC focussed on the four and a half year project period phase. However, as a result of the different cost/expenditure profile, the whole of life period is the most appropriate timeframe to focus on in connection with the alternative model. This section therefore only includes analysis of the whole of life period (FY 2017 to FY 2028).

In addition, the appropriate cost level for comparison purposes is the project cash costs incurred over the whole of life period (which excludes depreciation, given it is a non-cash expense).

This allows a 'like for like' comparison between options as the DBC preferred option includes \$ [REDACTED] of depreciation cash (at the QRA 85th percentile) which will be accumulated for use in future investment cycles (i.e. future proofing). This level of depreciation funding is not included in the total funding requirements of the alternative model (which only includes \$ [REDACTED] of depreciation funding at the QRA 85th percentile).

The DBC presented two different funding options in respect of the DBC preferred option:

- *Crown capital injection (not repaid)* – which leads to a higher capital charge expense as the Crown capital investment in ASaTS is not repaid.
- *Crown capital loan (repaid)* – which leads to a reduced capital charge expense as the capital is repaid through ASaTS depreciation funding charged over the whole of life period.

The Crown capital loan (repaid) option results in a reduced capital charge expense, which in turn impacts the level of the required survey and title fee increase. It is also acknowledged that the Crown capital loan option does not allow LINZ an opportunity to accumulate depreciation funding for use in subsequent investment cycles.

Modelled cost over the whole of life period

Section 6.2 identified modelled whole of life costs of \$ [REDACTED] (along with capital charge of \$ [REDACTED]) for the alternative model. This gives a total project cash cost of \$ [REDACTED]. This can be contrasted against whole of life project cash costs of \$ [REDACTED] (Crown capital injection) and \$ [REDACTED] (Crown capital loan) for the DBC preferred option.

The reduced cash costs associated with the alternative model (of between \$ [REDACTED] and \$ [REDACTED]) can be attributed to the higher capital charge expense associated with the DBC preferred option.

Expected/target costs over the whole of life period

Section 6.3 outlined the estimated whole of life costs following completion of a QRA exercise. LINZ has identified the 50th percentile QRA cost point (\$ [REDACTED], plus capital charge of \$ [REDACTED]) as the expected whole of life cash cost of the alternative model. This \$ [REDACTED] million cash cost can be contrasted with the cash costs of \$ [REDACTED] (Crown capital injection) and \$ [REDACTED] (Crown capital loan) for the DBC preferred option.

This QRA adjusted cash cost changes the variance between the DBC preferred option and the alternative model as follows:

- *DBC preferred option (Crown capital injection):* \$ [REDACTED] more expensive than the alternative model, largely attributable to the higher capital charge expense associated with a Crown capital injection.
- *DBC preferred option (Crown capital loan):* \$ [REDACTED] less expensive than the alternative model, largely attributable to the vendor premium which is included in the alternative model.

Costs including contingency over the whole of life period

When adjusted to the ORA 85th percentile, the whole of life costs for the alternative model increase to \$ [REDACTED]. With the addition of \$ [REDACTED] in capital charge expense, the total cash cost for the alternative model increases to \$ [REDACTED]. This can be contrasted with contingent whole of life cash costs of \$ [REDACTED] (Crown capital injection) and \$ [REDACTED] (Crown capital loan) for the DBC preferred option.

Cost summary comparison between alternative model and DBC preferred option

Table 15 shows the whole of life funding requirements for the alternative model, and the DBC preferred option (for both funding options). As noted above, when comparing the two options the 'total whole of life project cash cost' is the most relevant and is highlighted in yellow below.

