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CREATING VALUE THROUGH PROCUREMENT: A REPORT INTO PUBLIC SECTOR PROCUREMENT OF MAJOR INFRASTRUCTURE PROJECTS

A REPORT PREPARED FOR

Infrastructure New Zealand

CONSTRUCTION STRATEGY GROUP
BUILDING INDUSTRY VALUE

CIVIL CONTRACTORS NEW ZEALAND

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BACKGROUND

> **"The trouble with most of us is that we would rather be ruined by praise than saved by criticism."**
>
> Norman Vincent Peale

This report was prepared for Infrastructure New Zealand with the assistance of the Construction Strategy Group and Civil Contractors New Zealand. It follows research undertaken by the contributing parties which has suggested potential weaknesses exist within the public sector in relation to procurement practices and decision-making processes.

The purpose of the report is to provide a detailed understanding of the challenges faced by both the public and private sector in relation to delivering 'value' to the New Zealand public. What this value 'looks like' and how it might be optimized by practical means are also discussed. In this respect it is intended as a constructive and objective view on the challenges faced with the intent of assisting positive change for both sectors. While there may be uncomfortable assertions made it is readily acknowledged that there are many committed individuals within both sectors who are driven by the highest standards of integrity and professionalism and this report is in no way intended to detract from or discredit these efforts.

The report is drawn from qualitative interviews with twenty-five leaders of both the public and private sector. These interviews were based on a loose set of common questions but were fundamentally exploratory in nature. Due to the sometimes generalist nature of these discussions please be aware that the research cannot always relate specific feedback to specific project delivery or funding models. However supplementary references to relevant industry reports have been included to provide additional clarity and objectivity. Key quotes from participants are denoted in bold italic.

Contributing parties are listed below and include leaders from top tier firms relating to the both the design and construction of civil infrastructure and public buildings, senior leaders from central and local government, plus private sector organisations operating in the procurement space. Please be aware that a number of parties declined to be named.

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EXECUTIVE SUMMARY

"Nowadays people know the price of everything and the value of nothing." Oscar Wilde

Why is this important?

The New Zealand public sector is currently spending approximately $10 billion dollars[1] a year on the procurement of New Zealand's physical infrastructure - our roads, rail, schools, libraries, hospitals, and even the pipes that feed the water to our taps.

Yet when the public sector procures these assets, it does so via a complex process of planning, designing and constructing, much of which is outsourced to the private sector. If the public sector identifies the need for the asset as 'the problem' it is the private sector - through its design and physical delivery – that defines 'the solution'. In this respect the public sector is outsourcing a key problem solving function to the private sector.

It's critical that New Zealand gets this right.

Substantial concerns exist that not only are New Zealanders potentially getting short changed with regards to the cost of asset delivery, but that there also exists opportunity cost in relation to the quality of the asset in use, whether that be social, environmental or economic. The World Economic Forum reports wastage of up to 15% on major infrastructure projects. This is not from 'over-paying' the market but from 'under-collaborating' with it. In the context of $10 billion a year this could run to the millions. The World Economic Forum also advises that the cost of asset delivery can equate to as low as 10% of an asset's whole-of-life cost. The real financial impact of getting procurement wrong is therefore far reaching.

Parallel to this concern is the fact that our construction industry is in crisis. Not only is it experiencing the negative financial impacts so readily reported in the media but also people are hurting. Working under extreme mental pressure for extended periods of time is a reality for many employees. In a recent review by the Health Quality & Safety Commission of New Zealand the highest percentage of deaths by suicide was among men working in the construction industry.[2]

The public sector is New Zealand's single largest procurer. It has influence. This research suggests that the decisions made and cultures experienced within some aspects of public sector procurement are a contributing factor to the above. And in an industry that employs almost 10% of New Zealand's population and contributes 8% of our gross domestic product[3] - the private sector's success is the public sector's success.

Nobody wins from poor procurement.

The Key Challenges

Exploratory interviews with 25 leaders of both the public and private sectors have allowed 12 key challenges to be identified.

1. Pipeline uncertainty: There is no long-term plan – which means that neither the private sector nor the public sector have one either. An uncertain future undermines confidence; firms don't invest; skills we need often depart New Zealand.

2. Policy shocks: Sometimes the market takes a punt and plans anyway. If policy takes a U-turn, expertise is left in limbo and investments become sunk costs.

3. Identifying outcomes sought: Before you can design the asset you need to know what you want it to do - not just for you, but also for the system. Issues are evident here. Opportunity cost results.

4. Lack of joined-up thinking: Insufficient agency coordination results in an uncoordinated pipeline of work – this feeds our ubiquitous boom/bust cycle.

5. Confusion around value: 'Cheapest' and 'best value' are sometimes confused. Buying cheap can add to whole-of-life costs and reduce the value created.

6. Confusion around risk: Best practice risk management is not always employed. Delivery models and contract clauses can be ill informed. Financial loss can be incurred by both sectors.

7. Waste in the tender process: This transactional process is often awash with non-value add activities. The associated waste gets built back into industry rates. Delivery costs increase.

8. Quality of tender evaluation: Concerns exist over the fairness and consistency of tender evaluations. Low quality evaluations result in fewer firms bidding and/or sub-optimal asset performance.

9. Individual vs. company: Are individuals trumping institutional knowledge? If so what's the succession plan? Any weaknesses in judgement negatively impact project delivery - now and for the future.

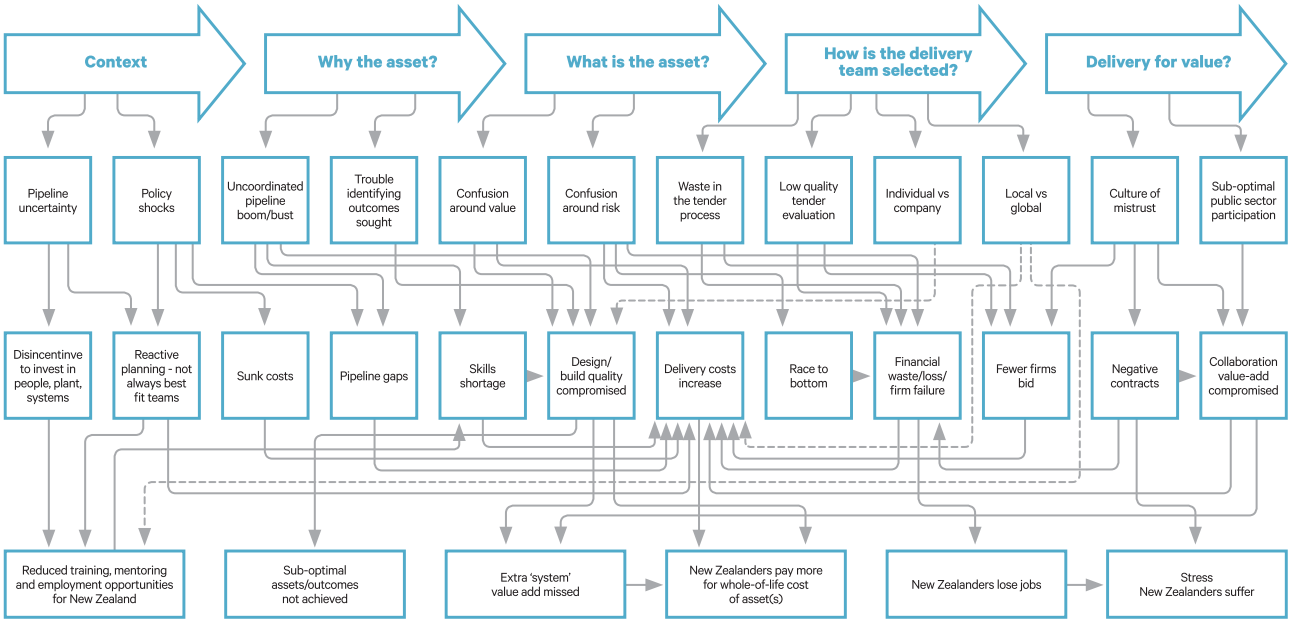
10. Local vs. global: Value is unlocked through asset delivery. Yet what role do offshore companies play in raising the bar of New Zealand's productivity? How do we access what we need? Clarity is required.

11. Culture of mistrust: High levels of mistrust between both sectors frustrate collaboration, prevent innovation and destroy value.

12. Sup-optimal public sector participation: The public sector is part of the team. When it doesn't pull its weight projects run over budget and behind programme with New Zealanders picking up the tab.

These challenges are summarised in Figure 1, which shows the complex system relationships. Flow on effects to New Zealanders includes reduced training and employment opportunities, increased whole-of-life asset costs, sub-optimal asset and system performance and worst of all, a severely impacted quality of life for those caught up in the most negative aspects of the challenges. Figure 1 sets out procurement's system relationships. The complex and interrelated nature of issues and impacts emphasises the importance of taking a whole-of-system approach to addressing the procurement challenge.

Figure 1: The negative procurement journey – system relationships



Why do we have these challenges?

Why these challenges should exist is the key question. While this research is not a deep dive into the specifics of individual agencies or projects, research suggests a number of weaknesses to exist across the political spectrum, within agencies, and also within the private sector. When these weaknesses converge they create the perfect storm for a project or long-term asset failure.

First and foremost is the lack of a clear vision for New Zealand's public infrastructure. An inability to reach a long-term political consensus effectively paralyses the sector from moving forward in any meaningful way. This compounds the capacity and capability challenges experienced by a construction industry many consider weak by international standards – where some contractors lack appropriate risk management strategies and engage in reckless and ill-informed decision-making. Any such weaknesses are fully exposed by the boom pressures of the cycle.

Short term reactive planning is believed to accompany a high-level failure to understand the true whole-of-life costs of an asset. This triggers a flow on effect that negatively impacts the public sector teams actively engaged in the asset's delivery. Asset planning timeframes are short-circuited and key investments are treated more like expenses. Delivery costs are driven down without sufficient regard to the long-term sustainability of either the asset itself or the construction industry.

Multiple concerns exist over the quality of some agency leadership and the impact this has on a positive procurement culture. Autocratic master-servant relationships roadblock peer-to-peer collaboration while public and political expectation to see immediate results contributes to a culture of fear. Rather than strive to maximize value, employees often focus on immediate cost reduction and 'on the ground' results. Meanwhile a lack of strategic data collection compromises both evidence-based decision-making and any robust appraisal of long-term investment outcomes. The 'old ways' of delivering can be perpetuated despite not offering best value to the New Zealand public.

Capability at the coalface is stretched. Many agencies are thought lacking in the skills and experience required to effectively manage even business as usual procurements. Others are left deficient when faced with a procurement of a typology, size or complexity outside of the norm. This comes accompanied with the risk 'you don't know what you don't know'. Yet the system lacks sufficient checks and balances to ensure that effective multi-disciplinary procurement capability is held either in-house or accessed as required. This capability deficit erodes the ability for an entity to operate as an intelligent client, a prerequisite for optimized procurement outcomes as defined by the World Economic Forum.

