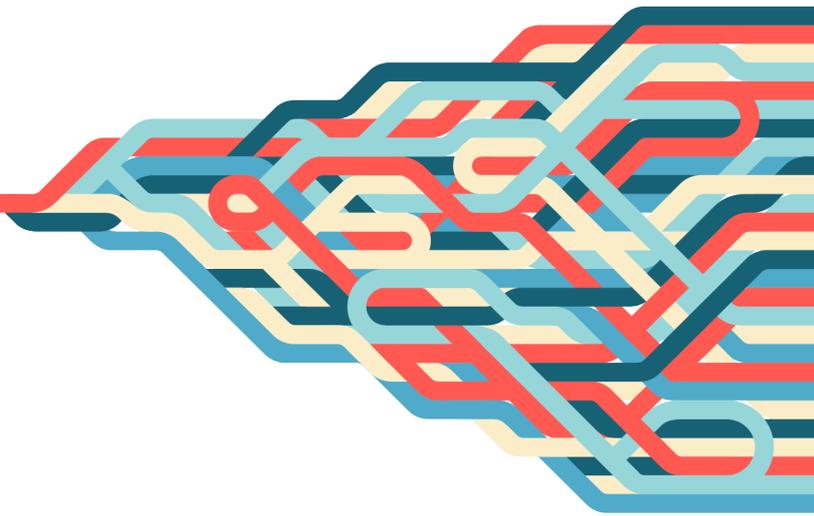


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Improving Government Procurement of Architectural Services

MBA Professional Consulting Engagement Research Report

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April 2018

COLLABORATING PARTIES

Entwine, in collaboration with the University of Otago and the New Zealand Institute of Architects



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Preface

This report was undertaken between December 2017 and April 2018 as the Professional Consulting Engagement component of the University of Otago's Master of Business Administration programme.

The objective of the engagement was to "conduct research for a company on a specific business problem or opportunity and to make recommendations to the company to solve the problem or exploit the opportunity". The report was subsequently executed and delivered pro bono to the New Zealand Institute of Architects (NZIA), as the agreed participating organisation, to initially be used as an internal document. Equating to 30 teaching credits, the report represents the scope of work that could be achieved within the associated guide time of approximately 300 hours.

As an academic research piece, the report was also subject to some unique requirements, including the need to provide background to the NZIA as an organisation, and extensive referencing which led to the original report being accompanied by multiple appendices. In the interests of conciseness and to respect the NZIA's confidentiality the majority of these appendices have been removed from this version. However, to demonstrate objectivity both the referencing and the original bibliography remain.

The online survey results of the NZIA membership base are included here as well and the author strongly encourages the reader to engage with this raw data.

Finally, the author would like to extend thanks to the NZIA for facilitating the opportunity to contribute to research on such an important industry challenge.

**“We shape our buildings,
thereafter they shape us.”**

Sir Winston Churchill

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Executive Summary

The quality of New Zealand's built environment matters and the process of creating it matters – architects play a pivotal role in both. Deficiencies in the former can lead to significant opportunity cost relating to 'benefits realisation' while deficiencies in the latter can lead to copious amounts of financial waste incurred during project delivery. Either way, the New Zealand taxpaying public is at perpetual risk of losing out through less than optimal public architecture and/or the expenditure of tax dollars that add no actual value to the process of creating it. This loss is what this research suggests is occurring within New Zealand public sector procurement approaches and is why the issue of 'improving government procurement of architectural services' is one deserving our attention.

Both the New Zealand Institute of Architects (NZIA) and the wider construction industry have expressed concern that the approach of the New Zealand public sector to the procurement of their buildings is problematic and does not optimise public value. However, despite central government engagement with industry, improvements are considered slow in coming. Industry dialogue has also tended to focus on 'delivering the building' as opposed to 'the value that the building delivers', whether that be social, economic or environmental. The compilation of an evidence base to inform change or an appreciation for the public sector's political, legislative and structural context has been lacking in the conversation too.

This report has therefore sought to leverage both primary and secondary sources of information and through objective analysis uncover not just the symptoms of architectural procurement failures but the root cause of these within the New Zealand context, both public and private, in order to ensure the long-term sustainability of any recommendations. While symptoms range from inadequate design briefing to problematic risk allocation to the commoditisation of architectural services, potential root causes *have* been identified.

It can now be proposed that New Zealand public sector procurement of architectural services suffers from a multidimensional systemic failure that relates to weaknesses in culture, capability and accountability and that these weaknesses undermine not only its own procurement principles but also its own ends – the maximisation of public value. In short, the only constant within the procurement of architectural services is a high variability of skill, attitude and compliance – issues that put the quality of our public architecture at risk.

A central issue is a structural one: in New Zealand's public sector, procurement processes are owned and individualised by each separate entity. Yet this decentralisation could be subjecting the New Zealand taxpayer to all the inefficiencies experienced by the private sector, where fragmentation and skill shortages erode quality, impede knowledge sharing and create obstacles to productivity.

While research has identified proven procurement strategies wholly applicable to current concerns, the most tantalising objective is to assist the New Zealand Government with fully transforming its public sector into a model 'intelligent client'. This is a client that fully acknowledges the procurement of architectural services as sophisticated knowledge work requiring informed professional judgement, and that this informed professional judgement is essential for engaging not only the most appropriate architectural offering but also the optimal project delivery model. This is in an industry context where 'collaboration' is now recognised as the best medium to maximise value.

However, there is no 'one size fits all' solution – a reality the architecture profession needs to acknowledge through more effective packaging and/or marketing of its own service offerings. Though requiring agreement with related industry disciplines, this is an exercise designed to empower. The need for industry collaboration to agree the minutiae that enables true sea change is reflected in 10 recommended actions as well.

As is concluded, the timing of the NZIA's pursuit of change couldn't be better. The change of government has opened the door to increased dialogue with Cabinet. Audit New Zealand is on the cusp of reviewing public sector procurement, thus creating a huge opportunity to further substantiate findings contained herein, and public sector procurement is squarely under the media's spotlight. The construction industry is galvanised for change and strategically aligned. Five compelling value propositions for Cabinet have been identified, one of which could see New Zealand as a world leader in its public sector procurement of architecture. Therefore, the NZIA is in a powerful position. Not only may it lead the way to establishing 'what good *really* is' but it could see it come to fruition also, thus delivering value to its members and New Zealand society alike.

Purpose, Background, Scope & Objectives

Purpose of Professional Consulting Engagement

The purpose of this Professional Consulting Engagement (PCE) is to add value to the New Zealand Institute of Architects (NZIA) and its membership base through an analysis of New Zealand public sector procurement as experienced by architects, how this experience could be objectively improved for the benefit of all and, most importantly, how the NZIA can leverage positive change.

The New Zealand Institute of Architects

Originally formed in 1905, the NZIA is a not-for-profit organisation that is “committed to promoting and celebrating outstanding architecture and to creating greater awareness of the values and benefits well-designed buildings and public spaces can bring to our cities and towns”.¹

Representing more than 90% of registered architects in New Zealand, the NZIA has a number of non-financial objectives. While all are listed below, the three objectives to which this research relates are highlighted in **bold**.

- **To promote excellence in architecture, the acquisition and dissemination of knowledge relating to architecture, ethical conduct in the practice of architecture and the interests of the profession of architecture in New Zealand and overseas**
- **To advance the study and practice of architecture**
- To improve and elevate the technical and general knowledge of persons engaged in, or about to engage in, the practice of architecture
- To hold and promote competitions and to give prizes, certificates and other awards to promote excellence in architecture
- **To bring before government authorities, public and other bodies any matters affecting architecture and architects**
- To amalgamate, or combine, or confer, or act temporarily or otherwise in conjunction with any other professional body or bodies, institutes or institutions having objects similar to those of the Institute.

Essentially the NZIA promotes and advocates for high-quality architectural design and services and supports its membership base pragmatically through actions such as the provision of professional development programmes, standardised NZIA contracts and updates on legislative changes. However, the organisation runs a small national office team with governance undertaken by the ‘NZIA Council’; this is led by an elected President.

Although comprising a small team, the NZIA has a number of unique resources (see Appendix A3.1). The most notable of these is its strong brand strength with the general public due to promotional activities such as the yearly Festival of Architecture as well as its range of contacts across the wider ‘industry membership bodies’ ecosystem’ (see Appendix A2.3). The most significant relationship is that with the Construction Industry Council (CIC), on which the NZIA Chief Executive is also the Deputy Chair.

The NZIA also possesses a number of dynamic capabilities (see Appendix A3.2). Its lean management structure provides the agility and ability to adapt quickly to changes in its context while the NZIA’s respected position within the wider industry allows it to leverage relationships for information and support. Its professional membership base is also a source of high-quality feedback from the project delivery ‘coalface’, as well as a generator of potential industry ‘solutions’. This is all thanks to its passionate members, who are well versed in ‘design thinking’.²

Why Government Procurement?

The term 'architect' is most simply defined as "a person who designs buildings and advises in their construction";³ the etymology of the word deriving from the Greek 'arkhon' meaning 'ruler or commander' and 'tekton' meaning 'builder or carpenter'.⁴

Architectural practice is therefore concerned with the fundamentals of both the process *and* the outcome where an architect's influence is marked on the quality of the end product, namely our built environment, together with the associated mode of its delivery, as manifested by the New Zealand construction industry. Asserting a positive influence on both of these fields is a key objective of the architecture profession, whereby the optimisation of 'quality' and 'ease of project delivery' could be considered as having achieved 'best project outcome'.

However, in relation to contributing towards best project outcome, the NZIA has identified one of its greatest barriers to be key challenges relating to the methods by which the New Zealand Government both procures and engages architectural services.

As the phrase 'contributing towards' encapsulates, the architecture profession is but one player in the construction industry's fragmented landscape.⁵ This work is therefore intended to form part of a larger industry conversation around finding practical solutions to the dual challenge of how to optimise the quality of the built environment while also improving construction industry productivity. The focus on government procurement reflects the Government's status as both a repeat client and one consistently engaged in complex and high-value projects. The term 'government' refers to central and local government and encompasses all agencies as described under the 'public sector'.⁶

Scope & Objectives

The intent of this research is to work through the following steps:

1. Provide a high-level descriptive overview of the public sector's current procurement approach.
2. Objectively identify the perceived shortcomings of this approach with regards to architectural services.
3. Provide an overview of procurement approaches for architectural services deemed successful (both locally and internationally).
4. Establish a clear understanding of 'what good looks like' in the New Zealand context.
5. Provide clear and evidence-based recommendations for achieving this identified vision.

Value Propositions

The most immediate value proposition associated with this research is to move the current industry discourse away from an anecdotal appraisal of perceived public sector procurement shortcomings towards a more objective and evidence-based approach to issue resolution. This will provide a more credible foundation on which to commence discourse for change.

Should this discourse be successful, the value of this research to the NZIA's membership base is far-reaching and the benefits will be both tangible and intangible in nature. Tangible or *financial* benefits include increased practice productivity and improved risk management, and are outcomes that could potentially be replicated throughout the supply chain.

Intangible benefits, however, can be broadly summarised under improved design outcomes for the built environment and are where the most value lies. These outcomes include healthier buildings, ones that enhance rather than detract from the environment, and buildings that ultimately deliver more fully on their intended benefits to users and society as identified at project inception.

This value proposition is therefore intended to be one that can ultimately benefit New Zealand society as a whole and is the ultimate long-term aim of this piece of work.

Research Approach

Pursuit of Objectivity

The ‘cottage industry’⁷ nature of the New Zealand construction industry creates industry fragmentation, and this fragmentation leads to a high number of communication channels that pose a challenge to the accuracy of information flows. It is within this context that ‘institutional bias’ was therefore noted as the top risk during project planning. The need for objectivity during the research was subsequently a key consideration.

In order to address this the research was broken into seven defined phases, a structure guided by the concept of ‘Plan, Do, Check, Act’ (see Appendix A1.1) and where each phase was assigned a clear intent and a set of relevant research methodologies with associated quality assurance mechanisms. While these are outlined in detail (see Appendix A1.2), a high-level overview is shown below.

Figure 1: High-Level Research Methodology Matrix

Project Phase	Research Methodology
Problem Definition	Primary exploratory research via interviews with the NZIA.
Problem Verification/Contextualisation	Primary exploratory research via 15+ interviews with unnamed architects. Refer also Appendix A1.3 and A1.4. Secondary (desktop) exploratory research. Secondary (desktop) descriptive research.
Establish ‘Why Change?’ Research & Analysis	Secondary (desktop) descriptive research. Secondary (desktop) applied research Primary descriptive/applied research via online survey.
Externalities Check	Primary applied research via interviews with related industry representatives.

A core underlying driver of the above methodology is that the parties affected are all ‘knowledge workers’ and thus best placed to provide accurate insights into ‘problems’ as well as potential ‘solutions’.

This is an approach aligned with the concept of ‘empowered people’, which is a hallmark for high performing organisations under the Investors in People (IIP) Framework.⁸ It also reflects Toyota/Six Sigma philosophies where “every employee should take ownership... identifying quality defects and ways to improve...”⁹ Finally, adopting this methodology will ensure that findings are embedded within the New Zealand context.

So, What's the Problem?

Origin of Concerns

Based on anecdotal feedback received directly from its membership base, the NZIA advised that it had identified public sector procurement as posing a number of challenges to the architecture profession. The most pressing issues had been agreed internally within the NZIA as the following:

- The use of bespoke contracts in lieu of standard industry agreements for the engagement of architectural services, and that these undermine the profession's ability to deliver quality service
- Concerns that architectural services are being evaluated on a predominantly cost-driven basis, thus undermining quality outcomes
- Concerns over a fundamental lack of trust between the public and private sectors when undertaking the procurement of architectural services and that this is eroding 'good faith' in negotiations.

Fundamentally and as outlined under the scope, the negative impacts of the above issues are believed to compromise the architecture profession's ability to maximise its value-add, noting that Treasury relates the definition of value to the concept of 'public value' and the need for a state sector to be both "effective and efficient".¹⁰

Extent of the Challenge

The nature of the feedback garnered by the NZIA aligned with that of media reportage covering the wider construction industry. Core criticisms from industry in 2017 alone included "Poor procurement is holding us back" (Peter Silcock, CEO, Civil Contractors New Zealand; *Contractor* magazine, July 2017), "Whilst the client might win in the short term, the industry and the sector loses in the long term because bidding companies will become much more selective in the projects they bid for" (Stephen Selwood, CE, Infrastructure New Zealand; Radio New Zealand, August 2017), and with specific reference to the ongoing trouble experienced by Fletchers Buildings & Interiors, "Construction industry is baulking at being asked to shoulder too much risk for major government projects" (Stuff, November 2017).

These concerns are also reflected in the wider global construction industry and best highlighted by the recent collapse of Carillion, encapsulated by *The Guardian's* headline of 15 January 2018: "Carillion's collapse exposes failings in tendering system".

Furthermore, as recently as July 2017 a conglomerate of Consult Australia, the Association of Consulting Architects, Australian Institute of Architects and the Master Builders Association of Western Australia put forward a submission to the Western Australia Commission of Inquiry on the same issues, including "procurement and risk management culture" and the influence that cost has in evaluations of tenders.¹¹ The results from this Inquiry were released in February 2018 and will be discussed as applicable within this report.