Table 15: ASaTS whole of life funding requirements comparison between options

Whole of life cost (\$ [redacted])	Modelled cost	Expected cost (50th percentile)	Cost including contingency (85th percentile)
Alternative 'as-a-Service' model			
fee increase required in FY 2021			
Capital expenditure			
Operating expenditure			
Whole of life project costs (excluding capital charge & depreciation)			
plus: capital charge			
Total whole of life project cash costs			
plus: depreciation			
Total funding requirements over whole of life			
DBC preferred (Crown capital injection)			
fee increase required in FY 2022			
Capital expenditure			
Operating expenditure			
Whole of life project costs (excluding capital charge & depreciation)			
plus: capital charge			
Total whole of life project cash costs			
plus: depreciation			
Total funding requirements over whole of life			
DBC preferred (Crown loan)			
fee increase required in FY 2022			
Capital expenditure			
Operating expenditure			
Whole of life project costs (excluding capital charge & depreciation)			
plus: capital charge			
Total whole of life project cash costs			
plus: depreciation			
Total funding requirements over whole of life			

7.4 Funding sources and options

Proposed funding of the DBC preferred option

The DBC noted that, ideally, sufficient depreciation would be available to fund the ASaTS investment. However, at the time of the DBC, available depreciation funding amounted to approximately \$ [redacted] only. The majority of the Landonline depreciation pool was used to fund earlier phases of the Landonline build. This approach was approved by Cabinet in CBC (06) 2.

Having considered a range of alternative funding models, the DBC identified:

- the use of available depreciation funding (\$ [redacted]); and
- a Crown capital injection for the remaining \$ [redacted] of capital expenditure (based on the QRA 85th percentile costs),

as the preferred approach to funding of the DBC preferred option.

Available accumulated depreciation funding

As noted, the DBC identified \$ [REDACTED] of depreciation funding as being available for use in funding of the ASaTS investment. Since completion of the DBC, a further \$ [REDACTED] of depreciation has been identified as available for use in funding of the ASaTS investment. The additional depreciation funding has arisen as a result of a review of the accounting treatment of the digital dataset component of Landonline. Based on new information derived from design activities associated with the ASaTS project, LINZ Finance has determined that the digital dataset is not impaired; however, the indefinite useful life assessment is no longer appropriate. The digital dataset should now be considered an intangible asset with a finite useful life.

As a result of this review, LINZ is now able to draw upon depreciation of \$ [REDACTED] for the purposes of funding of the ASaTS investment.

Accumulation of depreciation funding for next investment cycle

It is noted that the alternative model will not allow LINZ an opportunity to accumulate significant depreciation funding for use in subsequent investment cycles (given the low level of asset ownership under the alternative model).

Proposed funding of the alternative model

When applied to the alternative model, LINZ has sufficient depreciation to fund the capital expenditure component of project period costs at the QRA 85th percentile (\$ [REDACTED]). As a result, no additional Crown funding (in the form of either a capital injection or capital loan) will be required in order to fund the capital expenditure associated with the alternative model.

Third party user fees will be used to fund the operating costs associated with the alternative model, with the exception of the costs associated with the Crown owned land register which will require an increase in Crown operating appropriation of \$ [REDACTED] from FY [REDACTED] onwards.

As displayed in Table 15, an estimated fee increase of between [REDACTED]% and [REDACTED]% will be required in FY [REDACTED] to ensure there is sufficient third party funding to cover the ongoing operating costs associated with the alternative model. This can be compared to the DBC Preferred option which requires a fee increase of [REDACTED]% - [REDACTED]% (Crown capital injection) and between [REDACTED]% - [REDACTED]% (Crown capital loan) one year later (FY [REDACTED]).

Table 16 displays the breakdown of the incremental operating expenditure which will be charged to third party fee payers for the three alternative options. This highlights fee payer covered costs of \$ [REDACTED] (at the 85th percentile) for the alternative model, contrasted with a DBC preferred fee payer cost of \$ [REDACTED] (funded via a Crown capital injection) and \$ [REDACTED] million (if funded with a repayable Crown capital loan).