Behind the scenes the private sector is considered guilty of sometimes failing the public sector when it steps in to support e.g. with project management, legal advice and/or cost estimating.

Public sector individuals are therefore often working in impossible contexts, with squeezed budgets and insufficient knowledge – often due to the lack of big picture planning - and on the express directives from those above. To quote Audit New Zealand "Many organizations don't understand the extent of their procurement work nor the risks involved."

Audit New Zealand is currently commencing a procurement performance audit on behalf of the Office of the Auditor General.

Identifying 'Good'

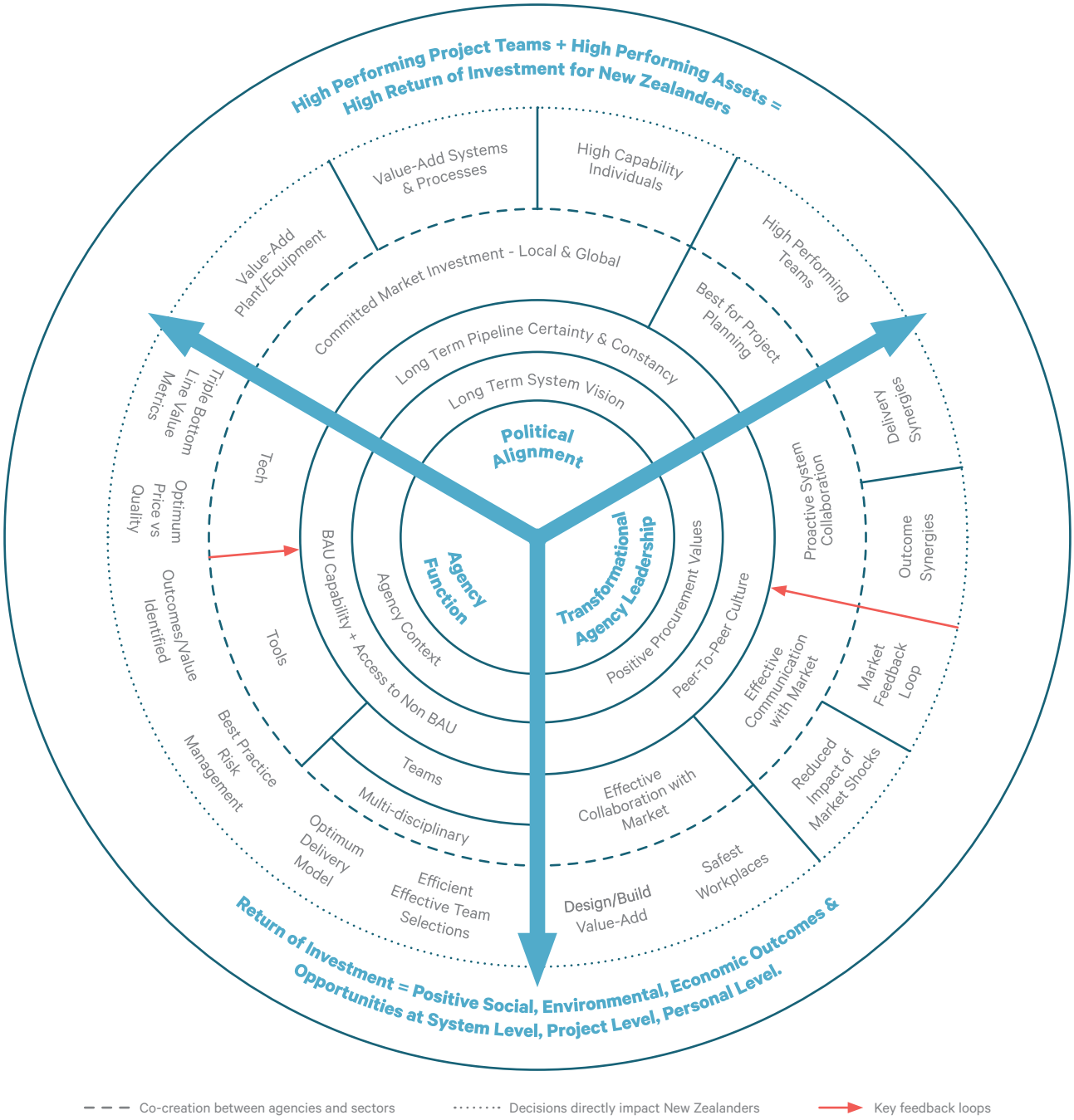
New Zealand does have high performing public sector agencies. By cross referencing these agencies with the those considered most to be struggling a picture emerged of 'what good procurement looks like'.

The research demonstrates that for New Zealanders to benefit most from public sector infrastructure procurement we need three conditions to be in place: political alignment to enable a long term-vision, transformational agency leadership, and access to the relevant procurement capabilities – these will vary dependent on the agency's core function but must be fit for purpose and must include design and technical expertise.

Most importantly we need an impartial party to oversee the system – central and local. To check that there is a master plan in place; to coordinate pipeline across agencies and thus smooth the boom/bust; to collect and compare data and provide meaningful systems analysis; and to assist those agencies that through a mere function of context don't hold and/or may never hold sufficient capability in house to successfully drive all required procurements.

The private sector is also a part of this system and through a single point of contact is better enabled to provide honest feedback and to engage in meaningful conversations around what the industry requires from the public sector to get it to where New Zealand Inc. needs it to go.

Figure 2: What good procurement looks like – drivers and dependencies



Can we change?

Change is entirely possible. However it requires political leadership to be committed to reaching a long-term consensus on our nation's infrastructure. If requires the chief executives of our public sector agencies to be incentivized and enabled to do the right thing over the long-term, and it requires the private sector to step up in response.

02

FINDING A COMMON LANGUAGE

What is Infrastructure?

Terminology in the construction industry is often confusing. To this end the terms horizontal infrastructure and vertical infrastructure will be used throughout the report to describe public sector capital assets delivered by the construction industry. However the two fields are characterized by fundamental differences. Participants have contributed to the following definitions.

Horizontal Infrastructure

Including the three waters (drinking water, storm water and waste water), telecommunications, electricity distribution and transportation of goods and people, all of these are essentially networks. The name 'horizontal' is due to the wide and low geographical physical spread of the physical asset.

In this respect the asset is integral to public value, as it is the physical asset that delivers the tangible public service. Metrics of success can therefore include tangible measurable criteria such as quality, quantity, and reliability in relation to the medium intended to move through the network.

The design of horizontal infrastructure is engineering led, and decision-making is for the most part highly objective. The network is dispassionate and customers could be considered as mostly undifferentiated.

The delivery of horizontal infrastructure is characterized by large amounts of unavoidable risk as a function of both its intimate relationship with the physical environment i.e. ground conditions, and the inclusion of large-scale highly complex projects. This risk drives the need for high levels of technical expertise and specialization in fields such as tunnelling, bridging, roading and rail.

Vertical Infrastructure

Also referred to as 'vertical construction' vertical infrastructure is essentially all buildings and includes 'social infrastructure' such as health, education and housing.

Vertical infrastructure differs from horizontal in that the assets facilitate and improve the quality of service delivery through the spaces and environments that they create. E.g. In a school, environments are created that enable learning, but are dependent on people to teach. In social housing, environments are created that contribute to 'enhancing lives and communities'[4] but where these lives and communities are dependent on the actions of people. Therefore a wide range of dynamic variables inform the metrics of service success, where the physical asset is only one contributor. Measuring asset success involves multiple and complex tangibles and intangibles.

Due to these intangibles the design of vertical infrastructure is architecture led, and decision-making is both objective and subjective. Dependent on the sector a large degree of differentiation may be required within a sector's assets to reflect high differentiation of customer needs e.g. specialist medical facilities and culturally appropriate housing provision.

The delivery of vertical infrastructure is characterized by a high degree of eliminable risk as a function of its physical presence predominantly 'above the ground' e.g. design risk. While architectural practices may specialize in a specific public service design typology, the construction skillsets required are generally not sector specific.

What is considered 'Major'?

Within this report 'major Infrastructure' is considered in the context of:

- Size, complexity and risk profile of the asset in relation to all assets delivered by the public sector. E.g. 'Waterview Tunnel' can be objectively considered as 'major'.
- Size, scale and complexity of the asset relative to the normal business activities of the public sector agency in question. E.g. 'Christchurch Justice & Emergency Services Precinct' can be considered as major in relation to the Department of Justice's business as usual procurement undertakings.
- Size, scale and complexity of the asset relative to current construction market capacity and capability at the time of market engagement. This is by virtue of the market, dynamic.

In addition, participants have also defined 'major' to include any procurement that has high public value or iconic status, thus including intangible outcomes sought as contributing to the definition.

However complication arises around assigning cost metrics to these definitions, which will depend on the delivery model selected. These range from the Traditional model (representing asset build costs only) to Public Private Partnerships (representing both true whole of life cycle costs or design, build and maintain costs). This also highlights the danger of comparing major project costs in any absence of a like-for-like cost breakdown. However build only costs suggested range from $30 million to $500 million for horizontal and from $20 million to $500 million for vertical. Thus the spread of opinion is significant.

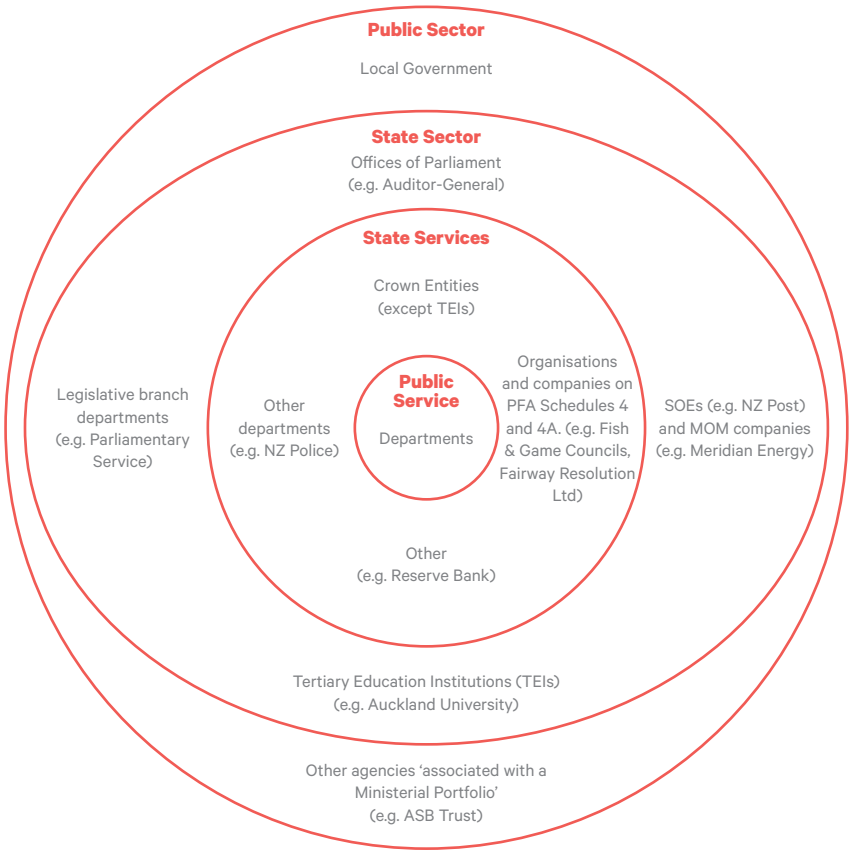
What is the Public Sector?