Public Sector Response?

Considering the extensive media coverage, it is not an unreasonable question to ask what the public sector's response has been to the issues cited. In response, the Ministry of Business, Innovation and Employment (MBIE) has held workshops with the private sector in both 2016 and 2017 to address concerns. Key industry representatives have included the NZIA, the Construction Strategy Group, the Building Industry Federation and various government departments. While these workshops have included robust discussions on topics from risk apportioning, value recognition and the importance of selecting the correct contract type for project delivery, it is understood that no identifiable actions followed these events in order to pursue meaningful improvements to the situation.

This perceived failure of the public sector to move more quickly towards meaningful change is best captured by comments made in *Building Today* magazine (March 2017) in relation to a 2011 PWC report commissioned by the Construction Strategy Group (CSG) and updated in September 2016: "While the state

of the industry has changed significantly, the underlying structural issues which were identified in our previous report largely remain today..."¹²

Problem Definition

The key takeaways from the above could therefore be summarised as follows:

- The NZIA's concerns correlate with those of the wider construction industry.
- These concerns are known in generalised terms and have extensive media and public interest.
- These concerns are known to central government, again in generalised terms.

Therefore, while the issues are not new, there is a perceived lack of progress towards improving the situation. Media coverage suggests the industry is in a perpetual state of 'all talk but no action' and so the key challenges for the NZIA can be further refined as follows:

- To better articulate the specifics associated with these concerns, primarily in relation to architectural services i.e. identify distinct roadblocks
- To seek to uncover the potential root cause(s) of these roadblocks
- To better evidence these roadblocks and their associated opportunity cost in order to leverage positive change.

However, prior to embarking on a detailed discussion on the private sector's negative experiences of public sector procurement, it is important to have an understanding of what the public sector is and how it interacts with the New Zealand construction industry.

New Zealand's Modus Operandi

Unpacking New Zealand's Public Sector

New Zealand's public sector consists of multiple organisations that all “vary in the extent to which they are at an arm's-length from Ministers, how they are governed, and the expectations that apply”¹³ (see Figure 2). For the purposes of simplicity, each of these entities is responsible and *accountable* for establishing the business case for their own capital asset creation (e.g. hospitals, libraries, schools).¹⁴ The entity then receives funding under the Public Finance Act. This Act is what “represents the foundation of accountability systems for the resources provided by taxpayers to the New Zealand Government, and which the Government administers on our behalf”¹⁵ (see Appendix A2.4).

It is important to understand the classification of the public sector as it determines expected compliance with the Ministry of Business, Innovation and Employment's (MBIE) “Government Rules of Sourcing”,¹⁶ which sets procurement protocols. These rules are also important because of the procurement culture that they set out to promote under “The Five Principles of Government Procurement”, as follows:

1. Plan and manage for great results.
2. Be fair to all suppliers.
3. Get the right supplier.
4. Get the best deal for everyone.
5. Play by the rules.

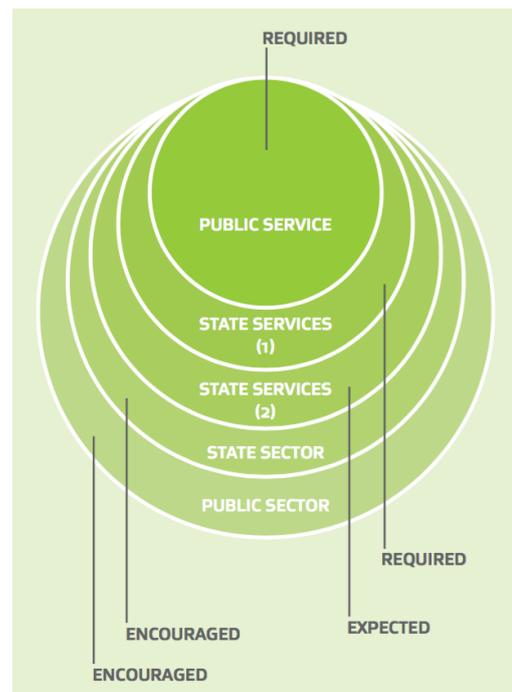
These rules are binding on only some, but not all, public sector agencies. This equates to at least 127 separate organisations that are bound by these rules (see Appendix A2.5) although does not account for any decentralisation that exists within any of these entities; e.g. the Ministry of Education is split into 10 geographical areas.¹⁷

Note, however, that this mandatory compliance does not extend to local or territorial authorities. In addition, Rule 13 enables “in certain circumstances, when a procurement is covered by the Rules an agency can opt-out of applying all Rules to that procurement”.¹⁸ Yet, by way of summary, all ‘public service’ and ‘state services(1)’ **must** comply with these rules and may be audited (e.g. by the Auditor-General) for compliance¹⁹ (refer Figure 2).

While all remaining entities are either “expected to have regard to the Rules” (totalling approximately 2,432) or “encouraged to have regard to the Rules” (totalling approximately 123), these same entities *are* subject to the Office of the Auditor-General's (OAG) “Procurement Guidance for Public Entities”. This is a very similar publication and clearly states “As the auditor of public entities, we expect a public entity's procurement policies and procedures to compare favourably with these guidelines”.²¹ In short, there is a very strong government directive for all parties within the public sector engaging in procurement practices to be in compliance with these five principles. Note that the State Services Commission's (SSC) Code of Conduct also comes into play in order to inform behaviours.

In relation to this compliance, “accountability for ensuring that the Rules are followed rests with individual agency Chief Executives”.²² While Audit New Zealand undertakes a yearly review of each public sector entity this is a financial audit on behalf of the OAG and is not intended to address performance in any depth. Individual entities will only be subject to an inquiry by Audit New Zealand if a request is made to Audit New Zealand that they deem necessitates this reaction or if Audit New Zealand is

Figure 2: Breakdown of Public Sector²⁰



engaged to do so. However, performance reviews are conducted on issues that the OAG believes to be of sufficient importance. Coincidentally, Audit New Zealand is commencing a performance audit in July 2018²³ that is specifically related to public sector procurement. This is timely and creates an additional opportunity that the NZIA may be able to leverage off.

What about MBIE?

MBIE provides an advisory role only and has no official mandate to ensure that their recommended protocols are adhered to.²⁴ This is reflected in their suite of construction procurement-related guidelines that, although packed with useful guidance on all aspects of construction-specific procurement – from the evaluation of procurement strategies to risk and value assessment – there is a strong onus on each entity to realistically evaluate their own capabilities and seek external professional assistance where they believe they are in deficit. This is reflected by the fact that “A Guide to Matching Capability to Complexity” is first in this construction guidelines suite.

This approach serves to drive home the complexity of construction-related procurement; however, it also comes with the following inherent weaknesses:

- The guidelines rely on the individual public sector entity's ability to recognise any capability deficit and either up-skill, contact MBIE for advice or outsource to the private sector accordingly.
- If private sector skill sets need to be procured, this also requires some degree of professional judgement and, again, must adhere to the “Government Rules of Sourcing” and/or the OAG's “Procurement Guidance for Public Entities”.
- Any outsourcing of the ‘public sector client role’ arguably erodes the ability of the public sector to reinforce standardisations of approach across the New Zealand project delivery spectrum.

While MBIE also hosts the NZ Procurement Academy,²⁵ which offers various training options and information sharing initiatives, again, the uptake of opportunities such as these is discretionary.

In summary, the public sector is essentially self-regulating with regards to maximising value in the delivery of the built environment. In view of Audit New Zealand's financial focus of yearly audits, the individual entities are left with primarily the ‘supplier complaints’ procedure as outlined under the “Government Rules of Sourcing”, to highlight weaknesses. It is within this context that feedback from industry assumes a heightened level of importance.

The New Zealand Construction Industry

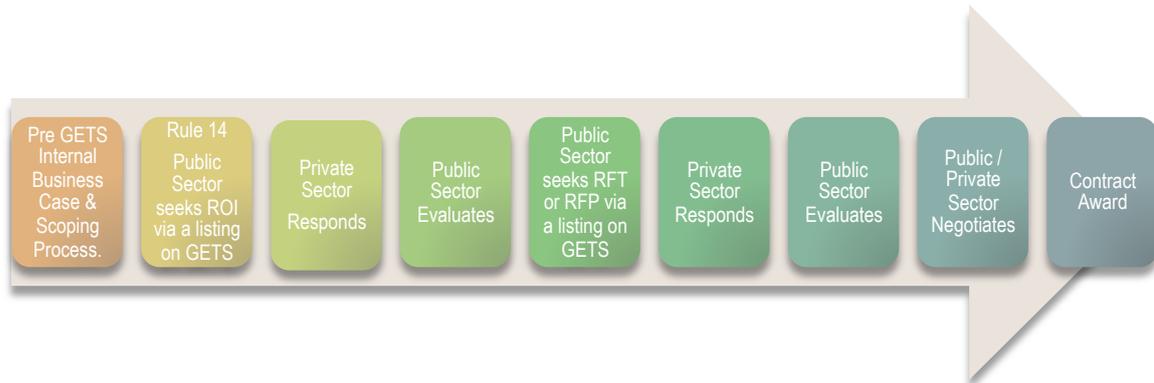
It is therefore important to understand not just the political and legislative scene but also the wider climate within which the architecture profession functions, noting that ‘architecture’ is designated as a construction-related service²⁶ and considered a part of the construction sector. Through an analysis of Porters Diamond (see Appendix A2.1) and Porters 5 Forces of Industry (see Appendix A2.2), the following can be considered as characteristics of the profession's operating climate:

- Landscape dominated by small practices where 75% are five persons or fewer
- High level of pipeline uncertainty due to New Zealand's historic ‘boom bust’ cycle acting as a barrier to investing in skills/training²⁷
- Highly demanding and challenging regulatory environment²⁸
- Risk-averse public sector, potentially as a consequence of ‘leaky buildings’ liabilities
- Subject to joint and several liability legislation
- Experiencing a shortage of high value skills coupled with increasing demand²⁹
- Embedded in a society built on the ‘pioneering ethic’ which arguably undervalues high-quality buildings, i.e. the Kiwi ‘number 8 wire mentality’.³⁰ This possibly contributes to architecture being viewed as a ‘commodity service’ best differentiated by cost.
- Is a profession serving core construction services that are also experiencing severe skill shortages, low margins and significant risk transfer from the public sector to the private sector³¹

As a generalisation,³² for any new construction works over \$10 million (noting that 'salami slicing' into smaller packages is strictly forbidden),³³ the public sector must articulate and then list the scope of the work required on the Government Electronic Tender System (GETS).

Depending on the size and complexity of the work a one- or two-step tender process may be involved (see ROI versus RFT/RFP steps of Figure 3). The market responds by submitting their proposals and the public sector entity evaluates accordingly. It is important to understand that each entity enjoys a high degree of discretion over both this criteria and their weighting but, as mentioned previously, there always exists the expectation of compliance with the **key principles of procurement governance**. The following private sector concerns are delivered within this context.

Figure 3: Public Sector Procurement Process



News from the Front

Exploring the Issues

As outlined in the Research Matrix, a total of 15 exploratory interviews were undertaken with representatives from the architecture profession. These interviews were based on a framework of open questions (see Appendix A1.3) that encouraged both general and specific feedback on individual practice experiences of public sector procurement. Responses (which included concerns as well as impacts) were subsequently collated in an Impacts Matrix (see Appendix A4.1 for extract). A number of prevailing themes emerged, described here as 'Procurement Value Roadblocks' (see Figure 4).

The negative impacts of these 'Procurement Value Roadblocks' were then categorised according to Lean Six Sigma forms of waste (see Appendix A4.3) which enabled a 'cause and effect' hypothesis of the situation to be generated. This suggested that current procurement approaches are creating waste in the following areas: Defects, Overproduction, Waiting, Non-Utilised Talent, and Extra Processing (see Appendix A4.5).

This waste can be considered as detrimental to public value when viewed in the context of Treasury's "integrated definition of high-quality state sector performance" whereby agencies must achieve "value for money, meaning the state sector avoids wasted time, effort and resources in achieving the Government's objectives".

Issues specific to design quality, risk apportioning and any misalignment of opinion within the architecture profession were also categorised.

Figure 4: Procurement Value Roadblocks



Substantiating the Feedback

Verification Through Volume

The aforementioned Impacts Matrix informed an online survey designed to test the above hypothesis and further analyse perceived misalignments within the architecture profession. From a starting point of approximately 650³⁴ New Zealand architectural practices, the response rate varied between 99 commencing the survey and 66 completing all questions. This represents a confidence level of 95%³⁵ and a confidence interval (i.e. the margin of error) between 9 and 12.³⁶ It is also worth noting that a number of practices do not undertake public sector work solely based on their chosen market positioning. As this would reduce the overall population from 650 the accuracy of the survey results is likely to be higher than noted here.

Level of Market Engagement with the Public Sector

Respondents represented practice sizes from single practitioners to firms of 51+ with the greatest proportion of respondents representing practices of 2 – 5, 6 – 10 or 11 – 30 people. All geographical areas of New Zealand were represented and feedback related to the high-value procurers such as the Ministry of Education, Ministry of Health and Housing New Zealand as well as a wide spread across the less prominent procurers such as the New Zealand Fire Service, Department of Conservation and the Ministry of Primary Industries. While Territorial Authorities (such as city councils) were also included, it is important to acknowledge their accountability in relation to their local government status; however, due to alignment of overall governance intent, these entities have been incorporated here to provide an understanding of architects' experiences of the public sector as a whole.

On review of the raw data a key finding is that 22 of the total 99 respondents have a policy of not working for at least one public sector entity, and 16 out of these 22 respondents actively avoid engaging with one department in particular. Reasons cited included such visceral commentary as “out of touch with reality”, “stupidity of their claims and practices” and, perhaps most revealing, “too time-consuming, insufficiently remunerated, potentially high risk, and unrewarding at professional and personal levels”. Other entities were also avoided, one due to conflicts with practice values while another for reasons not cited.

How far are we from 'Good'?

Below is a summary of what we can reasonably conclude based on the survey results (see Appendix A4.2) concerning the current quality of public sector procurement of architectural services within New Zealand. This is essentially an exercise in comparing the experienced status quo with 'what good *should* look like' and to this end, responses have been evaluated against the expectations of identified government procurement values with additional comment provided in relation to design quality, risk and waste (in accordance with Lean Six Sigma).

Specific conclusions are noted in **blue** with supporting statistics highlighted in **green**, while best practice overseas is noted also, if applicable.

Public Sector Project Scoping

Diagnosis: Private sector experiences fall short of 'what good looks like'.

1. The public sector is issuing inadequate design briefs.

Only 29% of the survey respondents confirmed that they had always received a project-specific design brief within the scoping documents while **only 15% of those always receiving design briefs consider the quality of these to be consistently good**. 8% of the respondents had never received a project-specific design brief at all. A lack of sufficient briefing information seriously compromises the design team's ability to maximise the value-add of its talent base and/or deliver the intended benefits sought by the public sector, which essentially results in a less-than-optimum design solution. Waste may therefore be incurred in the following ways: design defects in the final piece of architecture; non-utilised talent as poor communication hampers problem solving; and waste through overproduction and waiting during the design process while additional clarifications are sought.