Table 16: ASaTS operating expenditure charged to third party fee payers

Expenditure category (\$M)	Modelled cost	Expected cost <i>(50th percentile)</i>	Cost including contingency <i>(85th percentile)</i>
Alternative 'as-a-Service' model			
fee increase required in FY 2021			
Project operating expenditure			
plus: capital charge			
plus: depreciation			
Total operating expenditure			
minus: Crown operating costs <i>(Crown owned land register)</i>			
Total operating expenditure charged to fee payers			
DBC preferred (Crown capital injection)			
fee increase required in FY 2022			
Project operating expenditure			
plus: capital charge			
plus: depreciation			
Total operating expenditure			
minus: Crown operating costs <i>(Crown owned land register)</i>			
Total operating expenditure charged to fee payers			
DBC preferred (Crown loan)			
fee increase required in FY 2022			
Project operating expenditure			
plus: capital charge			
plus: depreciation			
Total operating expenditure			
minus: Crown operating costs <i>(Crown owned land register)</i>			
Total operating expenditure charged to fee payers			

8 Commercial Case

8.1 Overview of impact

The table below summarises the impact of the alternative model on the Commercial Case, as outlined in the DBC.

Table 17: Impact of alternative model on DBC Commercial Case

BUSINESS CASE COMPONENT	IMPACT OF ALTERNATIVE MODEL
Proposed commercial model	No impact or change expected, noting a change in underlying ownership associated with the alternative model.
Procurement strategy	A heightened reliance on commercial terms under alternative model. Intention to engage professional advisory support remains unchanged.
Preferred go-to-market strategy	Interactive procurement remains the preferred approach, with a greater emphasis on 'testing' a vendor's ability to customise existing services for LINZ's benefit (i.e. possibly through an iterative co-design process). In addition, the alternative model emphasises the need for robust and detailed engagement with vendors in respect of culture, capacity and commercial construct aspects.
Risk sharing	No impact or change expected, as principle of optimal (rather than maximum) risk transfer remains preferred.
Payment mechanism	Significant difference in payment mechanism under alternative model. Focus becomes licensing and service charges payable upon delivery of specific functionality.

8.2 Proposed commercial model

Funding of survey and title services

As noted by the DBC, the current 'user pays' funding model has been reaffirmed as the most appropriate given that those who use the survey and title services provided by LINZ directly benefit from them. This funding model has not been reconsidered as part of the alternative model analysis.

Delivery model

Following an analysis of a range of different delivery models, the DBC identified a 'provide and maintain' model as preferred for the provision of survey and title services as part of the ASaTS investment.

The 'provide and maintain' model is predicated on:

- the private sector provider(s) being responsible for the design, build, test, implementation, maintenance and support of the ASaTS solution; and
- LINZ retaining responsibility for frontline service delivery, together with a baseline level of support for the solution.

It is noted that the 'provide and maintain' model outlined in the DBC is agnostic as to underlying ownership of the system or its individual components. Instead, the model is focused on the division of particular roles and responsibilities.

The alternative model is not expected to change either the preference for a 'provide or maintain' model or the contemplated division of roles and responsibilities. Under the alternative model, the vendor(s) would own the majority of system components and therefore assume responsibility for maintenance of the system as the owner (rather than by virtue of contractual obligation). The alternative model is still expected to enable a collaborative design and development relationship between LINZ and the vendor(s), with LINZ retaining its responsibility for customer-facing and other frontline service provision.

8.3 Market engagement

As outlined in Chapter 3, the analysis and research undertaken to determine the alternative model included:

- targeted engagement with technology vendors who had previously expressed an interest in the ASaTS project and/or had participated in the Request for Information process undertaken by LINZ as part of preparation of the Detailed Business Case in 2014; and
- engagement with LINZ's counterparts in comparable international jurisdictions (namely Canada and Australia).

This engagement showed that:

- the market is willing and able to partner with LINZ in the development of an 'as a Service' solution; and
- LINZ's counterparts in comparative jurisdictions are utilising, or investigating, 'as a Service' solutions for the delivery of survey and title services.

8.4 Procurement strategy

Advisory support for procurement activities

While investigating alternative funding and/or provision models, LINZ has continued to prepare for ASaTS procurement activities. Experienced advisors have been, and will continue to be, engaged to support:

- preparation for procurement activities, including the preparation of market-facing materials and documentation;
- the procurement process itself, including the development of the resulting Implementation Business Case; and
- management of business and customer change, including vendor management, change management, business requirements, business process optimisation, and programme and project management.