This term refers to all entities that form New Zealand's public sector as defined by the State Services Commission (SSC) under Figure 3.

As per the SSC guidance "At present the New Zealand public sector consists of around 2,600 organisations. They include a wide range of agencies – 29 Public Service departments, 20 District Health Boards, 26 tertiary education institutions, 67 Territorial Local Authorities, 16 Regional Councils, 17 state-owned enterprises and mixed ownership companies, approximately 2,435 school boards of trustees, 76 other Crown entities and around 200 Crown entity subsidiaries".[5]

The purpose of the public sector is to serve New Zealanders[6] through a variety of differentiated agency functions. The extent to which each of these individual agencies procures infrastructure therefore varies accordingly and there will be marked differences in the type of infrastructure procured, its scale and complexity, the frequency of procurement, and the ability to standardize designs or delivery models.

Figure 3: New Zealand Public Sector



The State Services Commission plays a key role in the success of the state sector, being tasked with:

- "the design of the State sector system, and the performance of people, agencies, sectors within it
- engagement with Ministers, and ensuring that the system is performing well and is prepared for the future
- guiding and setting standards of conduct and behaviour for public servants and State Service organisations, and safeguarding the people who work for government, and investigating issues where required
- recruiting, managing and mentoring chief executives to building a team of chief executives who collectively take responsibility for system stewardship, and
- representing the people we serve by understanding the diversity of our customers' needs".

What is Procurement?

Although no strict definition is adhered to within the private sector, in the context of this report the term 'procurement' is intended as a 'catch all' to describe any work stream that leads to the contractual engagement of private sector parties for the delivery of public sector infrastructure projects. However the report also touches upon the on-going relationship following this initial engagement.

To provide a framework to the report the challenges relating to these work streams have been categorised as follows. They are presented from macro to micro i.e. from policy level to project level.

1. CONTEXT: The role of political climate and the impact of political strategy.
2. The WHY: The 'why it and why now' of asset creation in a systems context.
3. The WHAT: Defining the physical asset and selecting the delivery model.
4. The HOW: The transactional tender process and how the delivery team is selected.
5. RESULTS: How value is unlocked throughout asset delivery.

Note that the varying contractual arrangements referenced in relation to asset delivery will be described as 'delivery models' with their associated scope and particularity of relationships discussed as required.[7] These delivery models are differentiated by how risk is allocated between the public and private sector and generally named by the scope and therefore risk that sits with the private sector during asset construction. Note that public private partnerships (PPPs) are a funding model, the scope of which can vary between PPPs.

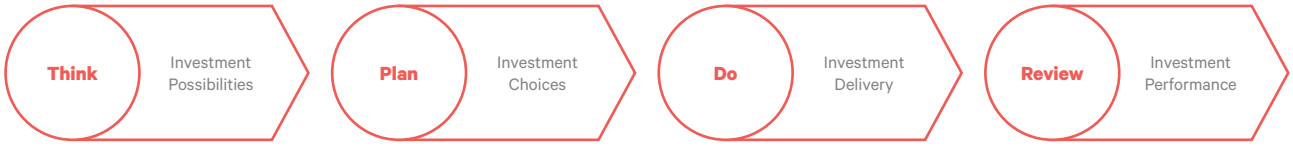
The Investment Life Cycle

The 'New Zealand Government Procurement' entity's definition of procurement is "all aspects of acquiring and delivering goods, services and works. It starts with identifying the need and finishes with either the end of a service contract or the end of the useful life and disposal of an asset".[8]

In this context the 'procurement' of a constructed asset not only moves through a set of internal public sector stages prior to any formal market engagement for its delivery, but this procurement continues well after the delivery of the constructed asset. Only when the asset is disposed of has procurement finished.

To better understand typical procurement stages the Treasury's 'Investment Management Cycle' can be referenced as per Figure 4 below.

Figure 4: Investment Management Life Cycle[9]



To anticipate as much as possible what will be required to transition to the outcome, and satisfy the intent while maintaining services.

Links to:
- Priorities
- Strategy
- Policy
- Asset and capability planning
- Four year and long term planning

To analyse and decide which investments to undertake considering the optimal overall value from the limited resources, and the current risk appetite.

Links to:
- Pogramme and Project Business cases
- Agency planning and decision processes
- Policy decisions
- Budget and allocation

To give chosed investments the greatest possibility of realising the benefits promised, while maintaining controls to avoid loss of value.

Links to:
- Agency planning and decision processes
- Monitoring functions

To review the performance of investments against expectations

Links to:
- Investor confidence
- System review
- Capability maturity

While the 'Do' phase represents the formal interaction with market intended to secure the combined services essential for asset delivery, the decisions inherent in the preceding stages of 'Think' and 'Plan' determine both the delivery model and the quality of the asset's design, and thus the asset's effectiveness in enabling outcomes sought.

03

PROCUREMENT CHALLENGES

CONTEXT – Political Strategy

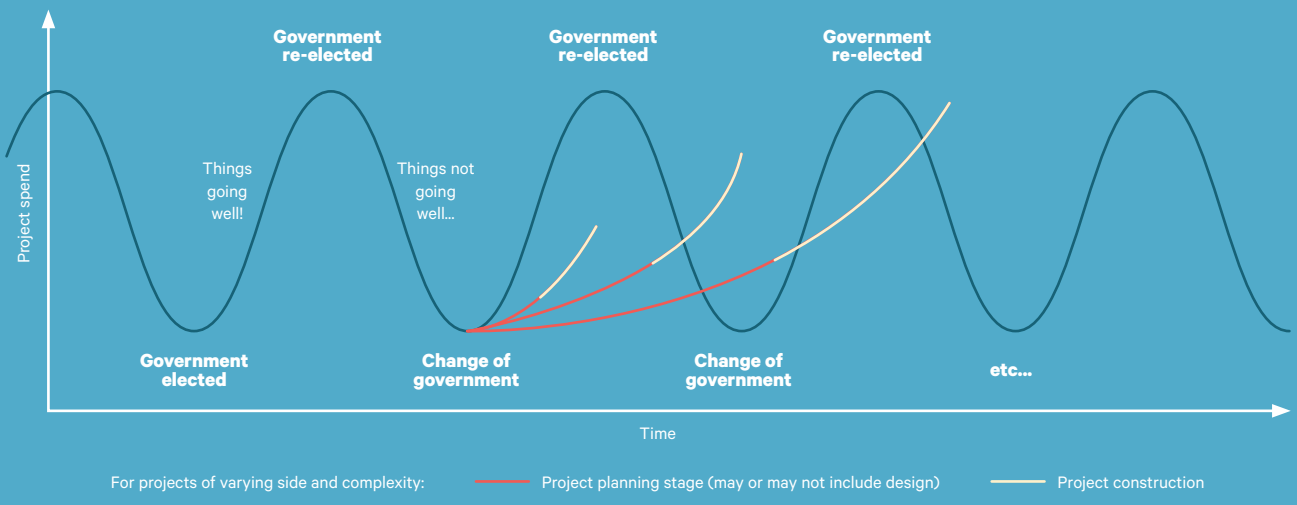
Multiple participants, from both the public and private sectors, shared concerns in relation to the impact of political agendas on the ability to efficiently deliver infrastructure to New Zealanders. As per the 'Think' stage of the Investment Lifecycle, policy plays an influential role on decision-making.

Specific challenges relating to this are outlined below.

Challenge: Pipeline Uncertainty

Specific concerns exist over the influence that the three-year central government political cycle exerts on the industry's ability to deliver in an efficient or reliable manner. Figure 5 best explains this challenge.

Figure 5: The political cycle versus project timelines - risk



(Note: Graph is indicative only)

The black line represents a potential political cycle while the green represents the investment management life cycle for a range of projects of varying size and/or complexity. What is demonstrated is that the overall life cycle for a project can far exceed the 3-year political cycle within New Zealand. For example, just the 'Think' and/or 'Planning' stages for a typical major horizontal infrastructure project can easily exceed 5 years and that may be before design commences in earnest. However it is within this planning timeframe that the market should ideally be positioning itself and mobilizing to enable the successful delivery of these projects, whether that is the design or the construction of the asset. The ideal for the public sector is for the skills and resources required to be readily available when the project hits market. However for the market to meet this expectation it must go through its own 'Planning' stage.

At a centralized level the National Infrastructure Unit (NIU) of Treasury has collated the public sector's intentions in relation to major infrastructure projects and published this information under their Thirty Year Plan. Auckland Council's Auckland Transport Alignment Programme (ATAP) mimics this approach at a local government level. However these plans are a statement of intent, not a confirmation of future projects. Agencies are often unable to confirm their long-term intentions due to a lack of confirmed funding. This has been cited as due to uncertainty around future political support. I.e. a project's funding is not guaranteed until a plan is signed off by cabinet and/or local councillors.

Impacts on Industry

For the industry this manifests as uncertainty around their pipeline of future work and this includes uncertainty of future project timings, typologies and volumes. This uncertainty was believed to create the following challenges:

- Undermines the incentive to plan long term – which includes both retaining and developing skillsets, plus strategies for flexible expansion and contraction of service capacity depending on the pipeline needs.
- Undermines the incentive to invest in high value capital assets that would improve productivity over the long-term i.e. technology.
- Requires individuals to be engaged on a project-by-project basis – this incurs a transactional cost, impacts productivity due to the subsequent 'learning curve' required, prevents a team orientated continuous improvement approach, and carries the risk of reduced quality of capability.
- Encourages reactive organizational planning which potentially compromises efficiency and effectiveness of teams – i.e. the ability to best fit an individual to a team and a team to a project is compromised.

Reality Check

Professional training in New Zealand's infrastructure sector is considered to be mostly "on the job" and therefore it takes time to develop skilled individuals and achieve a return of investment on this commitment. Currently this timeframe exceeds the 3-year political cycle. The following examples were provided in relation to horizontal infrastructure noting that these individuals should ideally start on smaller projects, gradually building their skill sets whilst being supported by more experienced mentors, thus reducing an experienced mentor's available time.