2. The public sector is believed to place insufficient focus on life-cycle costs.

When briefing information *is provided* a substantial 67% of the respondents believe that **public sector procurement design requirements do not pay sufficient attention to the life-cycle costs of the building**, thus creating further value erosion. Anecdotal feedback during the exploratory interviews suggested this might be due to separated CAPEX and OPEX funding streams giving rise to opposing stakeholder priorities during the design process, i.e. the entity funding the asset does not always fund its on-going costs. However, any disregard to life-cycle costs is also in direct contrast to Rule 4 of the Government Rules of Sourcing where **"Procurement decisions must be based on the best value for money, which isn't always the cheapest price, over the whole-of-life of the goods, services or works"**. The OAG's "Procurement Guidance for Public Entities" further reinforces this point: "The Government expects its departments to conduct all their procurement within the framework of the policy principles... requiring sustainably produced goods or services where possible, having regard to economic, environmental and social impacts over their life cycle."

3. The public sector is issuing insufficient information on construction budgets.

For an architect to feel they can confidently design to the budget, financial transparency is required. However, only 20% of the respondents confirmed that they had always received advice on construction budgets within the scoping documents. **For those receiving adequate information, a substantial 68% believe the budgets quoted to be too low** in relation to the output expectations versus the cost of construction. The logical outcome is a building design that is likely to exceed its construction budget and this can lead to aggressive value engineering, which incurs waste through abortive design work, noting that the later in the process the design change occurs, the more it costs (see Appendix A4.4). It also needs to be acknowledged that construction estimates should always be considered as a range due to the variety of unknowns such as market and regulatory changes³⁷ that can impact on the final price. In essence, any weaknesses in the public sector's understanding of what a budget consists of and the variables that impact upon it could be creating substantial waste and uncertainty.

4. The public sector is issuing insufficient information on design programmes/timelines.

Only 29% of the respondents confirmed that they had always received clear design programmes/timelines and **of all respondents who had experienced timelines, only 9% believe them to have been “about right” for the project.** Key feedback included that there was a clear disconnect between project scopes and the complex design and decision-making processes required to achieve these, i.e. “They show no understanding of process” or “do not reflect the reality of the decision-making process”. Comments also reflected weaknesses in what is essentially a process of co-creation;³⁸ “the main delays often arise from inability of the client organisation to make decisions” and “milestones are often not met by the client”, suggesting that many of the intended programmes are not realistic or manageable for the public sector either. However, programme ambiguity impacts on the efficient management of practice resources and while programmes that are too short can result in poor-quality design or documentation i.e. defects, those that are too long or fragmented can incur ‘waiting’ – another form of waste.

5. Significant changes in client requirements create waste across all tendering parties.

Approximately 60% of the respondents confirmed that project scopes had changed significantly during the tender process. The number of parties engaged in the tender process therefore all incur waste as a result of the production of work that is subsequently no longer required. Timelines are impacted by the weaknesses cited above whereby “Programmes suffer from constant changes in scope and budget expectations” and “often... have already slipped due to the procurement process”, again incurring waste.

6. Architects are not always clear about what is expected of them or their associated design team.

Only 31% of the respondents are always clear about what is expected of both themselves and the wider consultant design team, while 23% were clear on neither, leaving independent roles as well as delineations of responsibility undefined. This can create design defects or programme delays resulting from scope gaps, or overproduction resulting from double-ups. Specific feedback also included “quality and design is [sic] severely undervalued” while “at times there is a complete misunderstanding of what architects do”, which contrasts with the procurement principle “identify what you need”. It is, therefore, perhaps not a coincidence that **73% of the respondents believe the level of architectural services being requested do not always lead to the best project outcomes.** This suggests there are fundamental knowledge gaps within the public sector in relation to the role of the architect, the range of architectural services available, and how to select knowledgeably so as to optimise intended outcomes.

7. The public sector lacks sufficient understanding of Building Information Modelling (BIM) to enable true value-add.

The above proposition is supported by the statistic that **only 7% of the survey respondents believe BIM to be dealt with effectively,** while a 56% majority had never experienced BIM on a public sector project. The overwhelming belief was that the public sector “don’t really know what they are asking for” and “are not prepared to pay for it”. The result is either a BIM service not meeting expectation i.e. defects, or one that is surplus to requirements, which incurs waste through overproduction. However, there was also an acknowledgement that within the private sector “few companies are fully BIM capable”.

8. Information requested can be disproportionate to the size/complexity of the project.

While 70% of the respondents believe they are given sufficient time in which to price proposals, less than 10% believe this time to *consistently and appropriately* reflect the size and complexity of a project. This frustration is reflected by “it simply costs too much for low risk of success”. Waste is incurred as a result of production of work that does not add value to the process and this costs practices money. It also contradicts the procurement principle: “Take the time to understand the market and your effect on it”.

In summary, architects perceive the public sector as a whole to be falling short in multiple areas relating to scoping, where **only 17% of the respondents believe the quality of overall scoping documents to be good, with a further 77% indicating there is a high level of variability.** Specific feedback included “government employees don’t know much about the building industry or architecture”, “no real understanding of the design process and how it works”; and “even within each sector, requirements vary”. At least 23 of the

59 related comments particularly referenced the capability of clients or project managers³⁹ as “ultimately determining the outcome of quality”, perhaps best summed up by “depends who you deal with”.

These statistics should not be surprising, however, as scoping a project is a specialised process that requires both an understanding of the benefits sought through the asset creation as well as clearly defined drivers and constraints relating to the delivery phase of the asset.

In relation to design briefing in particular, the Royal Institute of British Architects (RIBA) has introduced a new ‘first step’ into their ‘plan of work’ project work stream entitled “strategic direction” in response to the acknowledgement that “if Project Outcomes are to improve, better briefing processes and clearer definition of the required Project Outcomes will be needed”. This is then backed up by a RIBA consultancy service to assist clients with project briefing in recognition that “full and effective project briefing plays a crucial role in the delivery of successful Project Outcomes”.⁴⁰

In short, architectural expertise can assist with the effective scoping or ‘briefing’ of a design project and effective briefing is key to enabling the architect to deliver a design solution that can in turn deliver the benefits sought by the public sector entity. However, the statistics at present suggest that the public sector is either unclear of the benefits sought through its architecture or, if clear, is unable and/or unwilling to communicate these effectively. As examples and to quote the RIBA: “in the case of a hospital, the Project Outcome might be a reduction in recovery times; with a housing scheme, it could be more use being made of community spaces...”⁴¹ Without this knowledge the architect is unable to focus their design efforts on meeting these objectives.

It is crucial to address weaknesses in scoping. As demonstrated across each of the categories above, these weaknesses impact on the design and successful delivery of the asset. Consistent with the RIBA approach and as highlighted by the detailed survey feedback, weaknesses in scoping are most likely weaknesses in capability within each of the areas cited above.

Public Sector Procurement Process

Diagnosis: Private sector experiences fall short of ‘what good looks like’.

9. The public sector’s project risk appraisals may be falling short.

Less than 50% of the respondents had participated in or contributed to any discussions relating to project risks during the tender period. Note that this is in direct opposition to best-practice project management principles and such discussions are essential in order to assign the appropriate resources, time and budget required to enable the management of identified risks.⁴²

10. ‘Two-stage’ tendering is likely detracting from the quality of New Zealand’s architecture.

A 68% majority of respondents believe that splitting the design process in two (concept/preliminary versus developed/detailed) to be a bad idea. Specific objections included “it increases the costs to society and lessens the efficiency of the profession” and “the underlying principles behind a design, the brief development and fundamental reasoning for early design decisions are often lost”, noting that waste is incurred via a second tender. While some believe that a re-price “gives more surety around scope and budget before the project advances to more detailed and costly phases”, this is potentially in a context of inadequate design briefs and fixed fees.

Furthermore, a potential solution whereby the “Concept Architect has a role as peer reviewer and does not compete for the project” was also proposed within the feedback received. This has the advantage of enabling continuity of architectural vision throughout the design process while allowing a second firm to build up capability in the related design typology. Therefore, it is an option worthy of further consideration.

11. Professional service panels⁴³ may not all be functioning to maximise value.

Feedback on this was generally mixed: 31% of the respondents feel that such panels are a good idea while a 55% majority are unsure. Although benefits such as overall efficiencies were recognised, concerns included qualification criteria favouring larger practices and the infrequency of some renewals blocking panel access. Both these approaches incur waste via the non-utilisation of talent and prompted one practice to

lodge a formal complaint with the Commerce Commission. Concerns also existed in regard to panels not being administered properly, with one frustration cited as: “Each time we bid on a job, there are always extra (ugly) contractual clauses included in addition to the raft of often already onerous clauses in the main panel agreement”. Thus, the intent of the panel is compromised and waste incurred as a result of overproduction.

12. The handling of novation on public sector Design & Build contracts is often problematic.

Almost 50% of surveyed practices that had experienced novation under a Design & Build contract believe it had not been handled well and had impacted negatively on either their practice or the main contractor.

13. Architects are experiencing a distinct lack of public sector feedback.

Less than 3% of the respondents had always received adequate feedback in a timely manner on unsuccessful submissions with 45% rarely receiving such feedback. This is disappointing in the context of the Rules of Sourcing principle “be fair to all suppliers” where it is advised to “talk to unsuccessful suppliers so they can learn and know how to improve next time”. This lack of feedback also denies the private sector learning that could increase the quality of the public sector’s competitive pool.

Exactly why the above shortcomings are experienced cannot be precisely known. Discussing project risks and providing feedback are relatively easy to do so entities could simply be choosing not to, perhaps as they do not see value in these activities. However, two-stage tendering and panels return us to the need for the public sector to be able to articulate outcomes sought and essentially to have a fundamental understanding of how architecture adds value, capabilities requiring specific knowledge and experience. Issues around novation further suggest weaknesses in regard to specialist skill sets.

Public Sector Procurement Contracts

Diagnosis: Private sector experiences fall short of ‘what good looks like’.

14. Bespoke contracts are having a significant financial impact and create project risk.

Over 55% of the respondents have been engaged under a modified standard services agreement or bespoke contract within the past five years. Of these practices, 55% had all contracts reviewed prior to signing. This came at a cost to the individual practices ranging from \$300 to \$10,000 per project, not accounting for any negotiating costs and acknowledging that many practices have to cover the costs of in-house legal expertise or a lawyer on retainer. Considering the existence of industry-standard services agreements, this is conceivably one of the greatest costs to the industry where waste is incurred due to the undertaking of work which is, arguably, not required i.e. overproduction. **As 63% of the respondents believe that the public sector’s use of bespoke contracts is increasing,** the cost to industry of this ‘unproductive work’ is also increasing. Again, client capabilities were cited as underlying concerns; e.g. “Experienced clients are reasonable. Inexperienced clients who talk to their lawyers are a problem.”

15. The public sector is including uninsurable and impractical clauses in bespoke contracts.

A total of 51% of the respondents had experienced an uninsurable clause, almost 50% had experienced a clause not applicable to architectural services, 45% had been requested to make a design ‘fit for purpose’ – a clause only enforceable if there are clear metrics against which to measure design ‘purpose’,⁴⁴ while 58% had experienced problematic Intellectual Property clauses. This therefore supports the NZIA’s argument for standard services agreements in order to avoid re-litigating clauses either not appropriate to the architecture profession or that have been negotiated previously and absorbed into contracts - such as the NZIA’s Agreement of Services or the ACENZ’s Conditions of Contract for Consultancy Services. Furthermore, **10% of the respondents had experienced clauses that breached New Zealand’s Health and Safety legislation.**

While revisiting clauses incurs significant waste via unproductive time, it is waste that is also incurred by the public sector. The above examples jar with the fifth procurement principle ‘play by the rules’ and, although not mandatory, potentially conflict with MBIE’s advice that “Wherever possible, agencies should adopt a standard form of contract as appropriate for the project”⁴⁵ explicitly noting that “the use of standard construction contracts can help to reduce procurement and contract administration costs as they are

generally well understood by users". In addition, "their familiarity within the industry can reduce the number of disputes related to matters of interpretation"⁴⁶, thus aiding in both cost and risk management.

16. The public sector's contractual stance could be road-blocking the very outcomes they seek.

Only 6% of the respondents believe that the public sector's approach to contracts encouraged trust and collaboration while **a vast majority of 81% believe that the current approaches to procurement and/or contracts do not enhance productivity within the practice and overall project delivery team**. A total of 81% also believe that the public sector's approach to contracts did not encourage, support or enable practices to 'think differently' when solving design and/or construction problems. In short, the current decisions that the public sector is making with regards to contract selection and risk management are actively road-blocking innovation, an outcome in direct antithesis to the fourth principle of government procurement: "Get the best deal for everyone; take calculated risks and reward new ideas". Such decisions are also contrary to the "Government's Business Growth Agenda" from 2013 where the aim was noted to "simplify and modernise government procurement policy to encourage innovation and firm participation".⁴⁷ In contrast, it is worth noting that the Canadian Government runs a specific "Build in Canada Innovation Program" devoted to assisting with bringing new innovative goods or services to market.⁴⁸

Public Sector Procurement Culture

Diagnosis: Private sector experiences fall short of 'what good looks like'.

17. The public sector has been experienced as being unwilling to negotiate.

Disempowerment within the architecture profession has been exposed by the nature of the pressures being applied by the public sector. Examples are: **pressure to reduce fees (experienced by 77% of the respondents)**, pressure to remove tender tags without negotiation (experienced by 42% of respondents), pressure to agree contract items without negotiation (experienced by 47% of the respondents) and by excessive commercial pressure described during the exploratory interviews as "bullying tactics" – an instance cited being "the other parties have all agreed to these terms so why won't you?". This latter example was experienced by 42% of the respondents. **Only 16% of the respondents had not been subjected to pressure to either drive down fees or assume additional risk** while one example cited included non-payment of fees, an issue resolved through dispute resolution that proved in favour of the architect. Further insightful feedback included "with the current system it seems that the lowest cost counts i.e. most practices can carry out the work, the only difference is price", proposing the view that architectural services are often perceived akin to a commodity service.

18. Some respondents perceived a lack of public sector integrity.

A third of the respondents (35%) **had experienced what they perceived as corruption** (e.g. nepotism) within the procurement process/contract award. It is therefore not surprising that **only 27% believe the public sector to demonstrate the same high level of professionalism as was expected from the private sector**, with 50% in clear disagreement and 23% unsure. In addition, **over 50% of the respondents believe public sector procurement not to align with the virtues of fairness and impartiality**. A potential breakdown of trust is perhaps demonstrated by the feedback that some concept designs were perceived as being directed straight to larger firms without being tendered. Impartiality concerns also extended to the role of Engineer to the Contract with only 15% of the respondents convinced there was no conflict of interest when this party was procured from the same firm as the client's project manager.