Contractual considerations

The importance of the commercial/contractual arrangements – and the terms comprising these arrangements – has been emphasised during the assessment of the alternative model. In circumstances where the government does not own the majority of the ASaTS solution components, it will be more heavily reliant on the commercial terms, and the rights, obligations and liabilities that they provide, in mitigating key risks and ensuring business continuity.

Negotiating and agreeing the right commercial arrangement with the right vendor(s) will be critical to the success of the alternative model. In order to support this, LINZ will ensure that a

combination of both internal and external experts is available to support the ASaTS procurement process (including the negotiation and contracting phases). The relationship with the chosen vendor(s) will be critical; with this in mind, the procurement process anticipates a detailed assessment of the cultural fit and desirability (from a partnership perspective) of the different vendors.

However, it is also acknowledged that documenting a set of commercial terms is only half of the challenge. LINZ must also have the capability necessary to ensure the effective management of the contractual arrangement (and the vendor relationship that underpins it) over its life. The need for enhanced maturity and capability in this area has been recognised (refer section 4.6).

Contractual documentation

The DBC outlined a contract with the private sector provider(s) with two primary components:

- A design and build specification based on business requirements that will be the subject of discussions between LINZ and potential private sector providers.
- A service agreement with two parts:
 - An agreement for the use of the assets/system; and
 - An agreement for the provision of ongoing maintenance and support services (including the development and implementation of enhancements to the system).

Under the alternative model, it is anticipated that the structure of the ongoing service agreement will differ to allow for the licensed use of the vendor’s assets/system over the life of the contract. It is anticipated that ongoing maintenance will remain the vendor’s obligation, on account of its underlying ownership of the majority of the solution.

The contractual documentation developed and negotiated as part of the procurement process will be compliant with the Government Rules of Sourcing (from a procurement perspective) and consistent with the ICT Strategy and Action Plan to 2017 (from an ICT strategy perspective).

Commercial terms

The DBC identified a range of commercial terms in connection with the DBC preferred option, split across two categories – ‘fundamental terms’ and ‘terms for market consultation’. The alternative model is expected to impact a number of terms across both categories, as outlined in the table below.

Table 18: Impact of alternative model on commercial terms

FUNDAMENTAL TERMS	IMPACT OF ALTERNATIVE MODEL
Phased delivery approach	
Control over development and enhancement roadmap	

TERMS FOR MARKET CONSULTATION	IMPACT OF ALTERNATIVE MODEL
Risk allocation	
Intellectual property	
Payment mechanism and performance regime	
Incentives for ongoing development	

8.5 Preferred go-to-market strategy

The DBC identified a multi-stage competitive dialogue approach to procurement as the preferred model. This procurement approach will provide an opportunity to learn about the potential private sector provider(s) and their solution through a pre-qualification period, before entering into more detailed discussions with a shortlisted set of respondents. The preferred go-to-market approach has six key stages:

- Stage 1 – Expression of Interest:** An Expression of Interest (EOI) will be issued that allows the market to compete in a transparent way in a cost and time efficient manner. The outcome will be a shortlist of private sector provider(s) who have proven capability of providing the required solution. The EOI will describe the required solution and set out the assessment criteria that will be used to select the shortlisted private sector providers.
- Stages 2 and 3 – Competitive dialogue:** Two rounds of competitive dialogue are proposed, allowing the opportunity to work closely with potential providers in refining the functional and non-functional requirements for the ASaTS solution.
- Stage 4 – Request for Proposal:** A Request for Proposal (RFP) will be issued to the shortlisted private sector providers under a closed procedure. The RFP will include more detailed requirements than the EOI.

- **Stage 5 – Evaluation of proposals:** RFP proposals will be evaluated and a preferred provider selected.
- **Stage 6 – Negotiation with preferred supplier:** LINZ will enter into detailed contractual negotiations with the preferred provider selected in Stage 5.

An assessment has been made as to whether the proposed procurement approach will deliver the right outcomes under the alternative model. This assessment found that:

- the objectives of the procurement process are not impacted by the alternative model; and
- an 'interactive' approach to procurement, that provides an opportunity to participate in detailed engagement with potential providers remains central to the achievement of procurement objectives.