- Approximately 5 years to enable a graduate engineer to become a competent and autonomously operating engineer on the ground.
- Approximately 2 years to train a good machine operator.
- Approximately 5 years for a machine operator to migrate to the position of foreman.
- Approximately 7 to 10 years for a foreman to migrate to the position of supervisor.

New Zealand's main contractors in horizontal infrastructure operate via two distinct business models - those that retain labour and therefore self perform such as Fulton Hogan or Downer, and those that sub-contract out such as Fletcher Construction Infrastructure. However the above impacts both. The only difference is where this impact is felt within the supply chain, at main contractor level or at sub-contractor level.

There is also a human element at play. Discussions around resource relate to real people with real lives. Uncertainty of market pipeline translates to employment opportunities and to cite one participant:

> "People are entitled to earn a living and are perfectly entitled to move to where the best opportunities are. And at huge personal investment for these people to make these types of moves it's not always easy to get them back to New Zealand."

What about the Average Kiwi?

The additional costs associated with short term planning are ultimately built into industry rates and passed back to the client e.g. the New Zealand public. In addition the industry is discouraged from investing in itself which by default are also the skills and knowledge of the young people of New Zealand.

This was also reflected in commentary on the age profile of the industry, which was described as characterized by either individuals approaching retirement or those in their twenties. The question was asked - if staff cannot be retained long term, how can knowledge be passed from 'old to young' before these experienced individuals retire?

Challenge: Policy Shocks

As per Figure 3 many projects will take more than three years to move through their 'Think' and 'Planning' stages – the bigger and more complex the project, the more time this will take. In recognition of the private sector's need to position, informed agencies will sometimes communicate with market in relation to intended projects that by all accounts look certain to proceed. Therefore the market may position through investment in relevant resources and capabilities. However a change in policy direction can then result in the cancellation or delay of these projects.

Impacts on Industry

This can result in the following:

- Significant investments in relevant resources and capabilities may become sunk costs i.e. equipment has a finite lifespan and if an expected project is cancelled or delayed the firm may be better off to sell assets at a loss only to potentially have to repurchase later. Similarly there are costs associated with sourcing, engaging or retaining staff that may subsequently need to be let go.

- The new policy direction will place any alternative projects earlier on the investment cycle. Gaps in the project pipeline will therefore be experienced by market, both designers and constructors.

- Opportunity cost is incurred in relation to alternative projects a firm may have positioned for.

- Design consultancies may not have the capabilities readily available to meet the revised investment focus e.g. consultancies may suffer from resource shortage in one field and over supply in another.

The challenge of cancelled projects has been cited predominantly in relation to the transport sector with the recent shift of focus from road to rail provided as an example, noting that communication directly with the market may ease the impacts of such shocks.

Reality Check

The vulnerability of industry to policy shocks is dependent on a number of variables that include the degree of specialisations required for the expected project typologies and the extent to which the change in policy direction has reduced the utility of the private sector's current resources and capabilities. Major horizontal infrastructure projects are therefore particularly vulnerable in this regard, noting their high-risk profiles and the need to ensure availability of specialist people and equipment, often from offshore.

As one participant noted and concurrent with the definitions of horizontal versus vertical – "Not all sectors are as vulnerable to policy shocks – much of construction is agnostic". Yet when impacts are felt they can be significant. The concept of "use it or lose it" was discussed and as cited by more than one participant:

> "You can't turn major infrastructure projects on and off like a tap..."

As a reminder of what a major infrastructure project involves please refer Figure 6 - a flyer from the New Zealand Transport Agency (NZTA) that was produced in relation to the Waterview Tunnel.

Figure 6: What a Major Infrastructure Project Actually Involves

What about the Average Kiwi?

Radical changes in policy impact the tax paying public. As per the private sector, abortive work is incurred and becomes waste in the system. In addition, in order to ensure private sector viability the sunk costs incurred by the industry get reflected in future industry rates and in short, passed back to clients e.g. the average kiwi.

It is understood that in order to demonstrate that the decision to abort a major project, especially in its latter stages of planning was the correct decision, a cost benefit analysis would be required. This would need to demonstrate that the benefits achieved through aborting the project outweigh the abortive costs. The worst-case scenario for the public is for the financial waste incurred to cancel out the financial worth of the additional benefits sought by the project to which the money is repurposed.

THE WHY – System Strategy

Multiple participants, from both the public and private sectors, expressed concerns that public sector agencies often lack a sophisticated understanding of the outcomes they seek, and take a best for agency 'isolationist' approach as opposed to a best for New Zealand 'systems' approach.

Specific challenges relating to this are outlined below.

Challenge: Identifying 'Outcomes Sought'

Before an agency can begin to define the project level requirements of their asset they must first understand why they want it - what purpose is it to serve in relation to their service delivery - and how this 'why' relates to the objectives of other agencies. Any ambiguity here can both place the need for the asset in doubt plus worst case, compromise the objectives of another agency – housing and transport being a perfect example.

Multiple participants have expressed concern that agencies struggle with this challenge and are often unable to articulate not only their own objectives, but how these objectives might also relate to the objectives of other agencies. Essentially there is a lack of both articulation and 'joined up thinking' in relation to outcomes sought.

> "Clients build because they have a problem they are trying to solve. However sometimes they struggle to articulate what that problem actually is".

Impacts on Industry

These weaknesses can result in the following:

- If the public sector cannot articulate outcomes sought the market is unlikely to be able to deliver the outcomes sought – especially impactful on industry in a design and build context.
- Assets from multiple agencies may be unable to leverage each other to more effectively meet their objectives e.g. housing quality influences burden on the health service.
- Assets within their own agencies may be unable to leverage each other to more efficiently meet their individual objectives e.g. shared design solutions, portfolio approaches with shared risk contingency funds, or procuring at scale to provide sufficient certainty for the market to invest things like innovation.
- The public sector will incur opportunity cost by failing to identify significant secondary benefits that can be achieved for only marginal additional delivery costs.
- An agency will be less able to differentiate the private sector parties based on their ability to add value.

Reality Check

In this instance the impact on the public sector is likely greater than that on the private sector. However many in the private sector recognise the additional value that can often be picked up along the 'delivery journey' for often only marginal cost. This is especially true from a design perspective in relation to social infrastructure; although opportunities also exist very much in the horizontal infrastructure space too i.e. wetlands and parklands.

What about the Average Kiwi?

Any ambiguity in defining outcomes sought or understanding system relationships could result in the expending of public money that adds no value to the New Zealand public, noting that value must be viewed from a systems perspective. The real danger of an isolationist approach is that while an agency may have succeeded in meeting their own objectives they may have done so at the expense of the system as a whole. At a project level any ambiguity will simply result in an asset that does not represent the most effective use of the public's money.

Challenge: Uncoordinated Pipeline

In addition to the 'why' an agency must also determine the 'when' of asset delivery. This is one of the most impactful decisions on the private sector as it is the lack of prioritisation and coordinated timing of projects to market that contributes to New Zealand's boom and bust cycle.

A report by the New Zealand Centre for Advanced Engineering (CAENZ) and funded by BRANZ concluded that "much of the boom/bust effect in the New Zealand construction industry is actually caused by the internal system structure and behaviour, rather than external shocks", noting "it is the rate of change, whether in boom or bust conditions, that causes the problem, not the fact that the industry has good years and bad years".[10] This reflects the danger in trying to compress the lead times required by the private sector in order to scale up for efficient delivery. Again, these lead times can exceed the notice to market provided by the public sector and as noted by one participant "many projects are unknown to the private sector until they are released on GETS (the Government Electronic Tender Service). This is often insufficient time for the private sector to efficiently position.

> "Being transparent with and managing workloads is key to smoothing out the boom/bust cycles."

Impacts on Industry

Impacts relating to a lack of prioritisation or coordination of projects have been cited as the following:

- Demand pressures of a boom create rapid escalation in the cost of materials, plant and labour - sub-contractor quotes may expire during lengthy client negotiations resulting in letting losses on latter engagement. Worst case is that main contractors are unable to sustain cash flow.
- An over stretched supply chain during a boom can create quality concerns. This includes undue pressure on estimating resources thus increasing the risk of mistakes (both additions and omissions) during the pricing stage.
- A surplus of resource in the market during a bust can see price slashing. While this may create a short-term win for clients, parties may withdraw from the market exacerbating the impacts of the next boom.
- Public Sector opportunity cost is incurred in relation to real time leveraging off external agency projects that may provide synergies through delivery.
- Boom and bust resourcing needs also impact on the public sector – both with regards to procurement staffing of public sector agencies plus within the regulatory entities e.g. building consent processing.

Reality Check

While uncoordinated projects can lead to bottlenecks and pressure on the supply chain, coordinating projects provides benefits. Coordinating with overall market demand enables the principle of Keynesian economics to be applied where strategic public spending can reduce the extremities of economic cycles this enabling stable bases of both capability and capacity to exist. Coordinating within the public sector system can also create synergies in project delivery, a relatable example of this being trenching for cabling and pipe laying. Without overt communication multiple parties could be repeating the same exercise multiple times for little added benefit.

However in many cases the public sector's hands are tied. Many participants cited that "many public sector entities have no choice but to build now" and are forced to engage with market despite the knowledge that delivery costs will be at a maximum. Many of the drivers for needing to engage are downstream impacts from previous political decision-making. Drivers of the current construction boom are believed to include "a backlog of infrastructure/public sector projects" and "record net inward migration".[11] This further illustrates the need for a long-term view on public sector infrastructure spending and 'joined up thinking" so as to avoid reactionary planning resulting in sub-optimal outcomes for all parties concerned.

What about the Average Kiwi?

A lack of prioritised coordination of projects can reduce both the effectiveness of the completed asset as well as the efficiency and cost of its delivery. Again, the public are impacted through the lessened spending power of their tax dollars. From a tangible perspective, the failure to coordinate major projects of geographical proximity also equates to a missed opportunity to lessen the disruption to the general public that is created by construction activities.

THE WHAT – Project Strategy

The design and planning phase of the actual physical asset has the most influence on the public sector's ability to achieve the long-term outcomes they seek. However the private sector, plus elements of the public sector, believes that two significant challenges exist and that these relate primarily to fundamental misunderstanding around the concepts of 'value' and of 'risk'.

Challenge: Confusion around 'Value'

The Office of the Auditor and Controller General has provided a clear definition for the public sector in relation to value. - "Value for money means using resources effectively, economically, and without waste, with due regard for the total costs and benefits of an arrangement, and its contribution to the outcomes the entity is trying to achieve. In addition, the principle of value for money when procuring goods or services does not necessarily mean selecting the lowest price but rather the best possible outcome for the total cost of ownership (or whole-of-life cost). Value for money is achieved by selecting the most appropriate procurement method for the risk and value of the procurement, and not necessarily by using a competitive tender".