19. Concerns exist over internal communication and governance structures.

The above experiences are perhaps explained by a lack of transparency around decision-making where **89% of the respondents believe that high-level decision-makers within the public sector were not adequately informed of industry issues and experiences associated with project delivery**. Unsurprisingly, 70% of them had concerns over governance of public sector procurement.

20. The current public sector feedback/complaints procedures are not working.

A majority of 58% of the respondents believe that the public sector has inadequate protocols and/or feedback loops. In short, if the public sector entities are relying on feedback from the private sector to enable both

accountability and/or continuous improvement, then there are significant barriers in the way. This is demonstrated by the finding that while only **15% of the respondents have complained about or taken action against a public sector entity, 50% of the respondents have wanted to but have chosen not to do so**, essentially on the basis of fear. This fear included: “fear of a backlash”; “reputation damage”; “would result in never securing work in the public sector”; “issues with payments of invoices”; and ultimately a lack of faith i.e. “not convinced the issue would go anywhere”.

In addition, **almost half of respondents (48%) had experienced public sector procurement as predominantly closed and defensive**. Specific feedback mirrored that of the previous comments: “depends on the project and organisation”, demonstrating a lack of consistency across the public sector, and “usually price is the key driver and this endangers truly inspired architecture”; again, this reflects concerns that cost is a key factor in decision-making, not the actual architecture and its associated strategic outcomes. The above feedback is also of concern because the New Zealand State Services (as a minimum) are bound by strict standards of integrity and conduct in accordance with the State Services Commission’s code of conduct. However, survey findings suggest that the standards set by the code of conduct may not be being achieved.

In summary, the findings outlined indicate ineffective and inefficient contracting processes, and concerns in regard to governance and transparency, noting that perceptions have been tested and not compliance.

Public Sector Skills, Knowledge & Experience

Diagnosis: Private sector experiences fall short of ‘what good looks like’.

21. Architects are experiencing significant knowledge deficits within public sector entities.

A total of 47% of the respondents believe that they had experienced situations where personnel had not followed correct procurement protocols while **83% believe that public sector personnel did not have sufficient knowledge around the issues on which they were giving advice**. These concerns over public sector capabilities are reinforced by 77% of the respondents believing public sector project management capabilities were highly variable, while 15% believe the performance by public sector project managers had actively *detracted* from the quality of the process. To this end, a majority of 79% believe that **public sector project managers should be subject to independent certification or training** to ensure an appropriate level of skills and experience; this correlates with the 65% of respondents who believe that value-add “depends on the quality of the project manager”.

In reality, however, these results should not be unexpected. Project management remains an unregulated industry and therefore the title ‘project manager’ represents no verification of any base standard of capability, ethics or experience. To this end, select members of the Project Management Institute of New Zealand (PMINZ) are advocating for the professionalisation of the term ‘Project Manager’ by means of legislation similar to the ‘Chartered Professional Engineers of New Zealand Act’. Meanwhile, the PMINZ is included in talks with the New Zealand Qualifications Authority to create a new set of project management standards aimed at improving project management in practice.⁴⁹

22. The current public sector tender evaluation protocols may not be optimising value.

A lack of expertise could be contributing to reducing the effectiveness of tender evaluations. Only **36% of the respondents believe that the evaluation process requires a high level of expertise, experience and professional judgement** or that these protocols are designed to ensure that the parties selected would contribute towards optimised outcomes in relation to both design and delivery. A key takeaway was the recognition of the limitations of a process where “they often favour experience, track record, size of your firm and resources. This denies the chance for up-and-coming firms who could in some cases give a better and more creative service”. Indeed, only 3% of the respondents believe that the evaluation weightings unequivocally encourage best overall design outcomes with 54% in clear opposition.

This is a key point as it contrasts sharply with the intent of the more progressive Qualification-Based Selection (QBS) process implemented in the USA whereby “The most qualified firm should not be construed as the largest or longest-tenured firm, but the firm that is the best match for the project scope, size, location, and other factors as described in the solicitation document” and which should allow for “objective and subjective criteria such as innovation, unique design approaches, sustainable design, and total life cost of the project”.⁵⁰ This selection criterion essentially prioritises the intent of the architecture above risk and fee

concerns, noting that the cost to construct a building can be as low as 10% of the Total Cost of Ownership (TCO).⁵¹ To do otherwise is to allow the avoidance of 'delivery-risk' to drive the quality of New Zealand's public sector architecture and is fundamentally placing 'output' over 'outcome'. It is also erroneous to believe that past success is a determinant of future on the basis that design delivery is a team endeavour and teams are generally bespoke for every project. As highlighted too, this approach also roadblocks the growth of smaller firms and in effect creates a 'Catch 22' situation for new market entrants, itself a form of waste due to the non-utilisation of talent.

Further criticisms existed in relation to the 'professional judgement' aspect of tender evaluation by way of a now recurrent theme of "depends on the quality of the project manager" and "**we often witness completely unqualified and biased persons making up members of the tender review panel**". These are key observations as a lack of capability disables an effective QBS process whereby "it is critical that the selection process be managed by fully trained and qualified procurement professionals to ensure that the process is carried out in accordance with laws and best practice".

23. The public sector's attitude to value engineering may be costing New Zealanders more.

Concerns over professional judgement calls are reinforced by experiences of various value engineering (VE) exercises conducted during project delivery where 52% of the respondents have experienced **VE as removing environmentally certified materials**, 56% **as negatively impacting on the energy performance of the building** and 80% **as reducing the reliability and/or durability of the materials, products, or systems selected** (thus increasing associated operating and maintenance costs). Ironically 48% of the respondents believe the VE processes to have potentially *increased* the final cost of the building.

All this, despite a 2006 Ministry of the Environment report which clearly articulated that "The value case for sustainable building is now compelling... the marginal cost increase of sustainable building is likely to be repaid between five or six times by operating cost savings alone".⁵² The approach conflicts with an underpinning value of the "Government Rules of Sourcing" as well, whereby "New Zealand is committed to open, transparent and competitive government procurement that delivers best value for money (which isn't always the cheapest price)". The statistics are also consistent with the fact that **68% of the respondents believe the public sector to "consistently prioritise cost over value during procurement"**. According to the survey results this is in direct contrast to what motivates the architects, where only 30% of the respondents selected profits as a reason to engage with the public sector. Instead, the profession's predominant drivers were unrelated to money and dominated by "interesting projects" (at 72%) and "the opportunity to engage with and influence positive social outcomes" (at 68%).

24. The public sector's attitude to architects' fees is counterproductive.

A further manifestation of the above 'cost over value' approach is reflected in the belief that **the public sector is unrealistic as to the quality of design/documentation that can be provided against fee expectations**, a thought shared by 70% of the respondents. However, it is unequivocally agreed by all 100% that **good-quality documentation is essential in order to enable the construction market to price the job accurately**. In addition, an 80% majority believe that the final out-turn cost of a building could even be *decreased* if expenditure on professional services at the front end was *increased*.

25. Any pursuit of lowering fees creates a roadblock to the profession's up-skilling.

The drive for lower fees has an additional negative impact whereby only 8% of the respondents believe that public sector projects consistently enable sufficient profits for reinvestment in professional development. In short, **the drive for lower fees compromises the industry's ability to up-skill**. It is therefore unsurprising that the industry has struggled to embrace BIM, as reflected by both a survey comment – "few companies are fully BIM capable especially in the regions where there are often none" and one of the findings of a 2016 MBIE BIM report – "BIM maturity with consultants and contractors is still very low".⁵³

If a summary is even needed here it is a concise one: weaknesses in skills, knowledge and experience among tender evaluation panellists, project managers and other key roles in the public sector procurement process are perceived as manifesting in ill-informed professional judgements that erode value on multiple fronts.

Survey Conclusions

After applying the margin of error of +/-12% to the above, the statistics still demonstrate clear majority and minority responses that support the above statements. In essence we can be 95% confident that between 73% and 97% of New Zealand architectural practices believe that changes are needed to how the public sector procures architectural services. The survey results both confirm the original hypothesis and enable the following propositions in relation to the procurement of architectural services.

1. There is a multidimensional systemic failure within public sector procurement that is eroding value.

The public sector's 'procurement status quo' is experienced as deficits in scoping, process, contracts, culture and capability (skills/knowledge/training). These deficits erode value in the following ways:

- Creating financial waste in the form of tasks that do not add value to the actual project. This includes abortive work/defects, overproduction of information, over-processing of information, and time spent waiting (see Appendix A4.5). The challenge with this waste is that it comes as a direct operating cost to the architectural practices and therefore has to be absorbed into their fee structure. In short, the client market, including the public sector, inevitably pays for this waste in the end.
- Increasing risks around project delivery in relation to certainty of cost, time and quality outcomes.
- Road-blocking the sector's ability to innovate and thus improve productivity.
- Road-blocking the sector's ability to invest in vital up-skilling.
- Road-blocking public/private sector continuous improvement relating to the procurement process.
- Increasing the operating costs of buildings beyond what they could/should be.
- Compromising the design quality of the primary deliverable, the end piece of architecture.

Ultimately the above could be detracting from the quality of New Zealand's built environment and in effect be eroding the quality of the benefits that are presumably sought by the original business case. In addition, the public sector is potentially falling short of expectations that the public sector's conduct is "of the highest professional and ethical standards."⁵⁴

2. This systemic failure is underpinned by weaknesses in capability, culture and accountability.

The recurrent themes of capability and culture throughout the categories, coupled with the apparent lack of external monitoring of the process, suggest the following systemic weaknesses: a lack of procurement capability; perceived shortcomings relating to appropriate behaviours; and a lack of checks and balances in relation to accountability.

This suspected lack of accountability is best highlighted by the misalignments cited between the private sector's experiences of public sector procurement and the intent of MBIE's Government Rules of Sourcing, the OAG's guidelines, the SSC's Code of Conduct, and the New Zealand Treasury's mandate.

The worst-case manifestations of this are proposed as: weaknesses within procurement planning, the perceived focus on cost not value, the perceived undue pressure applied, and the counterproductive attitudes towards risk management. The Controller and Auditor-General's guidance specifically highlights these concerns, stating that "an incomplete understanding of limitations or exclusions of liability, indemnities, warranties, and intellectual property and the resulting risks can lead to unnecessarily conservative contractual positions, which reduce the opportunities that may evolve from a contract".

3. Current strategies are limited in their ability to effect positive change.

Only 16% of the respondents believe that public sector procurement had improved over the past five years; 42% felt it was getting worse while 32% believe the quality to be highly variable and dependent on the individual public sector client encountered. It is therefore fair to suggest that the current MBIE strategies may not be having an appreciable or consistent impact on the overall situation and also highlights the limitation of discretionary external guidance on highly autonomous and fragmented entities when trying to effect positive change. Therefore, while adding additional monitoring and control would seek to reinforce compliance with the various legal and/or policy requirements, this is not as effective as addressing the core underlying issues of attitude or basic capability, the 'individuals' involved being the main determinant of process quality.

Wider Context Sanity Check

The above conclusions are consistent with a number of previous New Zealand-specific public sector reviews which include such particular criticisms as “the Ministry did not have the commercial experience to manage the vendors in a project of this nature”, “the levels of trust between the Ministry and the sector that were necessary to ensure the success of the project were not always evident” and “the Ministry did not establish the quality of governance required for a complex project of this nature”. While one could be forgiven for assuming that these comments relate to architectural services procurement, they are quotations from the 2013 “Report of the Ministerial Inquiry into the Novopay Project”,⁵⁵ further supporting the argument that the issues are systemic in nature.

Yet weaknesses in capabilities and governance have been existent for years, as reflected in the State Services Commission’s (SSC) report into the “Cost Escalation in the Regional Prisons Development Projects” which included, under Lessons Learned, the need to “ensure that the Steering Group has the appropriate mix of knowledge and skills to be able to represent the Department and the wider Government interests, and govern a large-scale project” and “that there are regular independent quality assurance processes in place for oversight of governance and project management approaches”. Concerns over any substantive improvements are reflected by the conclusion of MBIE’s “New Zealand Government Procurement Business Survey 2017” where “more businesses rated government negatively than positively” and which included such aligned feedback as “It’s difficult to have a sensible conversation in a locked-down procurement process and not all legal contracts are fair”.

International industry reports further reflect the existence of these issues where a recent World Economic Forum report describes the construction environment as operating under a “complex client context” characterised by “immature project definition and technical assessment”, “over-preference for lowest bid price”, “increased risk transfer to contractors” and “the complexity of contracts and dispute resolutions” where contracts are “packed with legal complexities”.

However, the most instructive comparison arguably comes out of the Government of Western Australia’s “Special Inquiry into Government Programs and Projects”, as referenced under Section 4, whereby it was recognised that there were “underlying systemic issues that mean that most of the projects were subject to an environment needing improvement and reform”, one of which included “capability gaps... in the public sector, especially around project planning and evaluation”.

What can Architects do?

The focus thus far has been on identifying quality deficits within the architecture profession’s experience of the public sector’s approach to procurement. However, in order to maintain a balanced position, the private sector has also been analysed, utilising both the exploratory interviews and the online survey. Findings are outlined under the “NZIA Issues List” in Appendix A5.5, but can be broadly summarised as follows.

1. A lack of clarity exists around the role of the architect today.

There currently exists internal debate in relation to matters such as the definition of ‘lead consultant’; agreement on the optimum contractual relationship within the wider design team (noting that the wider design team have strong views on this issue also⁵⁶); and the extent of architectural services that are required as a minimum in order to safeguard positive project outcomes which may differ based on varying project characteristics. This concern relates in part to the ascendance of the “accidental project manager”⁵⁷ who has arguably been filling the vacuum that remains when architects allow the client to opt out of key project/design management or administrative services. This is a key consideration, as currently project managers are not subject to a code of ethics, minimum standards of capability, or governance by a professional body, unlike a registered architect.⁵⁸ Agreement on these issues is important because if the architecture profession is not clear on their value proposition to their market then their market will also not be clear, noting that one of the key principles of government procurement is to “understand your market”.⁵⁹ Arguably the onus is on the architecture profession to communicate its services and associated value-add clearly and to articulate how service offerings may differ depending on the size, type and complexity of the architectural outcomes sought.

2. There exist perceived weaknesses in various skills and capabilities.

Concerns exist over both the various skills and capabilities within the profession as well as the manner in which these should be addressed. These concerns include a growing disconnect between the aesthetics and technical aspects of the design process, the commercial awareness of some practices, a lack of leadership within the profession, weak BIM capabilities and the belief that some practices may be tendering their fees too low to be financially feasible; this potentially contravenes the Registered Architects Board's updated ethics code whereby a registered architect "must not offer any significant inducement to procure an agreement for services or gain an unfair advantage".⁶⁰ These issues matter given that any adverse quality of service experienced by any party within the supply chain damages the credibility of the profession as a whole and reduces the bargaining power in any client negotiations, which is particularly damaging in a climate with a predisposition to driving down cost.