However, adoption of the alternative model may lead to small changes to this procurement process. It is acknowledged that the focus of the technical 'dialogue' engagement with vendors may shift to testing their ability to build, configure, customise and integrate their pre-existing products into LINZ's environment. In addition, the alternative model emphasises the need for robust and detailed engagement with vendors in respect of culture, capacity and commercial construct aspects.

LINZ does not expect any changes associated with the alternative model to impact on the overall timescales, costs and risk profile of the proposed procurement process.

8.6 Risk sharing

The approach to risk allocation outlined in the DBC was based on the concept of optimal, rather than maximum, risk transfer from LINZ to the preferred private sector provider(s). This principle holds for the alternative model, and there is no change to the proposed risk allocation outlined in the DBC.

8.7 Payment mechanism

The DBC identifies a payment mechanism with two specific components:

- **Design and build:** It is anticipated that the private sector provider(s) will be paid on achievement of pre-agreed milestones during the design and build phase of the ASaTS project.
- **Ongoing support and maintenance:** Following the implementation of the solution, it is anticipated the private sector provider(s) will be paid a fee for the provision of maintenance and support services.

Under the alternative model, the payment mechanism will differ in order to reflect the change in ownership of solution components. The alternative model assumes that only the integration layer of the solution will be owned by LINZ, which will be subject to the payment mechanism described above.

All other components delivered 'as a Service' are assumed to have the following payment mechanism:

- **Licence fee(s):** The private sector provider(s) will be paid a [REDACTED] fee for the right to use the functional component from the operational service date of that component (e.g. geodetic services, title services, survey services, enterprise service bus services).

- **Ongoing support:** The private sector provider(s) will be paid a fee for the provision of support services from the operational service date of each functional component.

9 Management Case

9.1 Overview of impact

The table below summarises the impact of the alternative model on the Management Case, as outlined in the DBC.

Table 19: Impact of alternative model on DBC Management Case

BUSINESS CASE COMPONENT	IMPACT OF ALTERNATIVE MODEL
Project management strategy	No change to phased implementation approach currently anticipated, noting a COTS-based solution may (eventually) drive an alternative implementation approach.
Stakeholder engagement and communications	No impact or change expected, acknowledging a need for specific stakeholder communications in respect of alternative model.
Management of business change	No impact on change management approach expected.
Vendor management	Increased vendor management capability and enhanced process maturity required under alternative model.
External project assurance and monitoring	No material impact expected. The need for regular engagement with representatives of MBIE (Commercial Pool) and GCIO is acknowledged.
Risk and issue management	Project risks remain largely consistent in terms of likelihood and impact, save for minor changes.
Benefits realisation	No impact or change expected.
Project evaluation	No impact or change expected.

9.2 Project management strategy

DBC implementation approach

The DBC proposes a phased approach to the implementation of the ASaTS project. The phased approach is designed to mitigate risks often associated with the 'big bang' approach to deployment. This approach means that a six year project can be reduced down to four and a half years through having overlapping phases. This phased approach also allows for 'off-ramps' and does not have an impact on overall project costs. The phased approach to implementation is represented in the diagram below.

Figure 7: Representation of phased implementation approach

Indicative ASaTS Project Timeline	Year 1		Year 2		Year 3		Year 4	
	H1	H2	H1	H2	H1	H2	H1	H2
<i>Phase 1: Foundational Capabilities</i>	■							
<i>Phase 2: Geodetic</i>		■						
<i>Phase 3: Survey</i>			■					
<i>Phase 4: Titles</i>					■			■
<i>Decommission: Remaining Infrastructure</i>								■

Approach to implementation of alternative model

Analysis indicates that the implementation approach for the alternative model is unlikely to differ materially from that identified in connection with the DBC preferred option. However, there are some features of the alternative model that may result in changes to the implementation approach. These include:

- A COTS-based solution may drive changes in the implementation approach (in terms of phasing/sequencing).
- Data migration and on-going data synchronisation is expected to be required as it is likely that the Landonline and COTS product data layers will be different.