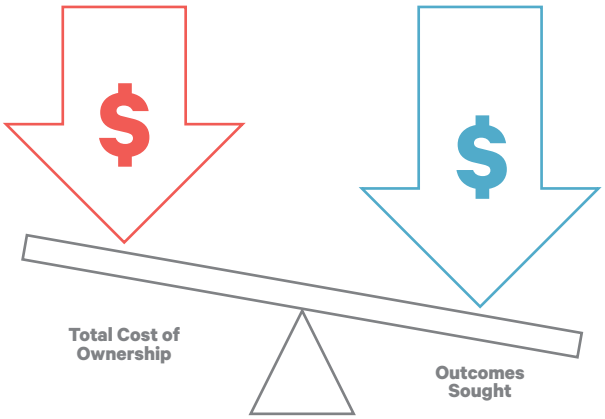
However in relation to achieving the intent of this definition an agency must be able to not only identify the outcomes that they seek but also to quantify these outcomes in financial terms (accounting for both tangible and intangible benefits).

The agency must also be able to quantify their total cost of ownership. This does not only include design and delivery costs but also maintenance and operational costs e.g. energy needs and associated staff salaries.

The asset only creates value when the total worth of the outcomes sought is more than the total cost of asset ownership (whole-of-life cost). Furthermore the agency can only be sure if value has been created if they have the means to measure it.

Achieving maximised value for money requires the outcomes sought to be achieved through the lowest achievable total cost of ownership i.e. value creation = value of outcomes – total cost of ownership. Thus the design and delivery phase of an asset is an investment.

Figure 7: What Value for Money Looks Like



However, participants from both the public and private sector believe that many public sector agencies and individuals, including political leaders:

- Do not understand this value for money concept at its most basic level.
- Do not understand what an outcome is and often confuse 'outputs' with 'outcomes'.
- Are unable to assign metrics to outcomes sought.
- Are unable to objectively prioritise outcomes sought when budgets are constrained.
- Are unable to establish an expected total cost of ownership.
- Fail to appreciate how the quality of the design inputs is the single most influential factor on both the total cost of ownership and the ability to achieve the outcomes sought.
- Are unable to objectively define success in value for money terms.

> "VALUE is being greatly confused with CHEAP within the public sector."

Impacts on Industry

These weaknesses have been cited as creating the following challenges:

- Value for money is assessed only in relation to the project's design and construction phases as opposed to the total life of the asset. True value for money or 'value creation' is likely compromised.
- Capital expenditure (CAPEX) is allowed to drive the design process. Operating expense (OPEX) considerations are communicated insufficiently or too late in the process to enable any meaningful design response. Whole-of-life cost is increased and/or quality (and therefore worth) of outcomes sought is reduced. Note that CAPEX and OPEX funding streams are often from different sources.
- Design consultant fees are treated as expenses as opposed to investments in outcomes sought – often driven down and selected on a lowest cost basis and sometimes in relation to individual design phases.
- Strong design consultancies will be selective with regards to the public sector agencies that they engage with – results in smaller competitive pool and potentially weaker quality bidders.
- Consultants are encouraged to exclude 'non essential' scope from their fees in order to remain competitive e.g. geotechnical investigations - designers will therefore design based on assumptions.
- There are fewer profits to invest in additional talent, skills and training e.g. in areas such as Building Information Modelling – the risk of unbuildable or uncoordinated design documentation is increased.

Reality Check

Often as low as 10% of an asset's total cost of ownership is attributed to the design and delivery phase,[12] meaning that the majority of the total cost of ownership is generally incurred during the operational phase. Therefore in order to maximise value for money the public sector should be designing to minimise the operating and maintenance costs whilst meeting outcome objectives. Therefore rather than driving down the costs of the design phase the public sector should arguably be investing more in it. This is on the premise that the design consultants are the core 'problem solving' resource on the delivery team. Their design decisions will define both the quality of the outcomes sought as well as the operational and maintenance costs incurred post construction.

In addition, if scope such as geotechnical investigations or BIM is excluded from fees proposals these exclusions will most likely emerge as latent defects during the build phase and this will increase the cost of the construction. To quote one participant, the team then has to "build their way out of the problem".

Parallel to this "buildings are just getting more complicated". Thus a tension is created where designers are unable to maximise the efficiency or effectiveness of their design process all whilst the needs and expectations of clients increase in sophistication.

> "Cost is not the driver of success."

What about the Average Kiwi?

A lack of public sector understanding of how to define value, measure value or design for value has a huge impact on the New Zealand public. Not valuing a design team is counter-productive and likely results in both a higher whole-of-life cost than necessary whilst the quality of the outcomes may also be sub-optimal.

Graduate architects and engineers - New Zealanders – are also denied vital opportunities to learn and to grow their own skill sets. The pressure on existing individuals is therefore increased whilst the availability of high quality designers is seriously compromised for the future.

> "The cost of cheap is very evident in New Zealand."

Are Public Private Partnerships the answer?

To highlight the reality of the value challenge, Treasury state "incentivising whole of life design and asset management" as one of their drivers for the Public Private Partnership (PPP) funding models. They do so by including maintenance and sometimes operations within the private sector's delivery scope along with the design and the construction phases.

The costing of these scopes is hugely complex. They require outcomes sought to be fully identified and assigned with clear performance metrics; an acceptable total cost of ownership to be established, and a high level of due diligence to be employed on the supply chain to be confident that a consortium can deliver. Therefore it is likely no coincidence that Treasury provides robust guidance and oversight of these models, ensuring that agencies up-skill with the 'right people' prior to undertaking.

Yet these skills are required regardless of a project's status as a PPP. An asset's whole-of-life costs are incurred regardless of how they are funded or reported. Therefore based on the adoption of this model we can reasonably conclude that many public sector agencies may not be achieving maximised value for money in their current approaches.

However challenges have been cited in relation to PPPs within New Zealand and include the small-scale nature of the bidding pool. This is partly due to the extremely high bidding costs - a consortium must be confident it can design, build and operate the asset to the value of their bid. Highlighting this costly process is useful as it reflects the degree of planning that should arguably be undertaken by the public sector in relation to any asset that they undertake prior to breaking ground.

Challenge: Confusion around 'Risk'

The Ministry of Business, Innovation and Employment (MBIE) describes risk as the "the consequence of uncertainty on the objectives of the project. A risk can either manifest as a threat (negative consequence) or an opportunity (positive consequence)".[13] The Business Dictionary provides a more industry specific definition - risk is the "probability of loss associated with the physical (construction) phase of a construction project".[14] Therefore appropriately responding to risk is imperative for maximising value creation.

However as per feedback on value, multiple participants in both the public and private sector believe that there is a deficit of public sector understanding in relation to risk. This is experienced by market as contracts that include uninsurable clauses, risk allocation that is not 'best for project', insufficient remuneration for taking risk and the inappropriate selection of delivery models that prevent risk from being best managed to maximise value.

Impacts on Industry

The impacts of this lack of understanding have been cited as the following scenarios:

Risk Allocation

- Risk allocation between the public and private sectors is not 'best for project' e.g. risk does not sit with the party best able to manage it and is subsequently 'not best managed'.
- A risk is passed to the private sector that cannot be managed - subsequently is not managed - the risk becomes an issue and there are insufficient funds to cover the loss. Worst case is a company liquidates.
- A risk is passed to the private sector at a cost to the public sector that never eventuates. Hence the public sector has expended costs that add no value to the asset.
- A risk is passed to the private sector at insufficient remuneration - the risk becomes an issue and there are insufficient funds to cover the loss. Worst case is a company liquidates.
- Informed tendering parties will recognize when risk transfer is inappropriate and worst case may withdraw from a tender. This leaves only the 'dumb bidders' - and when things go wrong these bidders may be unable to absorb the financial loss.

Inappropriate Selection of Delivery Model

- Uninsurable risk is too large for any one party to own e.g. ground risk.
- Opportunity to mitigate risk through open collaboration is missed e.g. an Early Contractor Involvement, Design & Build or Alliance delivery model may be the most appropriate but is not utilised – risk becomes an issue.
- The more sophisticated the model, the higher the bidding costs and therefore the financial burden placed on the private sector – selecting a delivery model that is more sophisticated than the risk profile requires will limit the pool of potential bidders.

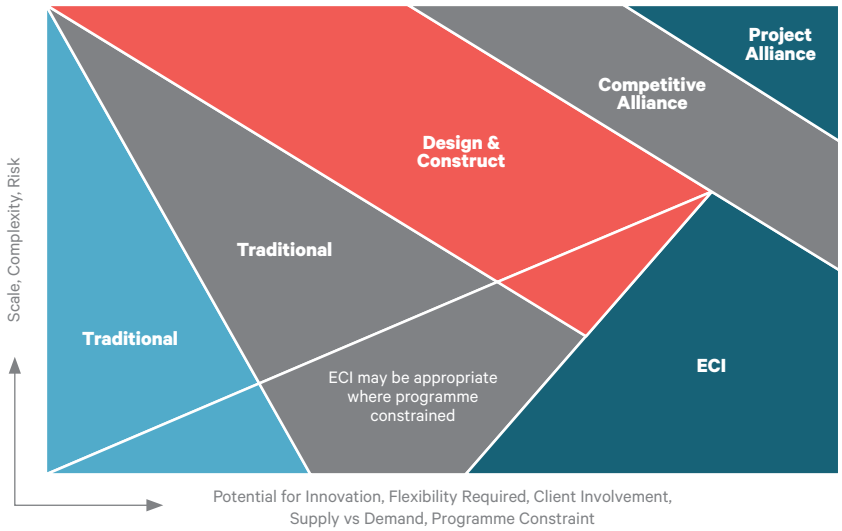
Realty Check

Risk is not an abstract concept. All risks relate to real things and real people. As such risks can be categorised e.g. design, environmental, commercial etc. and either avoided, eliminated, mitigated or exploited. However the ability to 'best manage' a risk requires the right people with the right information at the right time in the process. Examples discussed here are ground risk and design risk.

Ground Risk - high degrees of ground risk is cited as a defining characteristic of horizontal infrastructure projects. The challenge with ground risk is that it cannot be 100% eliminated, as unforeseen ground conditions are phenomena outside the control of both the public and private sector. Ground conditions 'just are' and thus ground risk 'just is'.

During the planning stage of the asset investment, investigations can be completed to assist with an understanding of these ground conditions. However to quote one participant "you can only do so many boreholes to move forward". Therefore the ability to predict all ground conditions is limited. Therefore regardless of the quality of the preparation of the design, changes in approach may be required on site during project delivery and these will add cost.

Figure 8: NZTA Delivery model selection diagram



Design Risk - this may also result when the parties required to input into the design are essentially missing from the conversation. This can result from an inappropriate selection of delivery model.