With regards to plugging knowledge gaps, the survey results confirm that the vast majority of architects expect the up-skilling of the design/construction industry to be a shared responsibility between the public and private sectors. This expectation is already outlined under the Tertiary Education Strategy whereby "Tertiary Education Organisations need to develop the skills and knowledge essential for innovation and business growth", noting that "42% of universities' income is from Government".⁶¹

3. Architects are experiencing uncertainties of expectation around public sector procurement.

While the majority of survey respondents confirmed an awareness of the main risks cited in regard to bespoke contracts, 45% of them feel they are lacking sufficient access to information and training around these issues. Also, only 30% of the respondents mentioned having awareness of MBIE's outlined complaints procedures and less than 25% of the OAG and SSC's advice. This may further explain why there has been such little 'push back' by the profession i.e. rights and expectations are not fully understood. It was reflected, too, in the almost 50/50 split as to whether the profession believes itself to have sufficient access to public sector procurement protocol information. This issue is exacerbated by the fact that no single survey respondent believes the New Zealand Architecture Schools to be adequately equipping their graduates for the skills and training required to address complex contractual arrangements associated with project delivery. While 32% believe it not to be the schools' responsibility, the end result is the same – a further deficit in the avenues available to better equip architects for the context of many public sector procurement/projects. There is opportunity for the NZIA to assist with plugging this knowledge gap.

4. How should the NZIA best represent its members in relation to public sector procurement?

Perceptions exist that the organisation is "not taking on the big political issues", is "weak at protecting the architectural patch" and is "not communicating the value-add of the profession". Regardless of the level of accuracy of these statements, the actions undertaken in response to the aforementioned public sector procurement challenges provide an opportunity for the NZIA to fully galvanise member support.

Is it time to take back some power?

If the public sector is marred by a culture of risk avoidance, mistrust and cost cutting, it could be argued that the architecture profession operates to some extent under a culture of disempowerment that is susceptible to exploitation, especially when one considers that 16% of the survey respondents have accepted engagements under high-risk contracts simply because "it was a great project". In essence, the survey results suggest that if the public sector is output focused during procurement i.e. focusing on the 'blueprints', the architects are outcome focused i.e. focusing on the value to society that the piece of architecture can unlock.

This concept of disempowerment was articulated most recently in an article by Professor Jeremy Till from London's 'Central Saint Martins', who subscribes to the belief that the education system is setting up a "culture of sacrifice... and this then rolls out in practice; the sacrifice of internships; the sacrifice of long nights; the sacrifice of low fees" and that the "culture of architecture school is preparing students for the exploitative culture of the workplace".⁶² The importance of this observation should not be underestimated as it may contribute in part to the willingness of the architecture profession to forfeit both control and fees within projects and this may ultimately detract from the quality of service that can be delivered. Moreover, it also creates opportunity for the NZIA to facilitate greater empowerment.

Building the Case for Change

The Cost of Weak Capabilities

Weaknesses in capabilities come at a cost. Estimates from the Project Management Institute suggest that “9.9% of every dollar is wasted due to poor project performance”⁶³ and the World Economic Forum suggests that up to 30% could be lost through “mismanagement and inefficiency”⁶⁴. These figures are substantial and in the context of New Zealand’s expected 2017 to 2020 pipeline budget of \$32.5 billion⁶⁵ could relate to between \$3 billion and \$10 billion of waste. While it is difficult to break down the individual costs on any individual project,⁶⁶ we can be confident that, unless substantial improvements are made to the public sector’s project management capability we may see wastage incurred that is well in excess of the expense budgets for entire central departments.⁶⁷ Although many consider the New Zealand Transport Agency (NZTA) to be a high-performing public sector organisation,⁶⁸ even after removing horizontal infrastructure from the equation we are still left with potential waste between \$2.0 billion and \$6.5 billion; however, this relates to social infrastructure only (education, health etc.) and therefore does *not capture* all public sector expenditure.

Value erosion can also result from missed opportunities within the overall project delivery model, i.e. increased collaboration was recently cited as being able to “help reduce initial construction costs by up to 30%, as well as delivering projects with greater operational efficiency and lower whole-of-life costs”.⁶⁹ This correlates with the survey feedback where it was acknowledged that “complex projects may require input from contractors and suppliers as the systems and processes involved in the construction or fabrication of components may be non-standard” and with the 64% of respondents who believe that changes are required to how main contractors are engaged. However, the ability to select the appropriate delivery model hinges on the capabilities of the individuals involved in the process.

The fact that “organisations that invest in proven project management practices waste 28 times less money because more of their strategic initiatives are completed successfully”⁷⁰ redirects the conversation back to the prime importance of benefits realisation where recent changes to project management philosophy pose the question “Why not expect project managers to deliver business value as a direct result of the project?”⁷¹; this *value* being the outcomes sought and which are facilitated by the actual *design* of the building, as opposed to being a function of the efficiency of its delivery as measured by time and cost. The findings from Western Australia recommend also that “more discipline” is required around “reporting of benefits realisation for major projects”, thus acknowledging same.

The Wider Fall-out of Value Unrecognised...

This dialogue returns us to the work of the RIBA in relation to assisting clients with articulating outcomes sought, arguably the ‘success metrics’ of Treasury’s drive to deliver value. The absence of these outcomes therefore represents opportunity cost to New Zealand society and may include the following:

Opportunity cost with regards to positive economic impacts

Research confirms that better building design improves the health and well-being of the building’s occupants; “better ventilation, lighting and heat control improves workers’ performance and could boost their productivity by thousands of dollars a year” while “subjective aspects, such as beautiful design, may make workers happier and more productive”, noting that for non-residential buildings “90% of the costs associated with a building are people’s salaries”.⁷² Further benefits include the potential saving of \$6 billion per year i.e. the current burden on the health services due to respiratory health issues;⁷³ an issue that unheated and badly ventilated buildings contribute to.

Opportunity cost with regards to positive environmental impacts

Approximately “17% of New Zealand carbon emissions are from the construction and operation of buildings”⁷⁴ and the impact of climate change on New Zealand “comes with an average annual cost of approximately \$51 million”⁷⁵. To disregard our impact on the environment impacts the bottom line. However,

this is countered by aspirations such as buildings that “produce as much energy as they consume”⁷⁶ while research concludes that passive design can actually *reduce* capital costs⁷⁷.

Opportunity cost in relation to influencing societal behaviours, such as reducing crime

In 2002 the *Yale Law Journal* published an article establishing linkages in the following areas: “architecture can make law enforcement more likely to succeed in its task of catching criminals”, “architecture can shape preferences away from crime” and “design can make crime more expensive, thereby creating cost deterrence”, concluding with the powerful drawcard: “as the costs of design solutions drop... those of policing rise”.⁷⁸

Opportunity cost in relation to the continuous improvement of all of the above

Should the public sector not actively support architectural services offerings that enable future data collection, albeit through mechanisms such as post-occupancy surveys or building performance monitoring, then the ability to continually improve on outcomes sought is lost. Note that tools to enable this already exist, such as the Construction Operations Building Information Exchange (COBie) tool that not only publishes BIM data in non-proprietary spread sheet formats but also relies on plain language questions to guide clients through the entire life cycle of the building from inception to disposal.⁷⁹

Opportunity cost in relation to the economic success of all other industries

Construction is a “horizontal industry... serving all industry verticals”.⁸⁰ Therefore, any adverse impact on the provision of construction industry services has the ability to negatively impact on the economy as a whole as “value creation almost always occurs within or by means of buildings”.⁸¹

Introducing the ‘Intelligent Client’

The World Economic Forum essentially describes the ‘intelligent client’ as a client that truly understands the market, their impact on it, and the huge amount of value that can be unlocked through adept project management, informed risk share and exemplary design.⁸² Most significantly it is the ‘intelligent client’ that enables an informed move away from lowest-cost tendering. This would arguably be the public sector’s greatest win as lowest-cost tendering comes with an increased risk of corruption because “lowest-price bidding encourages... work at unrealistically low levels. It then becomes difficult... to maintain standards and make profits, the quality of... work falls and they become more likely to make unjustified claims... and indulge in corrupt behaviour to reduce their losses”.⁸³ Furthermore, “It does not deliver cost savings but in fact is more likely to result in cost and time overruns, leading ultimately to poor value for money and greater whole-life costs in the maintenance and operation of assets”.⁸⁴ While these examples may relate specifically to main contractors the sentiment remains.

The ‘intelligent client’ enables true value-add by shifting their focus to a more informed understanding of quality outputs and benefits realisation. This is best encapsulated by the USA’s Brooks Act whereby architect selections are made entirely on non-price attributes, with “price only considered at the very end of the competitive process” and only applied to the final shortlist,⁸⁵ a process also supported by the RIBA in the UK.⁸⁶ Such an approach could render obsolete the need to split the concept/preliminary design phases from developed/detailed design as well, and in doing so remove this procurement ‘double-up’ waste entirely. As the ‘intelligent client’ grows ever more sophisticated in their architectural understanding, there can be an increased utilisation of design competitions – thus unlocking the full range of design talent in a market dominated by practices of five persons⁸⁷ or fewer while addressing some of the panel criticisms too.

To summarise, procurement cannot function at an optimum level unless there is an ‘intelligent client’ to ensure efficient and effective management of the overall process, engage properly in co-creation and to make sure that the intended benefits of the final architecture are clearly articulated and communicated; noting that these ‘intelligent clients’ need to be “fully trained and qualified procurement professionals”.⁸⁸

Why Expand the Contracts Toolkit?

So, while the ‘intelligent client’ enables both waste reduction and enhanced value add, it is questionable whether the architecture profession has the tools it needs to fully unlock this potential due to the limitation of the standard services agreements currently in use: the “NZIA Agreement for Architect Services” and the “Conditions of Contract for Consultancy Services”. Although both outline role expectations and standard contract conditions, they are arguably ‘silo-ed’ documents (see Appendix A4.9). Therefore, while the mandatory use of the Construction Industry Council (CIC) guidelines would assist with fully delineating and *integrating* team roles and responsibilities, the core challenge is that these current agreements do not fully articulate the required *behaviours* needed to support open and honest communication. This shortfall is best demonstrated by commentary on contractual weaknesses around supporting BIM protocols whereby “the right contract terms (which clarify and protect parties’ BIM positions) can be instrumental in effecting... change by promoting the right behaviours – for example through obliged compliance with collaborative processes and open information sharing”.⁸⁹

To this end, there do exist contract frameworks that attempt to address behaviours and include the UK’s New Engineering Contracts (NEC)⁹⁰ and the Lean Construction Institute’s ‘Integrated Project Delivery’ (IPD)⁹¹ model. Note, however, that MBIE proposed IPD to be the “Future Model” of project delivery as early as 2013 when they highlighted that risk should be “collectively managed, appropriately shared”.⁹² Closer to home, there is the Collaborative Working Arrangement (CWA) model that was utilised by the Department of Corrections in the 2000s. While reviewed in relation to budget blow-outs, the SSC still concluded: “There is a necessity for innovation and step-change developments in design, technology and construction methodology. CWAs create a better framework than traditional forms of contracting for such developments to take place”.⁹³ In short, “A team which is aligned with the client’s values and can deliver project objectives is central to success.”⁹⁴

Is our Modus Operandi ‘Broken’?

In revisiting the identified system weaknesses of culture and capability it is important to identify any potential underlying causes for these. Therefore, a ‘5 whys’ analysis has been undertaken.

Figure 5: 5 Whys Analysis

Why	Culture	Capabilities
1	What causes weaknesses in culture?	Why weaknesses in capability?
	A lack of informed construction related procurement leadership.	There is insufficient training available.
2	Why the lack of informed leadership?	But MBIE provide training/support, so why else?
	A lack of availability of these individuals.	A lack of individuals with necessary experience.
3	Why a lack of availability?	Why a lack of necessary experience?
	There are 2,600+ entities that may procure.	There are 2,600+ entities that may procure.
4	Why so many entities procuring?	Why so many entities procuring?
	Capital asset procurement is entity specific.	Capital asset procurement is entity specific.

The above is subject to obvious limitations. Given the constrained scope of this research it cannot and *does not* seek to differentiate between individual public sector entities, each of which are subject to their own drivers and constraints and are characterised by their own procurement strengths and weaknesses.

Furthermore, the above analysis is based on the premise that those responsible for these appointments, whether that be chief executives or otherwise, are *aware and respectful of the competencies required and actively seeking to recruit and/or develop talent to this end*. In this regard it is important to reiterate that construction-related procurement is distinct from the procurement of most other goods and services in that, as an exercise in co-creation (predominantly bespoke), it requires a more sophisticated skill set than may otherwise be warranted. In this respect the analysis is a hypothesis based on what we can reasonably assert in view of the previous high-level descriptive analysis of the public sector.

What it does highlight, however, is the reality that it is not one ‘intelligent client’ that is required for an optimally functioning public sector in the construction procurement space but, in line with the SSC’s tally of public sector entities,⁹⁵ we could potentially require up to 2,600 ‘intelligent *clients*’.

In a country of under five million people is this a realistic expectation or are vital skill sets and existing competencies *simply being spread too thinly?*

In short, culture and capability deficits are compounded by decentralisation where multiple entities are competing for talent in a construction climate where MBIE quotes that “a 10% increase in workers in high-value roles between 2015 and 2021 will be needed... such as project managers”. It is worth noting, however, that the public sector competes with the private sector for talent in a country where *66% of projects currently fail* to meet their original goals or business objectives and/or come in on time or on budget⁹⁶ and where these skills are in short supply.

Decentralisation also leads to fragmentation, a concern flagged as far back as the UK’s 1994 Latham Report, which noted “Previously, Government acted as a monolithic client. That is not so now. Many in the industry are concerned that developments in the public sector have fragmented the client base”.⁹⁷ The implication of this is that the New Zealand public sector is in reality as “fragmented and complex” as the private sector, which “may contribute to low productivity, and adds a level of challenge to communicating and influencing change consistently across the sector”.⁹⁸ This results in a strong argument for some degree of procurement centralisation to better facilitate improved knowledge sharing, consistency of service and the efficient utilisation of the skills required to enable the ‘intelligent client’.

Centralisation adds strategic value as well. It enables improved pipeline planning, an issue expressly acknowledged in the Western Australia review which concluded “the absence of a whole-of-State plan... expanded expenditure pressures”⁹⁹ while it also creates synergies between departments to be capitalised upon. Such synergies have been recognised as value-add by the 86% of survey respondents who believe that procurement should be an “integrated process that considers infrastructure, the environment, climate change and all financial/non-financial benefits”. A value-add opportunity in this context is the National Infrastructure Unit’s finding that flooding is our “most frequent natural disaster... with an average annual cost of approximately \$51 million”.¹⁰⁰ Communication that can transcend departmental silos therefore offers the potential to address such financial burdens holistically.

Finally, the concept of centralisation also correlates with a number of existing advocacy streams already under way in the New Zealand market and internationally. These include the Project Management Institute’s advocacy for an Enterprise-wide Project Management Office to ensure “strategic alignment”¹⁰¹ of individual projects and is an outcome sought by Infrastructure New Zealand¹⁰² too, through their research into a ‘procurement centre of excellence’.¹⁰³ This is an endeavour supported by the Construction Strategy Group¹⁰⁴ as well.