The nature and extent of any changes to the implementation approach will become clear during the procurement process and documented in the Implementation Business Case.

9.3 Stakeholder engagement and communications

The success of the ASaTS project will be dependent on meeting customer expectations. To ensure this happens, LINZ intends to work closely with key stakeholders to ensure they understand that the ASaTS investment is designed to provide them with a better quality experience. A stakeholder engagement plan has been developed to support engagement and communications activity.

The alternative model is not expected to alter the approach to stakeholder engagement and communications outlined in the DBC. However, it is acknowledged that there is a need for specific stakeholder communications in respect of alternative model, to ensure a sufficient level of familiarity and comfort with the 'as a Service' construct.

9.4 Management of business change

The DBC identified significant business and customer impacts from the ASaTS investment. It is anticipated that the alternative model will result in a similar level and scope of change (both to business capabilities and processes). Clarity around the level of change will be provided through the procurement process and will be articulated in the Implementation Business Case.

The COBIT and ITIL framework analysis illustrated the need for additional capability and maturity in particular areas if LINZ were to proceed with the alternative model. Further information in respect of these changes can be found in Chapter 4.

The alternative model is not expected to impact on the change management approach outlined in the DBC. LINZ has appointed a Change Director to oversee the change management associated with the ASaTS project. The Change Director has developed a Change Management Programme to ensure stakeholders, survey and title staff, and the regulators are equipped to deliver the survey and title service successfully in the new environment. The Change Management Programme will ensure there is continued engagement with LINZ's customers and staff throughout the project so that the changes being made meet the needs of users and staff.

9.5 Vendor management

The importance of vendor management is increased if an alternative model is chosen as government would not own (and therefore automatically control) the ASaTS solution. The analysis undertaken has highlighted the need for increased vendor management capability and enhanced process maturity if LINZ to proceed with the alternative model.

The intention to engage advisory services in support of vendor management processes remains a key component of the ASaTS project management strategy.

9.6 External project assurance and monitoring

The DBC outlined the external project assurance and monitoring applied to the ASaTS project. This assurance and monitoring activity includes:

- **Central agencies monitoring:** Given ASaTS' status as a major government ICT-enabled project going through the Better Business Case process, the ASaTS project is subject to monitoring by the Treasury, the Department of Internal Affairs, the Department of Prime Minister and Cabinet, and the State Services Commission. As part of this monitoring activity, central agencies have been engaged and consulted in connection with both the alternative model and this addendum paper.
- **Gateway:** The *Gateway Review 2 – Delivery strategy: Detailed Business Case* review (August 2014) rated the project as amber – “successful delivery appears feasible”. The Gateway team has advised that the next review should be at *Gate 3: Investment decision*.
- **Independent quality assurance (IQA):** IQA was conducted over the duration of the DBC process, reporting to LINZ's Chief Executive. IQA continues to be used to review and support project activity, reporting and governance.

The alternative model is not expected to impact the external project assurance and monitoring applied to the ASaTS project. However, the alternative model also reinforces the need for regular and detailed engagement with representatives of both MBIE's Commercial Pool (from a procurement and commercial/contracting perspective) and the GCIO (from a technology perspective).

9.7 Risk and issue management

Approach to risk management

LINZ has developed a risk management framework based upon the ISO 31000 - Risk Management Standard. This framework would be used to manage the risks specific to the alternative model, as well as more general project risks.

Key project risks

The DBC identified a set of key project (largely procurement-related) risks. The impact (if any) of the alternative model on these project risks is outlined in the table below.

Table 20: Overview of key project risks

STAGE	RISK	IMPACT OF ALTERNATIVE MODEL
Procurement	Uncertainty about requirements relating to certain aspects of ASaTS (e.g. 3D) may create ambiguity for the vendors, leading to solutions that are not appropriately aligned to the ASaTS vision.	Nil. The likelihood, consequences and immediacy of the risk are the same.
Procurement	Inability to secure appropriately skilled internal resources during the procurement phase could result in delays and/or cost over runs, causing damage to LINZ's external reputation.	Nil. The likelihood, consequences and immediacy of the risk are the same.
Procurement	Large variations in costs and/or benefits between the DBC and the	Nil. The likelihood, consequences and immediacy of the risk are the same.