Example - Client A during the planning phase selects a traditional model of project delivery and engages Consultant B to provide them a design. The project is not large in scale but is extremely complex. Client A does not fully appreciate this as Client A is a non-technical professional and/or has little experience of projects of this nature. What results is that Consultant B produces a design in complete isolation from the parties that will be building it.

When Client A engages with market it transpires that the design provided by Consultant B is extremely difficult and expensive to build because the construction methodology has not been understood and/or considered during the design process. Client A has two choices – change the design and incur abortive design costs and programme delay OR proceed with the existing design and pay an excess for delivery. Worst case is that the design cannot be constructed at all. Both ways it is a lose-lose for Client A and all because they selected a Traditional delivery model when it should, at the very least have included Early Contractor Involvement (ECI).

To demonstrate the significant opportunity cost associated with these decisions, it is worth noting that the world economic forum has quoted savings of up to 30% through more collaborative models.[15] Therefore on a $500 million design-bid-build estimate this could amount to $150 million if a design and construct or alliance model was adopted instead - on a complex project the supply chain is effectively acting as an extension of the consultant design team.

Secondary Effects

The more sophisticated the delivery model, the higher the associated bid costs will be. As a rough guide, private sector bid costs can range from 0.3% - 0.4% of contract value on a Traditional tender, to 0.6% - 0.7% on a Design & Construct model, to 1 - 1.2% on a PPP project. Essentially, the higher the risk to the private sector the higher the bid costs and the higher the sunk cost should the bid be unsuccessful. As an example, the bid costs for Transmission Gulley have been cited as in the range of $15 - 20 million per bidder.

Therefore only companies with sufficient cash flow and financial position can participate in tenders associated with more sophisticated forms of project delivery and will generally only bid for the projects they genuinely believe they will win. Hence the type of delivery model selected will dictate the market this is available to select from. Presently it is only the top tier main contractors that can engage with design & build projects due to the upfront investments required, while some companies bidding for PPPs will need to win one in every two bids in order to recoup their costs. Therefore some firms won't bid if they believe there to be over three parties involved and/or if there is no partial compensation available to offset the bid cost.

What about the Average Kiwi?

The key takeaway is that the selection of the appropriate delivery model requires a fully informed client – one that has technical and commercial expertise in order to inform risk management decisions such as these – a concept described by the World Economic Forum as the 'intelligent client'. Intelligent clients are also imperative for appropriate risk allocation because in many cases retaining or sharing a risk may leave the public sector and therefore public better off. However if an agency has limited technical or commercial expertise they will likely struggle to identify risks or threats, struggle to identify related opportunities, confuse best practice risk management with total risk transfer and/or struggle to identify the most appropriate delivery model. Only an informed understanding and allocation of risk enables the best value.

Furthermore, if a main contractor runs into financial difficulties through an ill advised risk transfer, it is not faceless entities that will suffer, but real people with real lives. This knock on effect will include many New Zealanders with limited financial means and often with multiple individuals depending upon them.

THE HOW – Tender Strategy

There is universal agreement among private sector participants that there are multiple weaknesses associated with how market selection is being conducted. This includes concern over the waste generated by the process and the quality of tender evaluations. It is understood that this challenge is not limited to any particular delivery model.

Challenge: Waste in the Tender Process

Waste in the tender process relates to any actions or activities that add no value to the quality of the outcomes that the pubic sector seeks through the tender process. In the context of this feedback these concerns relate to both the engagement of the design and delivery teams and can include:

Clarity of Scoping Information - this issue can manifest as:

- Insufficient information provided to market in order to accurately price a project.
- Inconsistent or conflicting documentation that creates confusion over the accuracy of information.
- Use of disclaimers that result in the market being unable to rely on information.
- Requests being made for 'innovation but without clarity on what the public sector wishes to achieve with this innovation or an appreciation for the implications of this on the project e.g. on risk, programme, cost.
- Incomplete designs included within a traditional design-bid-build tender scope – results in inaccurate pricing by the private sector and/or variations passed back to the public sector during project delivery.
- Potential irrelevance of tender queries – some seemingly completely unrelated to the outcomes sought.

Scope Changes/Updates during Tender Process – this issue can manifest as:

- Excessive changes in project scope during the pricing stage - requires multiple parties in the private sector to continually re-calculate their proposals.
- Information issued too late in the process to enable it to be properly priced – has been experienced as late as one day prior to tender close.
- Continual extensions of the tender submission period.

Effectiveness/Efficiency of Panels – this issue can manifest as:

- Investing significant public funds to establish panels and private sector funds to join panels, only for the panels not to release much work – there are concerns that once established some public sector entities are unsure how to effectively administer their panel.
- A tender can be released that includes contract conditions that are not on the panel agreement.

Impacts on Industry

All of the above scenarios result in additional time spent reviewing, pricing and tagging tender submissions. As this time could have been avoided through a more efficient management of the process the associated costs become waste. This waste is multiplied across all of the parties bidding. Similarly any fluidity around timeframes is highly disruptive to internal resource planning. Here the public sector may also incur opportunity cost, as a firm that had precluded itself from bidding due to internal resourcing may have been able to participate after all.

Reality Check

The preparation of a bid is a significant undertaking for any private sector entity involved. Any inefficiency within the process unnecessarily increases this burden further. If on a traditional project the bid cost is 0.3%, the cost to tender a $20 million project will be approximately $60,000. However across three parties this rises to $180,000. Inefficiency plus sunk costs will therefore equate to a minimum of $120,000. On a design & construct project worth $100 million these costs rise dramatically and could be around $600,000 per tender submission. Even with only three parties tendering the sunk costs to be recouped by industry will be over $1.2 million.

What about the Average Kiwi?

While the purpose of competitive tendering is to ensure 'best value' to the public sector the reality is that it comes at a huge cost to the private sector, all of which must be recouped on the projects that they win. Therefore any waste in this process gets reflected in a higher cost of project delivery, the value of which is borne by the tax paying public. All attempts should therefore be made to streamline the tender process to the essentials only.

Challenge: Quality of Tender Evaluation

The quality of the tender evaluation process is imperative in order that parties best placed to maximize value in both the design and delivery phases of a project are selected. Again, it is understood that this challenge is not constrained to any particular delivery model. Concerns cited include the following:

Tender Evaluation Criteria Selected and/or Weightings Of – weaknesses can manifest as:

- The attributes by which the private sector will be evaluated are sometimes not provided.
- How non-price attributes are assessed is sometimes not provided.
- Inconsistency has been experienced in relation to the non-price attributes of very similar build contracts e.g. weightings can vary between 20% and 75% on projects of similar size, risk and complexity.

Quality of Tender Evaluation – weaknesses can manifest as:

- Perceived lack of objectivity e.g. the same team proposed for very similar projects can be evaluated very differently – raises concerns that personal preferences are overtaking objective reasoning.
- Excessive numbers of parties on the shortlist i.e. up to 5 have been experienced – suggests that the weightings selected are unable to achieve sufficient mathematical spread.
- The capability of some tender evaluation panels has been questioned.
- Excessive time taken to evaluate bids e.g. one tender was cited to comprise of only 5 weeks for submission but 8 weeks for evaluation, with no certainty of deadline for final shortlisting provided.
- Non-price attributes are not rated to enable sufficient mathematical spread to counter price becoming the differentiator in selection.

Quality of Feedback on Tender Proposals – this issue manifests as:

- Feedback on an unsuccessful proposal is sometimes not provided.
- Quality of this feedback can be inconsistent.

Impacts on Industry

When the private sector is unsure of what is expected or required of them through the tender evaluation process they are unable to self-select, and this relates to capacity as well as capability. As one participant cited, the public sector needs to "let the industry sort itself out" as if there are too many parties short listed some firms will walk away. Again, bidding costs require significant time and resources.

Any perceived inconsistencies associated with the tender evaluation process prompt conversations on fairness of evaluation, objectivity of metrics employed, and the degree of personal discretion afforded to those on tender evaluation panels. In this regard multiple participants queried how these panels are established, and if indeed they represent a sufficient breadth and quality of experience to ensure best for project fair outcomes when faced with complex bespoke projects requiring bespoke teams. Any lack of detailed or consistent feedback on bids enhances these concerns further, plus hampers continuous improvement of the private sector.

Reality Check

As a general rule, the private sector does not complain when subjected to what they believe to be unfair tender evaluation. This is due to fears over reputational damage and public sector black listing of their firm. However the quality of tender evaluations is also one of Audit New Zealand's concerns in the public sector procurement space, noting that all agencies always have the option to invite an independent auditing party into the procurement process – especially valuable on projects of any appreciable size.[16]

What about the Average Kiwi?

If the public sector is not always able to fairly or objectively evaluate a tender submission they are unlikely to always engage the team most able to achieve the outcomes sought through the design and delivery of the asset. This reduces the return of investment on the public's money. Similarly, value is eroded when it takes an unnecessarily long time to select and engage parties, as this delays the benefits realisation associated with the project. The Christchurch rebuild was cited as an example, where the private sector was described as building much faster than the public sector. Worst case is that the planning and procurement process takes so long that the outcomes originally sought are now of lessened value, or worst case, are now completely irrelevant.

Challenge: Individual vs. Company

An issue cited by multiple participants relates specifically to what is considered to be a growing trend within New Zealand's public sector evaluation criteria and weightings – that of "the pre-eminence of the individual". This is an observation that individual team members well known within New Zealand are heavily influencing the public sector's selection process for major projects and inappropriately outweighing a company's individual attributes.

There are two schools of thought regards this issue. The first is that New Zealand is a small country and that while high capability exists, companies experience limitations around the capacity of this. Due to steep demand increases within the sector there is awareness that many firms have had to scale up. Therefore in the context of rapid expansion a client will want to be sure that they are being provided those team members that reflect the precedent projects proposed under the bid submission. Hence the concept of 'A-Teams' and 'B-Teams' and the need on some projects for key personnel bonding - to ensure that what is promised under the bid is actually delivered.

However the second school of thought is that this is underestimating the professionalism required at a company level, overestimating the influence of an individual on what is ultimately a team endeavour, and runs the risk of a form of nepotism creeping into the tender evaluation process. While there is recognition that specialist skills are becoming more important in the context of many projects there is a concern that that personal relationships within New Zealand have become disproportionally influential in the context of tender evaluations, and that this creates a self-perpetuating cycle that is difficult to break for unknowns. This is often experienced despite these 'newcomers' having skills and experience wholly appropriate to the project needs. This challenge is exacerbated if there is no objective mechanism or opportunity available to interview all proposed team members.

The concept of an 'A-Team' or a 'B-Team' has also been described as offensive to professionally managed companies that strive to delivery consistency of service across all projects regardless of size or complexity. In effect, institutional knowledge and capability may be being unfairly and even foolishly discounted.