Recommendations

In order to secure a true sea change in the industry a measured approach is required to ensure that change is both sustainable and 'in the right direction'. Summarised by the acronym '**SEA**', the recommendations of '**Stabilise, Explore, Advance**' outline a set of steps required to make sure that change is managed pragmatically, while recognising that any 'structural changes' will not be immediate. This approach also acknowledges the multidimensional systemic nature of the challenge and is designed to leverage off the NZIA's internal strengths as well as the external opportunities available.

Actions to Stabilise

1. Support status quo 'best practice' but recognise the limitations of doing so.

Increased public sector usage of the current industry-standard consultant services agreements will better manage the architecture profession's risk. Yet, as discussed above, they do not serve to move the industry forward to better embrace collaboration (and thus productivity gains or increased innovation) because these agreements lack the means to better "align incentives and improve risk sharing"¹⁰⁵ or to drive the behavioural change required for *meaningful* collaboration. However, in the absence of mainstream alternatives, it is important for the NZIA to continue to advocate for the use of these agreements to minimise unnecessary expense as well as to protect the architecture profession by supporting agreements that both the public sector and private sector have overtly agreed as 'fair'.

Similarly, the NZIA should advocate for the utilisation of the CIC guidelines as mandatory on all public sector contracts in order to ensure a more robust delineation of roles and responsibilities than the research suggests is currently occurring.

2. Approach MBIE's construction-related guides with caution.

The intent of the original 'Rules of Sourcing' was "to secure economies and efficiencies and develop procurement expertise and capacity".¹⁰⁶ However, pushing for increased engagement with these guides may not yield significant improvements as the public sector has demonstrated it lacks both the cultures and/or core capabilities in sufficient volume to utilise them effectively. Increased engagement could even worsen the situation if entities that lack a core understanding of the construction industry attempt more sophisticated forms of project delivery. In short, procurement is not a 'paint by numbers' exercise.

3. Provide a substitute for MBIE's guide to supplier feedback and complaints.

What is important is to increase feedback to the public sector in order to both enable continuous improvement and to hold public sector entities more fully accountable. As highlighted by the online survey, the current avenues of feedback are not functioning due to the culture of fear that has been created – yet, a weakness in accountability is a fundamental structural weakness of the current system.

It is recommended that the NZIA acts as a stopgap in this instance and becomes the mechanism for which breakdowns in the 'Government Rules of Sourcing' can be anonymously reported without fear of repercussion. It is suggested that a simple anonymous upload portal be created on the NZIA's website that includes an overview of what the architecture profession should be reasonably entitled to expect when aligned with the 'The Five Principles of Government Procurement'. Easy access to all relevant guides via the provision of links is also recommended (see Appendix A2.4 and the bibliography).

4. Publicly support and endorse related work streams.

This includes supporting and endorsing the following work streams:

- The work of PMINZ and its members around promoting best-practice project management as well as the professionalisation of project management via legislative changes
- Audit New Zealand's 2018/19 Performance Review on public sector procurement
- Infrastructure New Zealand's research concerning a 'procurement centre of excellence'

- The work of the Construction Strategy Group in relation to advocating for the recommendations proposed under their report “Valuing the role of construction in the New Zealand economy”, noting that one of these recommendations is a review of the joint and several liability law

5. Consolidate engagement of related industry organisations.

Build on the foundations of this research to establish a type of ‘coalition of the willing’ in order to further enrich and substantiate the above findings. This provides enhanced credibility when addressing the public sector. Decide who will best lead this work, the NZIA or the CIC and include parties as referenced under the Industry Membership Organisations Ecosystem (see Appendix A2.3) thus aligning with the NZIA’s objective to engage with organisations “having objects similar to those of the institute.”

Actions to Explore

6. Better articulate the architecture profession’s value proposition

Assist the architecture profession in agreeing and articulating how it is positioned in relation to the wider project team and how services engagement should vary depending on job size, type and complexity. This can be achieved via dialogue with the NZIA’s members with the inclusion of representatives from related fields as applicable i.e. ACENZ and PMINZ. Key conversations should cover the role of the ‘Concept Architect’, the optimum relationship to a ‘professional project manager’, risks around differing contractual relationships within the wider design team and an understanding of how additional value can be provided to the public sector through better communication of the architect’s skill set.

As an example, it has been proposed through the survey responses that for most Ministry of Education projects the architect is best placed to undertake all project management, thus removing this as a separate service. Given that this Ministry is both the second-largest procurer of the 2017–2020 budget¹⁰⁷ and the one with the most criticism levelled against it within the online survey, the opportunity to reduce its wastage is potentially significant.

7. Collaborate to agree what ‘next practice’ looks like and prepare a knowledge base for change.

A number of ‘next practice’ procurement and contracting models exist. It is therefore recommended to leverage the wider industry engagement achieved above to fully enable an industry-wide appraisal of all options in relation to current private sector capabilities. In short, if there is an expectation that the public sector undertakes a robust self-appraisal, the private sector must do same to ensure it has a sufficient understanding of its own existing skills and knowledge in order to inform feasible strategies for moving forward.

Ideally the proposition of any new project delivery approaches should seek to leverage off existing strengths within the market and build off existing knowledge bases, i.e. could CWAs be introduced back into the market with measures in place to address prior weaknesses? Similarly, NEC contracts have been successfully utilised at Christchurch Airport¹⁰⁸ therefore, what were the key success factors associated with these projects that could be successfully transposed elsewhere? Public Private Partnerships and Design & Builds could likewise be appraised to capture any learning to inform architectural services, both design and delivery, as well as to inform improved contractual frameworks. This is an opportunity for the private sector to corroborate on delivery model/contract preferences prior to these new models being introduced or perpetuated irrespective of levels of market maturity. This also enables self-appraisal, which serves to inform risk management.¹⁰⁹

8. Establish and propose evidence-based solutions for ‘what good looks like’.

Discuss and agree with industry the feasibility (i.e. costs and benefits) of all potential options, noting that additional New Zealand-centric data from related professions would further substantiate propositions to government. The public sector should be involved in further discussions, including prioritisation of and associated timelines for implementation. Options to achieve ‘good’ identified within this research include the following:

Policy/Legislative Changes

- Introduction of a Brooks Act equivalent
- Introduction of a government mandate to increase the use of NZIA-led design competitions
- Introduction of a government mandate for the adoption of Integrated Project Delivery as ‘the norm’ on projects of ‘to be agreed’ criteria

Structural Changes

- ‘Centralisation’ with the form ‘to be determined’, e.g. a ‘procurement centre of excellence’. Note that any form should seek to emulate the ‘Intelligent Client’ concept and hence requires registered architects (akin to Australia’s ‘Government Architect’ concept)¹¹⁰, engineers and construction lawyers with links to industry as required, thus ensuring both procurement capabilities and consistency of approach. These internal capabilities are key to enable appropriate scoping, true Qualification-Based Selection, the facilitation of design competitions, and appropriate feedback to market.
- Utilise this centralised entity to take the risk on strategically led ‘innovation’ e.g. KiwiBuild.
- Capitalise upon the resulting simplified structure to improve governance and accountability.

Supporting the Up-skilling of Market

- Amendment of the Tertiary Education Strategy (TES) to ensure that architecture schools in New Zealand are appropriately preparing graduates for professional practice, e.g. through the development of postgraduate professional practice programmes to equip graduates for the demands of the construction industry.

This is the most complex step of the change roadmap as confirming the ultimate feasibility of any solution requires a more sophisticated understanding of individualised public sector entity contexts than this report has been scoped to ascertain, thus the need to support further research on the concept of centralisation in particular. However, the success or base feasibility of the policy/legislative changes requires the structural challenges of the public sector to be addressed first.

In contrast, the up-skilling of the market simply requires a better understanding of exactly what skills are needed for the architect of today, and perhaps more importantly, tomorrow. Recommendation 7, therefore, feeds directly into this one.

Actions to Advance

9. Engage at Cabinet level – petition/demand change...

Cabinet has been selected as the target audience. This is due to a number of factors (see Appendix A5.2) including the systemic nature of the challenge, the potential need to enact legislative and/or policy changes and the attractiveness of engaging in dialogue. It also recognises the need to drive any *cultural changes* from above. To this end, further evidencing the above enables five compelling high-level value propositions to be adopted:

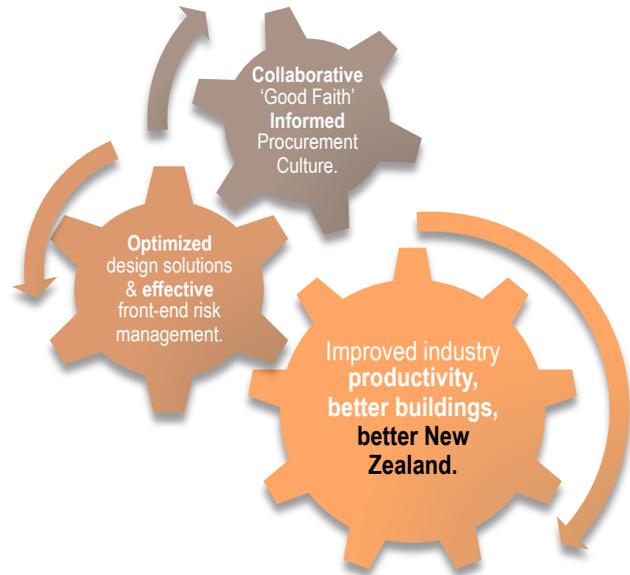
1. Immediate **Political** (PR) value
2. **Financial** value (tangibles)
3. **Economic, Social and Environmental** value (externalities/intangibles)
4. **Investment in NZ Inc.** (industry capacity and capability)
5. **International ‘Next Practice’** – Government as ‘Model Client’...

While these benefits are self-explanatory, the proposition of New Zealand pioneering International 'Next Practice' is both a key one and wholly obtainable. New Zealand's small size, although often considered a barrier, is also hugely advantageous because it equates to 'agility'. Constructing Excellence NZ proffered this in 2010, too; "The size of New Zealand means that it is possible to pick up on the extensive learning available and fast-track a world-leading reform programme for New Zealand."¹¹¹

If in doubt as to the expected role of the government, the World Economic Forum offers the following advice: "As the Engineering and Construction industry's most important client, governments need to actively manage and coordinate public-sector demand, and thereby drive industry change. It is also their duty to prevent corruption in the system, in order to promote efficiency in procurement and provide equal opportunities for bidders. The more progressive governments have started to reform procurement and are adjusting bidding requirements and processes to stimulate innovation and whole-life-cycle optimization".¹¹². Therefore, the question really is quite simple: "**Does the New Zealand Government want to be a progressive or a laggard?**"

The key message to Cabinet is essentially that:

1. Addressing the fundamentals of culture and capability enable far-reaching successful outcomes.
2. Let industry and the NZIA **help** you identify the **specific** roadblocks.
3. Recognise that change can be a slow and difficult process but is possible.



A communications strategy is included in Appendix A5.3 and identifies the key parties that have either a directly related portfolio or are well placed to understand the context, challenges or value propositions.

10. Leverage the media.

The media can be a powerful ally, and it should be utilised, remembering that almost 80% of the survey respondents believe this issue to be one of public interest. If Cabinet support is waning or progress is stalling, the industry should not be afraid to pull on the levers of democracy.

Finally, a strategic implementation plan and associated risk matrix have been included under Appendices A5.1 and A5.4. It is recommended that the NZIA treats these as live documents and adjusts timeframes to suit available resources and as new information emerges. The plan is mapped in conjunction with "Kotter's Eight Steps to Change", acknowledging change as a process to be actively managed, noting that Step One is essentially complete, according to the media's ongoing reportage.

Conclusion

The original intent of this piece of work was to add value to the NZIA membership base through a critical analysis of how the public sector procures architectural services and, more importantly, to find a way *or ways* to 'make it better'. In this respect the objectives have been met. The evidence to substantiate the need for change is credible, the value case proven, and the recommendations have been aligned with a number of respected and current industry reports, both local and international in nature.

Yet there are troubling aspects to this report. While clarity has undoubtedly been increased around the coalface issues i.e. the perceived 'threats on good', if one were to pay special attention to the referencing it is worth noting that many of the key reports that correlate with these findings, as well as inform the recommendations, have been generated by the New Zealand Government. This only adds credence to the need to improve communication and knowledge sharing across the public sector and approach social, environmental and economic challenges holistically and via one coherent strategy.

To quote what is fast becoming a cliché: "If you keep on doing what you've always done, you will keep on getting what you've always got." There needs to be a radical rethink of how the New Zealand public sector undertakes the procurement of architectural services and the driver for this rethink should not be motivated primarily by the construction industry's productivity challenges but by the need to create environments that are conducive to the long-term economic, social and environmental sustainability of New Zealand as a nation. To quote Jeffrey D Sachs, we need "resilient cities"¹¹³ and the social infrastructure that the public sector procures is a large part of the roadmap that creates these. But let's not stop there: we need to create a resilient country.

Very little in this report is truly ground-breaking. And perhaps what is the most ground-breaking finding of all is that *so much* of the information required to substantiate the need for change has been at the public sector's fingertips all along. The question now is: who will take the first step towards actively addressing the deficiencies in the system? Or will this report become yet another report that serves only to reference future reports?

The issues raised are fundamentally political in nature and primarily relate to perceived deficiencies concerning the core values that permeate the public sector procurement teams and which guide their decision-making processes and the perceived lack of sufficient transparency or governance over these processes. These issues are overshadowed by the harsh reality that New Zealand is facing a skills shortage in the professions best placed to increase capability in these areas. We must also acknowledge that a positive collaborative culture is the key to maximising design-related value-add. To quote Peter Drucker: "Culture eats strategy for breakfast".¹¹⁴

Procuring a building is a simple exercise. However, procuring a piece of architecture that can add value to New Zealanders on a multitude of levels is not. Leading and managing this process is sophisticated knowledge work of the highest order.

Yet, the private sector needs to change also. It can no longer be 'business as usual'. A fundamental understanding of the architecture profession's key success factors needs to be robustly agreed, passionately over-communicated and then relentlessly defended. How the profession that was once the 'master craftsman' will slot into the integrated project delivery teams of the future needs to be proactively given the consideration it is due in order to ensure that 'collaboration' does not lead to 'dilution'. Architecture schools will need to be part of the solution and have a crucial enabling role to play.

To these ends, the NZIA is presented with a fabulous opportunity. The change in government has opened the door to dialogue and there exists key strategic alignments with a number of well-informed and influential organisations. Combining forces is more important than ever, both to achieve the assurance of change and to refine the pragmatics of implementation. However, with over \$100 billion of public sector procurement programmed until 2030,¹¹⁵ it is worth acting purposefully.

There is still much to be gained.