STAGE	RISK	IMPACT OF ALTERNATIVE MODEL
	Implementation Business Case could mean the Implementation Business Case is not approved, leading to delays.	
Procurement	The preferred vendor(s) with a viable solution lack the capability to deliver the project and provide ongoing support to LINZ, leading to sub-optimal solutions for ASaTS along with a higher than expected cost.	Nil. The likelihood, consequences and immediacy of the risk are the same.
Procurement	If LINZ selects a multiple vendor offering, there is a risk the vendor partnerships might decay during the procurement process leading to their offerings being no longer viable.	Nil. The likelihood, consequences and immediacy of the risk are the same.
Procurement	Delivery of the ASaTS business requirements may require a consortia of vendors, but the market may not agree to work together in LINZ's preferred configuration, leading to sub-optimal solutions and delivery of solutions.	The complexity of consortia arrangements may be reduced under the alternative model. The likelihood of this risk may reduce proportionately.
Execution	If the project is unable to secure appropriately skilled internal resources during the implementation phase, it could result in delays, cost overruns and cause damage to LINZ's external reputation.	Nil. The likelihood, consequences and immediacy of the risk are the same.
Execution	If the project team is unable to manage interdependencies and resulting issues, this may mean the ASaTS vision is not successfully delivered without time and cost overruns.	Nil. The likelihood, consequences and immediacy of the risk are the same.
Execution	The change management effort required may be more than what is currently budgeted for, resulting in increased cost, stakeholder dissatisfaction and poor implementation of the ASaTS solution.	Nil. The likelihood, consequences and immediacy of the risk are the same.

These project-orientated risks are separate from (and in addition to) the key risks associated with the alternative model outlined in Chapter 4 of this paper.

9.8 Benefits realisation

The DBC noted that a best-fit benefits realisation approach will be designed and developed throughout the initial stages of the ASaTS Project. A Benefits Manager will be appointed as part of the ASaTS Project to ensure the project is appropriately evaluated and the benefits are achieved. This approach to benefits realisation management is not impacted by the alternative model.

9.9 Project evaluation

As noted in the DBC, the ASaTS Project will be evaluated at regular points throughout implementation to confirm that the desired outcomes have been met. There is no change to the proposed approach to project evaluation under the alternative model.

10 Appendices

10.1 Implications and risks associated with COTS products

Table 21: Implications and risks associated with COTS products

Implication /risk	Overview
Customisation risk	
Re-usability of components	
Implementation approach and timing	
Business and process change	
Software support	
Customised software upgrades	

10.2 Inputs to the Quantitative Risk Assessment

Table 22: Inputs to the Quantitative Risk Assessment

Risk	Credible lowest possible	Optimistic (10th percentile)	Most likely	Pessimistic (90th percentile)	Credible highest possible	Comments
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Risk	Credible lowest possible	Optimistic (10th percentile)	Most likely	Pessimistic (90th percentile)	Credible highest possible	Comments
Foundation phase resource uncertainty						
Survey phase resource uncertainty						
Title phase resource uncertainty						
Data migration cost uncertainty						
Licence cost uncertainty for Survey and Title software						
Vendor premium uncertainty						
Vendor finance rate uncertainty						
Exchange rate uncertainty						
Ongoing operating cost uncertainty						
Datacom IT support cost uncertainty						
Duration uncertainty (a change to the project period timeframe)						
Vendor resource rate uncertainty						

Risk	Credible lowest possible	Optimistic (10th percentile)	Most likely	Pessimistic (90th percentile)	Credible highest possible	Comments
Internal resource rate uncertainty						
Change management uncertainty						
Business process resource uncertainty in Geodetic phase						
Uncertainty of level of development resource required						
Cost of ongoing support and licensing						
Cost of ongoing hardware						