Impacts on Industry

Many participants believed that to value an individual team member so highly potentially undervalues both the importance of a company's financial position, the sophistication and efficacy of the risk management systems and processes embedded within the company, and a company's overall track record on projects of equivalent size and complexity. Ultimately the concern exists that holding an individual team member in disproportionately high regard is not best for project and could jeopardise a project's success.

> "This predisposition to valuing 'the individual over the organisation' has the potential to hugely distort an objective evaluation of likely project success."

A secondary effect also results in that the market is less able to build capability if there is an over reliance on an existing and fixed pool of capability. This in turn reduces competition in the market.

Reality Check

The above concerns are raised in the context of tender evaluations that are accompanied with perceived weaknesses around transparency, consistency and objectivity, and within a nation that many have questioned as being too relationship based. To counter this concern are propositions that the public sector has been so 'burned' in the past that it has adopted a 'better the devil you know' attitude. In reality the range of tender evaluation criteria should be appropriately balanced to ensure that individuals are not eclipsing overall company experience and balance sheets.

What about the Average Kiwi?

Two issues are raised here. The first is as per the previous concern, if the public sector is not always able to fairly or objectively evaluate a tender submission they are unlikely to always engage the firm(s) most able to deliver and improve on the outcomes sought through the design and construction of the asset. The public loses.

Secondly, any over reliance on an existing pool of capability must acknowledge that this pool of individuals will eventually withdraw from the industry. Tender evaluation criteria creates the opportunity to advance individual capabilities within an organisation by providing opportunity for experience and knowledge growth during project delivery, thus providing opportunity and incentive for New Zealanders to stay and advance within the New Zealand construction sector.

Challenge: Local vs. Global

New Zealand has a small population size and is remote it its location. Therefore the domestic construction market largely operates in a globally isolated context. This context provides insufficient demand in relation to projects of a high degree of specialisation and/or complexity to enable the market to build up internationally comparable capability in some areas. This concern relates predominantly to major horizontal infrastructure projects.

When the public sector is faced with procurements of this nature some concerns exist that the current tender evaluation processes are favouring incumbent New Zealand companies in what has been described as misplaced comfort from established relationships; skepticism in relation to the unfamiliar – including best international practice and innovation; and at worst, an unconscious bias e.g. by placing a higher value on New Zealand based precedent projects to substantiate claims of capability. While local companies may be capable of delivering major projects, the concern is that they will not do so in the most efficient or effective manner possible when compared with how significantly larger global companies can deliver at scale and at pace. Selecting from only the incumbents will therefore cost the taxpayer considerably more than it could have should the public sector have engaged an offshore main contractor who could bring with them not only resources i.e. plant, equipment and specialised labour, but potentially improved risk management systems and processes, management expertise and financial position. It was also noted that a tier 1 company in New Zealand would not be considered so elsewhere.

Conversely, where a strong skills base has been established domestically, there exists a capacity challenge in some areas due to the rapid growth of the last few years. This could be considered as a comment most relevant to vertical infrastructure of high degrees of complexity and risk. As per the commentary on 'A-teams' and 'B-teams', there was concern among participants that the incumbent New Zealand companies, inadvertently or otherwise, are at an advantage and that the kiwi brand strength is trumping more objective considerations such as and again, risk management systems and processes, management expertise and financial position.

A further perception held was that the public sector believed offshore firms might too readily withdraw from the market, thus complicating or removing a path of recourse in the event of a dispute. This was considered to be a somewhat one-dimensional or prejudicial view, as ultimately the commitment of an offshore new market entrant to a long-term presence in New Zealand is dependent on the cost of market entry, the context of the project and the individual company's vision, philosophy and culture of doing business. Regardless however, a New Zealand company can just as easily withdraw from the market, whether by choice or forced by financial position. This is demonstrated by the recent events surrounding both Fletchers Building and Interiors, and Ebert Construction.

Parallel to this it was cited that when some incumbents had sourced individuals from offshore to increase capability, they had experienced challenges of 'cultural fit' – the experience of those who had worked extensively within an international context often clashing with those who were considered to have a more kiwi-centric relationship based approach. However it was also cited that adept international management experience is not only used to dealing with these challenges, but can create value-add from cultural differences.

Based on the above concerns, many believed that the best option for an offshore player to enter the domestic market was within a Joint Venture arrangement with a local brand. As a strong engagement will always be required with the local supply chain, the incumbent's cultural understanding of the market was considered to be advantageous. Similarly the importance of any new entrants fully appreciating the New Zealand regulatory market was also stressed. Concerns cited included that of '"lift and shift" approaches being proposed by offshore firms despite the New Zealand context being unsuitable. A counter argument is that if an offshore player wishes to establish itself beyond the life of a specialist project they will need to employ New Zealanders regardless of any perceived 'nationality' of their brand. This is unavoidable in the context of construction as a service based industry.

In reality the most appropriate manner by which the public sector should access capability or capacity is a complex exercise in cost-benefit analysis and wholly dependent on the nature of the asset in question. This should prompt questions such as: is the asset creation specialist enough to benefit from an offshore player; would it benefit from 'fly in fly out' offshore expertise; would it be advantageous for the domestic market and thus the taxpayer to have the bidding party remain long term within New Zealand and/or is there sufficient demand to enable this; can the offshore player assist with improving sector productivity. Similarly how many knowledge worker roles – design and planning - does the New Zealand government want to retain long-term within New Zealand. And does it matter if many built environment solutions are simply "shipped in from China".

However in order to answer these questions and thus set objective tender and evaluation criteria, one participant raised the point that a fundamental piece of guiding information is currently missing from the conversation:

> "What does the government actually want from the New Zealand construction sector?"

This drives to the heart of the challenge – the reminder that the value created by the public sector's new asset is not, and arguably should not be constrained by that unlocked during asset operation alone, but that value can be created by conscious decisions that relate to the delivery phase. However at present it is unclear to the market the degree to which the public sector values New Zealand based and tax paying companies as contributors to the social, economic and environmental success of New Zealand.

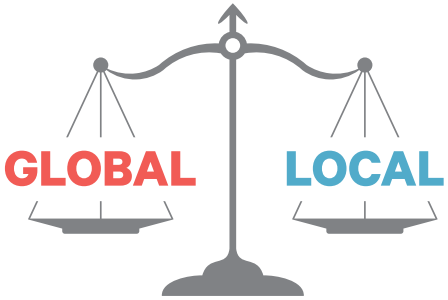
Impacts on Industry

Associated impacts of ill informed decisions in relation to this have been cited as follows:

- Continually favouring the same established New Zealand incumbents can create oligopolies. This reduces firm competitiveness and thus any incentives for innovation and/or increased productivity.
- Reducing the bidding pool increases the risk to the public sector if any of these parties leave the market.
- Any aversion to offshore expertise creates opportunity cost in relation to learning from international companies with more sophisticated systems and processes. This includes full turnkey approaches utilised by many international EPC (Engineering-Procurement-Construction) contractors.
- Any aversion to offshore expertise could be dramatically increasing the delivery costs of projects.
- If capacity challenges are addressed through divvying up work between smaller local companies the public sector must recognise that this creates risk i.e. risk sits in the interfaces.
- An international firm attempting to replicate an inappropriate approach in the New Zealand context.

Reality Check

In relation to procurement, the Controller and Auditor General advises that many public sector entities have a statutory or strategic requirement to "take into account the social, economic, environmental, and cultural well-being of people and communities, the need to maintain and enhance the quality of the environment, and the needs of future generations". Presumably this relates to not only the impact of the asset but also the impact of the asset delivery. To this end it is worth noting that according to PWC, "the sector has one of the highest multiplier impacts of any sector in the economy. This is because of the major impact that construction spending has in stimulating other sectors in its supply chain and through its workers spending their incomes".[17] Presently the total number of individuals employed in New Zealand's construction industry is believed to be approximately half a million.[18] This is almost 10% of the entire population.



Therefore if the public sector makes decisions solely aimed at reducing the delivery cost of a single asset they could be detracting from the value of 'NZ Inc' as a whole. However a strategically managed interface with internationally experienced offshore players is potentially hugely advantageous for both the taxpayer and the market. The question must surely be 'how can the public sector best balance the needs of a healthy sustainable domestic construction sector with the need to tap into global expertise?'

Considered the dominant procurer in the construction sector the public sector exerts considerable influence over the fate of the market. In this respect, a lack of defined market vision could lead to the collapse of the domestic market as existing capability and capacity become eroded beyond sustainable levels. Concerns around the role of offshore players could then become a mute point, as they may be the only option available.

What about the Average Kiwi?

Any unconscious bias towards New Zealand incumbents could potentially be adding significant costs to the delivery of an asset – a fact that many average kiwis who value 'made in New Zealand' may not fully appreciate. This is especially ironic when an international entity may be employing a majority of New Zealanders during the project delivery phase or when a 'kiwi brand' may be outsourcing much of its knowledge work offshore.

However any overt favouring of an offshore entity engaged in isolation of a New Zealand based player, or one that moves any operations offshore, could potentially be eroding the long-term capability and capacity of the New Zealand market. This is especially so if the context of the engagement enables a relatively easy and complete withdrawal from the market post project completion without passing on skills or knowledge.

The New Zealand public will likely benefit most from a strategic and carefully managed interface with international experience to lift the capability and capacity of the New Zealand domestic market. This would provide not only an improved quality of asset and asset delivery but also better access to job opportunities and skills acquisition for the average New Zealander.

RESULTS – Delivering for Value

Fundamentally cultural in nature, two key challenges have been identified in relation to how the tone set during the tendering phases can permeate through the whole project delivery cycle, often to the detriment of all parties.

Challenge: Culture of Mistrust

There is essentially universal agreement among participants that there is a lack of trust between the public sector and the private sector. One participant went so far as to describe this mistrust as "a feeling of dread" within the public sector when faced with the need to engage with industry, while others believed there to be elements of the public sector that did not believe the private sector was actually entitled to make a profit.

Impacts on Industry

Some participants have described the impacts of this mistrust as creating a series of destructive flow on effects.

1. High Pressure High Fear Contract Negotiation

Some tender negotiations were described as exerting a huge amount of pressure on all those involved, potentially stemming from politicians, chief executives or even shareholders. This pressure can translate into mental stress. In addition, when mistrust is present around the negotiating table there is defensiveness and this is also a source of mental stress. Which creates a problem for all parties as mental stress leads to poor decision-making where studies have observed clear correlations between stress and selecting "high-risk, high-payoff options".[19]

> "Both sides of the table can make poor decisions when under pressure".

This poor decision-making can result in the public sector, "led by lawyers who are removed from the messy reality of project delivery" adding copious special conditions to modify standard industry agreements previously established as 'fair' by both clients and industry. It can also result in the private sector agreeing to modifications and risk allocation that they may be pragmatically unable to manage. Ill-advised agreements could also result in unrealistically tight construction programmes and insufficient risk contingency, noting that this can create the additional risk of a more vigorous pursuit of variations during project delivery.