Appendices

Appendix 1 – Research Methodologies

Includes:

- A1.1 Project Mind Map
- A1.2 Detailed Research Methodology Matrix
- A1.3 PCE Fact Sheet (Exploratory Interview Questions Framework)
- A1.4 Transcripts Sign-off Process

Appendix 2 – NZIA Situational Analysis

Includes:

- A2.1 Porters Diamond of International Competitiveness
- A2.2 Porters 5 Forces of Industry
- A2.3 New Zealand's Industry Membership Organisations Ecosystem
- A2.4 Helicopter View of Public Sector Procurement
- A2.5 Public Sector Categorisation

Appendix 3 – NZIA Internal Analysis

Includes:

- A3.1 NZIA Resource Strengths/Importance Matrix
- A3.2 NZIA Dynamic Capabilities
- A3.3 NZIA SWOT Analysis

Appendix 4 – Data Analysis

Includes:

- A4.1 Impacts Matrix
- A4.2 Online Survey Questions & Result
- A4.3 Lean Six Sigma Waste
- A4.4 Cost of Changes in the Construction Life Cycle
- A4.5 Value Erosion Matrix
- A4.6 Future Expenditure 2017 – 2020
- A4.7 Anticipated Waste 2017 – 2020
- A4.8 Projected Expenditure until 2022 via Geographical Area
- A4.9 Review of Standard Services Agreements

Appendix 5 – Strategic Implementation Plan

Includes:

- A5.1 Strategic Implementation Plan Timeline
- A5.2 Selection of Target Audience
- A5.3 Communications Strategy
- A5.4 Risk Heat Map & Risk Matrix
- A5.5 NZIA Issues List

A4.2 Online Survey Questions & Result

The statistics from this online survey have been incorporated into the body of this report. However, procurement value roadblocks are further articulated in detail by the specific comments made in the 'open question' feedback sections. It is highly recommended that the NZIA refers to these during discussions with Cabinet in order to further demonstrate points made. This is to be on the basis that specific feedback is extremely detailed, passionate and infused with detailed examples of roadblocks as well as ideas for improvements.

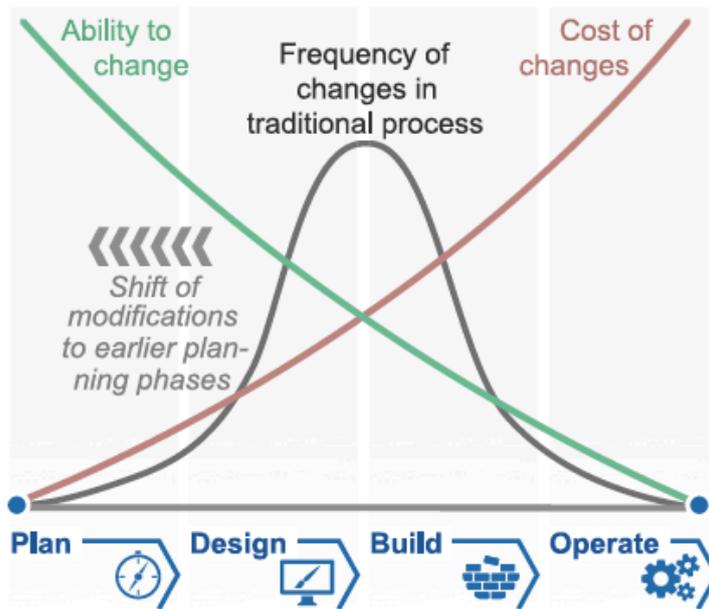
A4.3 Lean Six Sigma Waste

"If it doesn't add value... it's waste." *Henry Ford*



Source: Go Lean Six Sigma <https://goleansixsigma.com/8-wastes/>

A4.4 Cost of Changes in the Construction Life Cycle



Source: World Economic Forum: *Shaping the Future of Construction. A Breakthrough in Mindset and Technology*

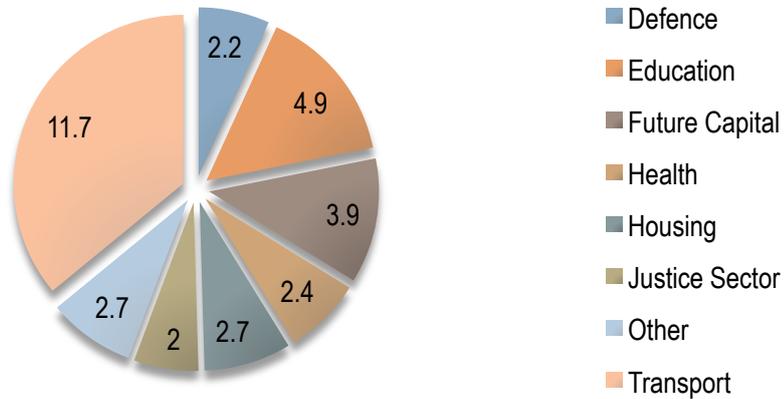
A4.5 Value Erosion Matrix

Procurement Value Roadblocks	Value Erosion (incl. Six Sigma Waste Categories)
<p>Scoping</p> <ol style="list-style-type: none"> 1. Insufficient design briefs. 2. Insufficient focus on life-cycle costs. 3. Insufficient information on construction budgets. 4. Insufficient focus and design programme/timeline information. 5. Changing client requirements during tender. 6. Ambiguity re. Consultants' scopes and delineations of. 7. Lack of clarity around BIM requirements. 8. Information requested disproportionate to size/complexity of project. 	<p>Defects; includes:</p> <ul style="list-style-type: none"> • Design does not meet desired client requirements, programme or construction budget due to lack of clarity of these requirements • Design 'missing' due to scope gaps in design team responsibilities • Building has a low capital cost, high operating costs and a higher-than-necessary impact on the environment <p>Waiting; includes:</p> <ul style="list-style-type: none"> • Programme ambiguity = employees can't be effectively utilised • Procurement process takes longer than required = time wasted <p>Overproduction; includes:</p> <ul style="list-style-type: none"> • Information requested that is not required = increased overheads to practice but with no associated value-add • Potential double-ups of consultant scopes • Abortive work when requirements change <p>Non-Utilised Talent; includes:</p> <ul style="list-style-type: none"> • Industry skill sets underutilised through poor communication of drivers and constraints
<p>Process</p> <ol style="list-style-type: none"> 9. Inadequate project risk appraisals. 10. Concerns with 'two-stage design' tender process. 11. Professional service panels may not be functioning as intended. 12. Handling of novation is often problematic. 13. Lack of feedback on submissions. 	<p>Defects; includes:</p> <ul style="list-style-type: none"> • Inadequate risk appraisals lead to unexpected issues arising that negatively impact design or add cost • Continuity of design process disrupted, potentially eroding design outcomes <p>Non-Utilised Talent; includes:</p> <ul style="list-style-type: none"> • Panel criteria believed to disadvantage smaller firms. • Market avoids engaging with public sector • Opportunity missed for continuous improvement within private sector
<p>Contracts</p> <ol style="list-style-type: none"> 14. Concerns with bespoke contracts. 15. Uninsurable/Impractical clauses in contracts. 16. Belief current contracts approach is: <ol style="list-style-type: none"> a. Eroding trust. b. Blocking collaboration. c. Reducing productivity. 	<p>Overproduction; includes:</p> <ul style="list-style-type: none"> • Public sector is potentially expending more than necessary on legal fees <p>Extra-Processing; includes:</p> <ul style="list-style-type: none"> • Additional due diligence burden placed on private sector <p>Non-Utilised Talent, i.e.:</p> <ul style="list-style-type: none"> • Opportunity missed for innovation and productivity gain as optimum knowledge sharing could be road blocked by delivery model selection • Market avoids engaging with public sector

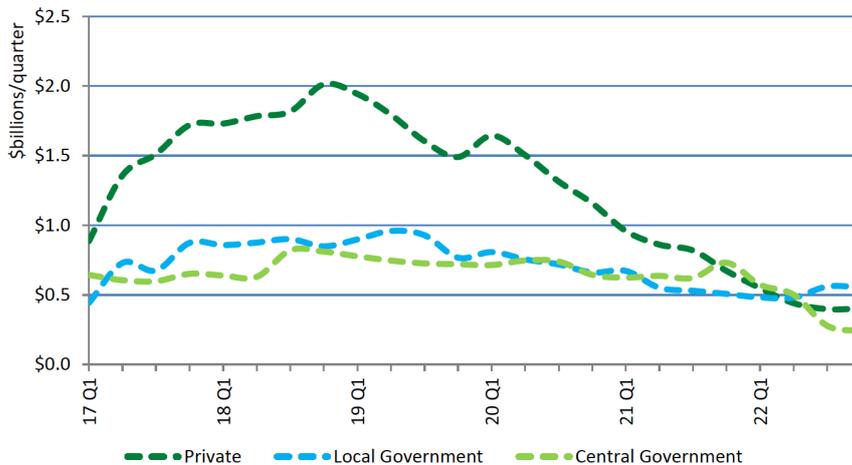
Procurement Value Roadblocks	Value Erosion (incl. Six Sigma Waste Categories)
<p>Culture</p> <p>17. Concerns public sector is unwilling to negotiate.</p> <p>18. Concerns public sector lacks integrity/engages in nepotism.</p> <p>19. Concerns over insufficient internal communication and governance structures.</p> <p>20. Lack of effective feedback/complaints procedures.</p>	<p>Defects; includes:</p> <ul style="list-style-type: none"> • Compromised outcomes/abortive work resulting from ineffective risk management (i.e. if risk is not placed with the party best placed to manage it) • Compromised outcomes through ill-informed decision-making process at strategic level • Final design of building negatively impacts environment more than necessary <p>Non-Utilised Talent; includes:</p> <ul style="list-style-type: none"> • Opportunity missed for continuous improvement within public sector
<p>Skills, Knowledge & Training</p> <p>21. Perceived knowledge deficit within public sector.</p> <p>22. Sub-optimal procurement evaluation process.</p> <p>23. Ineffective Value Engineering processes.</p> <p>24. Unrealistic/impractically low design fee expectations.</p> <p>25. Lack of profits roadblock a reinvestment in skills and training.</p>	<p>Defects; includes:</p> <ul style="list-style-type: none"> • Ill-informed decision-making and substandard project management compromise both final design outcomes and project delivery • Fees insufficient to cover actual work; quality of work suffers <p>Non-Utilised Talent; includes:</p> <ul style="list-style-type: none"> • Opportunity for engaging best design talent missed through inappropriate selection process • Private sector avoids engaging with public sector <p>Overproduction; includes:</p> <ul style="list-style-type: none"> • Low fees = low-quality design information = high construction cost due to risk money added

A4.6 Future Expenditure 2017 – 2020

**Budgeted Capital Spending in \$B
(2017 - 2020)**
Total = \$32.5 billion



Source: Budget 2017 Capital at a Glance



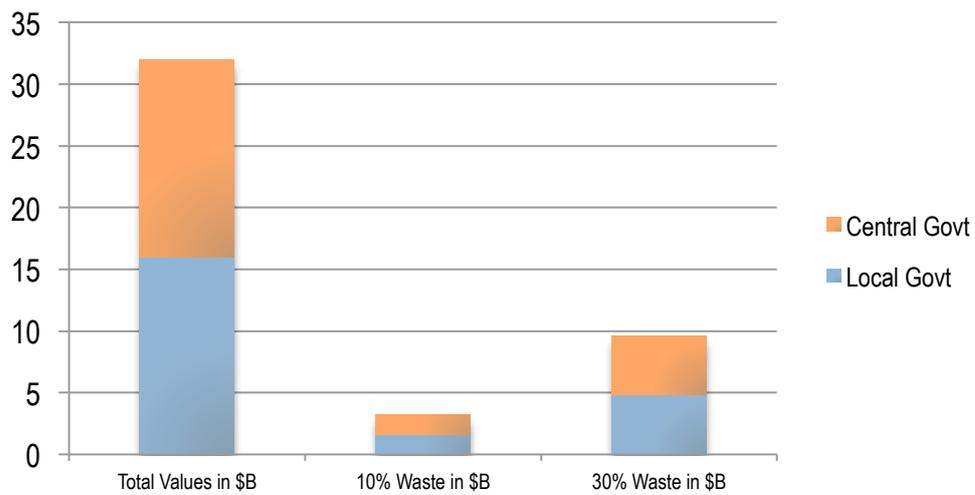
Source: Pacifecon

Source: national-construction-pipeline-report-2017

Key Takeaways:

- Total budget spend on New Zealand infrastructure (in line with the categories here) 2017 – 2020 = **\$32.5 billion.**
- It is difficult to break down costs further due to limitations of available data. The values noted here include land acquisition plus all ancillaries involved in the asset creation.
- These are the dominant year-on-year categories as shown on the 'Budget at a Glance' statements from previous years.
- The split between central and local government is approximately 50/50.
- Why does this matter? Because it indicates where efforts are best placed for maximum impact should the conversation with Cabinet need to be prioritised further by sector.

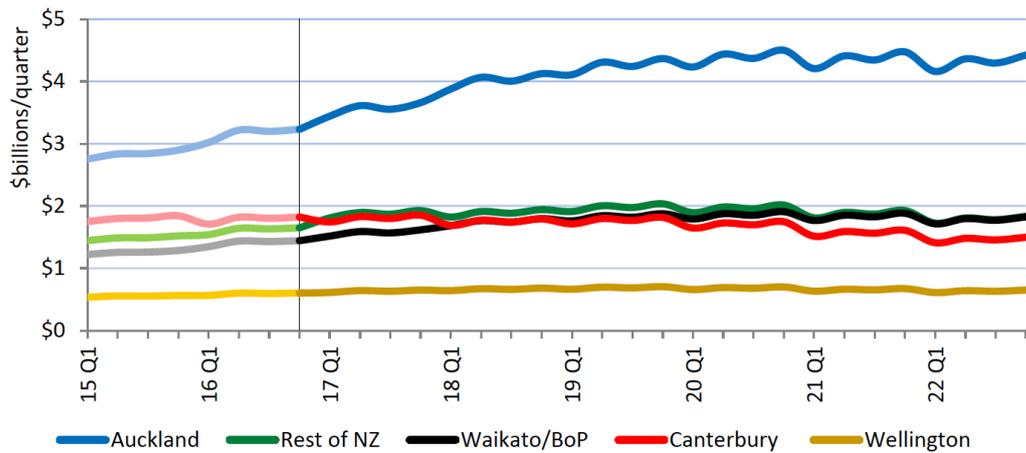
A4.7 Anticipated Waste 2017 – 2020



Key Takeaways:

- Graph demonstrates the scale of the *potential* loss/missed opportunity.

A4.8 Projected Expenditure until 2022 via Geographical Area



Source: BRANZ

Source: Figure 3-14; national-construction-pipeline-report-2017

Key Takeaways:

- “Auckland and the Waikato/Bay of Plenty are forecast to see significant sustained growth to 2020, with 38% and 31% respectively, levelling out at these high levels through to the end of the forecast in 2022.”
- “The Rest of New Zealand and Wellington are expected to grow by 23% and 16% respectively, to a peak in 2019.”
- “Canterbury is expected to remain around current levels to 2019 then slowly reducing to 2022.”
- This graph indicates the geographical areas where the most waste is likely to occur.

Source of statistics: National Construction Pipeline Report 2017

Thanks & Acknowledgements

I would like to extend a personal thank-you to representatives from the following organisations who generously and often very patiently provided their time, knowledge, critical insights and literature recommendations. Without your engagement with this project the recommendations would likely be mono-dimensional and of much less value to the ongoing conversation.

- Construction Strategy Group
- Infrastructure New Zealand
- Project Management Institute of New Zealand
- New Zealand Green Building Council
- Audit New Zealand
- Ministry of Business Innovation and Employment (MBIE)
- And, of course, the NZIA for their solid support throughout and the various registered architectural practices around New Zealand who elected to contribute.

In addition, I wish to thank the various individuals, both architects, engineers and related professionals, who kindly accepted my calls or sought me out, some of whom are independently working to leverage change motivated by little more than their passion to create a better country for all New Zealanders.

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End Notes

- ¹ See <https://www.nzia.co.nz/about-us/who-we-are>
- ² Design thinking is essentially “a formal method for practical, creative resolution of problems or issues, with the intent of an improved future result.”; this as discussed by Forbes. For more information see <https://www.forbes.com/sites/reuvencohen/2014/03/31/design-thinking-a-unified-framework-for-innovation/#554fb1218c11>
- ³ See <https://www.merriam-webster.com/dictionary/architect>
- ⁴ See <https://www.etymonline.com/word/architect>
- ⁵ See PWC (2016). *Valuing the role of construction in the New Zealand Economy*.
- ⁶ See public-sector-agencies-list as per <http://www.ssc.govt.nz/what-is-the-public-sector> and http://www.ssc.govt.nz/state_sector_organisations
- ⁷ See PWC (2016). *Valuing the role of construction in the New Zealand Economy*.
- ⁸ See <https://www.investorsinpeople.com/iip-standard>
- ⁹ See the Saylor Foundation. *The Benefits of Empowering Employees*.
- ¹⁰ New Zealand Treasury (2006). *Review of Central Agencies’ Role in Promoting and Assuring State Sector Performance*.
- ¹¹ See Government of Western Australia (2018). *Special Inquiry into Government Programs and Projects*.
- ¹² See Building Today (2017) article “The value of construction in the New Zealand economy” retrieved from <http://www.buildingtoday.co.nz/LatestNews/Magazine/tabid/8136/ArticleID/12654/Default.aspx>
- ¹³ See the State Services Commissions website as per <http://www.ssc.govt.nz/what-is-the-public-sector>
- ¹⁴ As described by the New Zealand Treasury. *When is BBC Required?* See <http://www.treasury.govt.nz/statesector/investmentmanagement/plan/bbc/whenrequired> and supported by emails from MBIE confirming that “All government agencies, regardless of whether they must apply the Rules, are accountable for how they spend taxpayers' money”.
- ¹⁵ See New Zealand Treasury (2015). *A Guide to the Public Finance Act*.
- ¹⁶ See MBIE (2015). *Government Rules of Sourcing 3rd Edition*.
- ¹⁷ See information on local ministry offices as per <https://www.education.govt.nz/ministry-of-education/regional-ministry-contacts/>
- ¹⁸ See <https://www.procurement.govt.nz/procurement/principles-and-rules/government-rules-of-sourcing/getting-started/opt-out-procurements/>
- ¹⁹ See MBIE (2015). *Government Rules of Sourcing 3rd Edition*.
- ²⁰ See MBIE (2015). *Government Rules of Sourcing 3rd Edition*.
- ²¹ Controller & Auditor-General (2008). *Procurement Guidance for Public Entities*.
- ²² As advised by MBIE by phone.
- ²³ As advised by Audit New Zealand via website and via a phone call to the Wellington Office.
- ²⁴ As advised by MBIE by phone.
- ²⁵ See <https://www.procurement.govt.nz/procurement/improving-your-procurement/training-and-education/>
- ²⁶ Taken from the Australia and New Zealand Standard Industrial Classification 2006.
- ²⁷ See Chancellor W. Abbott M. Carson C. (2015). *Factors Promoting Innovation and Efficiency in the Construction Industry: A Comparative of New Zealand and Australia*. UTS ePRESS.
- ²⁸ See MBIE (2017). *Briefing for the Incoming Minister for Building and Construction*.
- ²⁹ See PWC (2016). *Valuing the role of construction in the New Zealand Economy*.
- ³⁰ See Architecture Now (2012). *Unhealthy Living*.
- ³¹ See PWC (2016). *Valuing the role of construction in the New Zealand Economy*.
- ³² See Rule 8 of MBIE (2015). *Government Rules of Sourcing 3rd Edition*, noting that not all procurement models are considered under this scope of work. For example: Public Private Partnership models have not reviewed. Furthermore, this may not relate to local government.
- ³³ See MBIE (2015). *Government Rules of Sourcing 3rd Edition*.
- ³⁴ Taken from the New Zealand Institute of Architects Annual Report 2016.
- ³⁵ The confidence level relates to how sure one can be that the same respondents if asked again would consistently replicate the answers selected. See also <https://www.surveysystem.com/sscalc.htm#one>
- ³⁶ The confidence interval relates to the expected + or - deviation from the results if the entire population had been surveyed. See also <https://www.surveysystem.com/sscalc.htm#one>
- ³⁷ See Coffey (2015) *Poor project cost estimates are more than embarrassing* retrieved from <http://www.coffey.com/en/ingenuity-coffey/poor-project-cost-estimates-are-more-than-embarrassing>

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- ³⁸ Co-creation is essentially the “the joint creation of value by the company and the customer; allowing the customer to co-construct the service experience to suit their context.” As described by Forbes under their article “Customer Co-creation Is The Secret Sauce To Success” which outlines the value-add of being actively engaged with the process. See https://www.forbes.com/sites/christinecrandell/2016/06/10/customer_cocreation_secret_sauce/#356078015b6d
- ³⁹ In the context of this report, project manager should be considered as a term interchangeable with procurement manager on the premise that the party discussed is the client’s representative during the procurement journey.
- ⁴⁰ See RIBA (2013). *Client Conversations*.
- ⁴¹ See RIBA (2013). *Client Conversations*.
- ⁴² See PMI (2013). *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*. Fifth Edition.
- ⁴³ A professional services panel is a group of architects engaged under a panel contract which is a “contractual arrangement with a group of suppliers to provide goods or services as and when required, under a schedule of rates for each supplier or on a quotation basis”. See also Controller & Auditor-General (2008). *Procurement Guidance for Public Entities*.
- ⁴⁴ See Stewart J. (2015). *Fitness for purpose – what does it mean?*
- ⁴⁵ See MBIE (2016). *A guide to developing your procurement strategy*.
- ⁴⁶ See MBIE (2016). *A guide to developing your procurement strategy*.
- ⁴⁷ See MBIE (2013). *The New Zealand Sectors Report 2013 Featured Sector Construction*. Retrieved February 2018 from <http://www.mbie.govt.nz/info-services/sectors-industries/sectors-reports-series/published-report>
- ⁴⁸ See Government of Canada ‘Build in Canada Innovation Program’ as per <http://www.tpsgc-pwgsc.gc.ca/app-acq/picc-bcip/index-eng.html>
- ⁴⁹ As advised directly by the Project Management Institute of New Zealand’s Commercial Manager via email.
- ⁵⁰ See CIPS & NIGP (2012). *Public Procurement Practice. Qualifications-based selection for Architectural & Engineering Services*.
- ⁵¹ See World Economic Forum (May 2016). *Shaping the Future of Construction. A Breakthrough in Mindset and Technology*.
- ⁵² See Fullbrook D, Jackson Q, Finley G. (2005). *Value Case for Sustainable Building in New Zealand*. Ministry for the Environment.
- ⁵³ See Cunningham P. (2016). *Government as Client: Challenges using Building Information Modeling on NZ Construction Projects*.
- ⁵⁴ See Controller & Auditor-General (2008). *Procurement guidance for public entities*. Retrieved from <https://www.oag.govt.nz/2008/procurement-guide>
- ⁵⁵ See Ministerial Inquiry into the Novopay project (2013). *Report of the Ministerial Inquiry into the Novopay project*.
- ⁵⁶ As communicated via anonymous conversations with members of the New Zealand Engineering Profession.
- ⁵⁷ Information extracted from PMI website as per <https://www.pmi.org/learning/library/accidental-project-manager-necessary-skills-2858>
- ⁵⁸ Architects are evaluated and policed by the ‘New Zealand Registered Architects Board’.
- ⁵⁹ See the Five principles of government procurement as included within MBIE (2015). *Government Rules of Sourcing 3rd Edition*.
- ⁶⁰ Extracted from NZRAB press statement (18 12 2017) Newsletter with regards to contracts.
- ⁶¹ See <http://www.universitiesnz.ac.nz/new-zealands-university-sector/how-nz-universities-are-funded>
- ⁶² See article from ArchitectureAU (2017). *Central Saint Martin’s Jeremy Till on being ‘brutalised’ by architectural education*.
- ⁶³ See PMI (2018). *Pulse of the Profession Success in Disruptive Times*.
- ⁶⁴ See Matthews P (2016). *This is why construction is so corrupt*. World Economic Forum.
- ⁶⁵ See both *New Zealand Treasury Budget 2017 Investment* and MBIE/Branz/Pacifecon (2017) *National Construction Pipeline Report*.
- ⁶⁶ See both online articles by Coffey and State Services Commission report on the CWA prison cost overruns. Coffey (2015) *Poor project cost estimates are more than embarrassing* and State Services Commission (2006) *Report of the State Services Commissioner into the Cost Escalation in the Regional Prisons Development Project – State Services Commission*.
- ⁶⁷ See New Zealand Treasury website <http://www.treasury.govt.nz/budget/forecasts/befu2017/085.htm>

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- ⁶⁸ The NZTA as ‘high performers’ was communicated as such multiple times during the exploratory interviews and further backed up via individualised online survey comments.
- ⁶⁹ See PWC (2016). *Valuing the role of construction in the New Zealand Economy*.
- ⁷⁰ See PMI (2017). *Pulse of the Profession. Success Rates Rise*.
- ⁷¹ See KPMG (2017). *Driving Business Performance*.
- ⁷² See The Guardian (2016). *Green buildings make you work smarter and sleep sounder, study reveals*.
- ⁷³ As reported by Scoop based on research commissioned by the Asthma and Respiratory Foundation NZ titled Impact of Respiratory Disease in New Zealand: 2016 Update. See also <http://www.scoop.co.nz/stories/GE1703/S00077/respiratory-disease-cost-jumps-to-6-billion-per-year.htm>
- ⁷⁴ See NZGBC (2017). *The Value Case for Green Building in New Zealand*.
- ⁷⁵ See National Infrastructure Unit (2015). *The Thirty Year New Zealand Infrastructure Plan 2015*.
- ⁷⁶ See Peters J. (2011) *New Buildings aim to Produce Energy, Not Consume It*. Scientific American.
- ⁷⁷ See NZGBC (2017). *The Value Case for Green Building in New Zealand*.
- ⁷⁸ See Kumar Katyal N. (2002). *Architecture as Crime Control*. The Yale Law Journal.
- ⁷⁹ See Stewart G H. *COBie The Practicalities of Application*.
- ⁸⁰ See World Economic Forum (May 2016). *Shaping the Future of Construction. A Breakthrough in Mindset and Technology*.
- ⁸¹ See World Economic Forum (May 2016). *Shaping the Future of Construction. A Breakthrough in Mindset and Technology*.
- ⁸² See World Economic Forum (May 2016). *Shaping the Future of Construction. A Breakthrough in Mindset and Technology*.
- ⁸³ See World Economic Forum (2016) *This is why construction is so corrupt*.
- ⁸⁴ See Constructing Excellence UK (2010). *The business case for lowest price tendering?*
- ⁸⁵ See CIPS & NIGP (2012). *Public Procurement Practice. Qualifications-based selection for Architectural & Engineering Services*.
- ⁸⁶ See RIBA (2012). *Building Ladders of Opportunity*.
- ⁸⁷ As advised directly by the NZIA.
- ⁸⁸ See CIPS & NIGP (2012). *Public Procurement Practice. Qualifications-based selection for Architectural & Engineering Services*.
- ⁸⁹ See Winfield M (2018). *BIM: The Legal Frontier – The Risks of Ignoring the Contract*.
- ⁹⁰ See <https://www.neccontract.com/About-NEC/Why-NEC>
- ⁹¹ See <http://leanipd.com/integrated-project-delivery/>
- ⁹² See MBIE (2013). *The New Zealand Sectors Report 2013 Featured Sector Construction*.
- ⁹³ See State Services Commission. *Report of the State Services Commissioner into the Cost Escalation in the Regional Prisons Development Project*.
- ⁹⁴ As discussed under RIBA (2013). *Client Conversations*.
- ⁹⁵ See <http://www.ssc.govt.nz/what-is-the-public-sector>
- ⁹⁶ See KPMG (2017) *Driving Business Performance. Project Management Survey 2017*.
- ⁹⁷ See Latham M. (1994) *Constructing the Team*. HMSO.
- ⁹⁸ See MBIE (2017). *Briefing for the Incoming Minister for Building and Construction*.
- ⁹⁹ See Government of Western Australia (2018) *Special Inquiry into Government Programs and Projects*.
- ¹⁰⁰ See National Infrastructure Unit (2015) *The Thirty Year New Zealand Infrastructure Plan 2015*
- ¹⁰¹ See PMI (2018). *Pulse of the Profession. Success in Disruptive Times*.
- ¹⁰² See <https://infrastructure.org.nz/media-releases/5039126>
- ¹⁰³ As advised by email by the Construction Strategy Group.
- ¹⁰⁴ Note that while the National Infrastructure Unit exists “it does not duplicate the role of other infrastructure-related government agencies. It works in co-operation with other government agencies and takes a cross sector, high level view of New Zealand infrastructure.” Therefore, although it may assist with strategic planning, it is removed from issues concerning implementation such as procurement. See also <https://treasury.govt.nz/information-and-services/nz-economy/infrastructure/about-national-infrastructure-unit-niu>
- ¹⁰⁵ See World Economic Forum (2017) *Shaping the Future of Construction. Inspiring innovators redefine the industry*.
- ¹⁰⁶ See Minister of State Services & Minister of Finance (2014). *Directions to support a government approach given by the Minister of State Services and the Minister of Finance under section 107 of the Crown Entities Act 2004*.
- ¹⁰⁷ See New Zealand Treasury (2017). *Budget 2017*.

¹⁰⁸ See <https://www.necontract.com/NEC-in-Action/Case-Studies/Christchurch-Airport>

¹⁰⁹ See also Aven T. (2015). *Risk assessment and risk management: Review of recent advances on their foundation*. European Journal of Operational Excellence.

¹¹⁰ See <http://www.gana.gov.au/>

¹¹¹ See Cunningham P. (2010). *International Building & Constructing Industry Productivity Programmes August 2010*. Constructing Excellence NZ.

¹¹² See World Economic Forum (May 2016). *Shaping the Future of Construction. A Breakthrough in Mindset and Technology*.

¹¹³ See Sachs Jeffrey D. (2015). *The Age of Sustainable Development*. Columbia University Press.

¹¹⁴ Quote attributed to Peter Drucker. See also <https://www.forbes.com/sites/andrewcave/2017/11/09/culture-eats-strategy-for-breakfast-so-whats-for-lunch/#4f260e97e0fc>

¹¹⁵ See Infrastructure New Zealand's "Top Ten Policy Priorities 2018" as per <https://infrastructure.org.nz/>, which notes that there is "\$116 billion on the books to be spent by central and local government on capital projects over the next decade".