However and again, projects have long gestation periods. In the context of main contracting, the private sector firm negotiating may have spent over a year positioning for a project plus hundreds of thousands of dollars - sometimes even millions - preparing a tender submission. It is not always easy to walk away. Add to this the fact that main contractors rely heavily on cash flow and may incur significant opportunity cost and a pipeline gap if a contract cannot be agreed in its latter stages. This leads to a weakened bargaining position, and contributes to what has been described as essentially a 'master-servant' relationship between the public and private sectors.

This risk is also a reminder of the value of standard forms and agreements - to reduce the-risk of counter-productive decision making by either party. In effect, distrust + pressure = mental stress = bad decision-making.

2. Heavily Modified Standard Contracts/Agreements

Even when modified standard contracts and agreements are successfully closed out there are still tangible negative impacts, as extended negotiations and legal reviews can amount to tens of thousands of non value-add waste. Worst case is that the commercial terms cannot be agreed. For the private sector this results in sunk costs and opportunity cost which may translate into cash flow challenges. For the public sector this may result in losing the highest calibre party available and instead engaging a party that is ignorant to the risks involved and/or does not have the cash flow to employ the necessary due diligence. Should the risks therefore eventuate these parties may not be able to absorb the loss.

3. Unfamiliar Contact Terms and High Pressure Projects

Heavily modified standard contracts/agreements coupled with an adversarial client-contractor culture can have flow on effects on site. Firstly all participants across the project team may not fully understand their roles and responsibilities due to these unfamiliar contract terms. Thus risk may not be appropriately managed due to ignorance. This has been cited as a significant challenge.

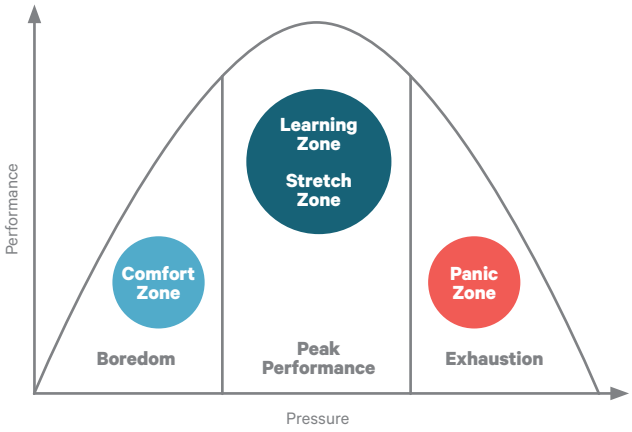
Secondly, projects that are characterised by inappropriate risk allocation, insufficient risk contingency, and a culture of client-contractor mistrust impose immense pressure on site teams and are not healthy or fun to work on. This is demonstrated by the high rates of staff turnover cited in relation to adversarial job sites, often due to stress. The Sydney Light Rail project was cited as an extreme example – they are believed to be on their 7th project director. Data was unavailable for within New Zealand. However for an industry engaged in bespoke projects, any degree of knowledge worker 'churn' throughout the project timeline represents a significant risk.

Reality Check

Highly modified or unfamiliar contracts alone are not the core challenge. However as demonstrated above, projects with highly modified contracts can often be the product of bad decision-making and thus accompanied by tight programmes, inappropriate risk allocation and insufficient risk contingency e.g. high-pressure delivery environments. This creates an almost self-defeating challenge for delivery teams – they must learn the new contractual landscape in order to protect themselves but in a context that makes learning almost impossible.

Figure 9 represents the effect of pressure on performance and how this impacts on learning. While the curve will differ between individuals no one is immune.

Figure 9: The Impact of Pressure on Performance[20]



Thus a vicious cycle is put in motion. A lack of understanding of responsibility under the contract will see risks convert to issues; issues convert to loss; and the pressure ramp up further.

It could be argued that many delivery teams have been set up to fail, especially when one considers that almost all major projects are highly bespoke and due to the fragmented nature of the supply chain, almost all delivery teams have never worked together previously. This is in a context where the opportunity for training and mentoring is considered compromised by 'lowest cost wins'. There is simply no room for mistakes - a comment also made in relation to the public sector and their perceived desire to be absolved of any blame at all times – suggesting that they are subject to many of the same flow on effects.

This has very real implications. High-pressure 'unforgiving' projects directly impact on the standard of health and safety on the job site. Too much time spent in the panic zone and the ramifications of long-term exposure to the effects of stress will become untenable. An individual will elect to remove him or herself from the situation – good people have choices and will vote with their feet - or worst case will suffer a complete diminishment of performance – physical, mental, and emotional. To quote one participant:

> "If procurement is self-interested and is about risk transfer then it stops being a team effort and this culture gets cascaded down to the lowest common denominator and has negative social impacts that extend beyond the job site."

While the conversation on health and safety often tends towards the physical, job sites and indeed design offices such as these are not safe places to work. It is due to such unhealthy working environments that many private sector firms either actively avoid working with public sector clients characterised by adversarial high pressure cultures or put what was described as a 'risk premium' on these parties when they bid. The most important client attribute cited by one participant was a client's 'willingness to collaborate' and noted that their firm would always choose 'incompetent and collaborative' over 'competent and adversarial'. For those private sector parties with bargaining power the market engagement stage of a public sector project is very much a two way street.

What about the Average Kiwi?

"Each year, about 75 per cent of all suicides in New Zealand occur in men. Of these, the majority occur in men of working age. And those in construction are more at risk."[21] These are findings from a New Zealand cross agency report on suicide that reflect the culture of the construction industry in New Zealand. However if the leaders of the public sector desired, positive change could potentially be leveraged by improved procurement related decision-making.

> "If you want a good team, you have to create the right environment."

Challenge: Sub-Optimal Public Sector Participation

Building on the previous theme a number of participants expressed concern in relation to client satisfaction at the close of the delivery phase, cited by one participant as "There are unrealistic expectations around how to build the job and then the outcome is not liked.

There are two issues at play here, and both relate to the potential lack of understanding on the public sector's part of the key role that they play in ensuring positive outcomes.

The first relates to the type of market engagement selected and the mistaken belief that a project completed under a tight programme, to a tight budget, often to the minimum compliant standards, and by teams engaged predominantly on a lowest cost basis - may not fully reflect their expectations. Essentially some public sector clients are unable to conceptualize how the maxim ' you get what you pay for' could apply to their construction projects. However, when parties are engaged predominantly on price this is based on conscious choices taken by the public sector agency. Any sub-optimal performance thus results in part from this decision making process e.g. was there sufficient due diligence undertaken to ensure these parties could deliver to expectations?

Secondly, once market has been engaged, participants have cited that the public sector can often tend towards a master-servant transactional approach despite the fact that collaborating, as a 'team of equals' would add more value. This is most relevant in the context of vertical construction, described by one participant as essentially a process of 'deal making', and also reflects the complex and often subjective nature of a piece of 'social infrastructure's design process.

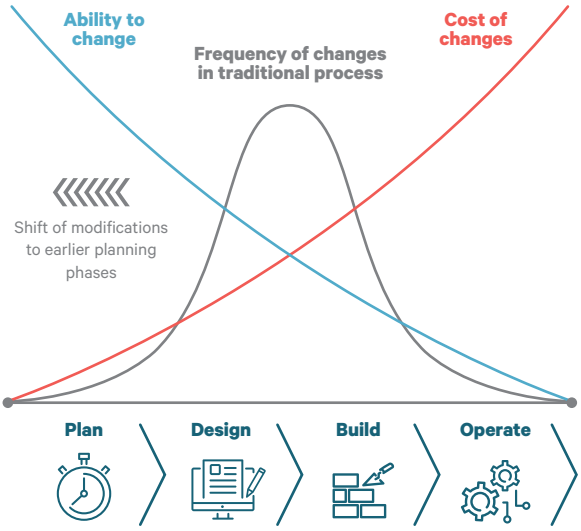
Thus design decisions may not be made in a timely manner or worse, may be re-litigated throughout the process. It was also highlighted that the quality of the public sector contract management during this period was highly variable and very much depended on the individual personalities involved.

Impacts on Industry

Figure 10 illustrates the impact that design changes have on cost in relation to the point they are made in the project life cycle. A change on paper can be relatively easy, a change on site not so much but the more the design or construct process advances the harder it is to accommodate the change. Therefore if the public sector has not frozen and prioritised their scope requirements during the planning stage, their outcomes sought will become increasingly expensive to achieve i.e. 'front-loading' the planning and design phase reduces waste.

> "Understand what you want and who you're dealing with, because if you really want the outcome, then you have to take part in the process."

Figure 10: Cost of Changes in the Construction Life Cycle[22]



Reality Check

The decisions that the public sector makes in relation to the scope, budget, programme, delivery model, or parties engaged – all of which require extensive planning and due diligence – directly influence how satisfied they will be with the cost, quality and timeliness of their completed asset. In addition, this influence does not end at contract signing. For a vertical build at least, unless the market is engaged under a performance based design brief that is 100% frozen, allocates all risk 100% to the private sector and then withdraws completely from the process - the act of project delivery will always remain as co-creation between the two sectors via a process of iterative problem solving. Hence both parties are required to commit to playing their part in the value creation.

What about the Average Kiwi

The average kiwi is bank rolling the waste associated with poor and untimely decision-making. The World Economic Forum suggests savings of up to 15% are achievable through eliminating waste via collaborative working.[23] Based on the above therefore, millions of dollars of New Zealand taxpayers' money is currently being spent on non-value add activities because of insufficient teamwork.

04

WHAT TRIGGERS NEGATIVE PROCUREMENT?

"Nothing happens in a vacuum in life: every action has a series of consequences, and sometimes it takes a long time to fully understand the consequences of our actions." Khaled Hosseini

The challenges outlined above could theoretically be easily substantiated while high-level macro concerns are self-evident. Project level experiences cited are anecdotal because as previously stated, the private sector fears too greatly for reputational damage and public sector 'black listing' to formally follow up when they have grievances. Many also lack the belief that this feedback would be acted upon in any meaningful way. The project level feedback does however, correlate with a separate piece of research specifically relating to public sector procurement of architectural services within New Zealand.[24]

However an understanding of what has caused these challenges - the original triggers - is of most value to the conversation. To this end participants have speculated on what they strongly believe to be some of the key drivers for the procurement challenges that we find ourselves faced with.

On the Public Sector

Participants strongly agreed that there is a lack of effective leadership and capability within the public sector procurement space and that this space is too often characterized by a master-servant culture of hierarchy, mistrust, and fear, which is underpinned by insufficient knowledge, skills and training. Specific feedback in relation to these beliefs is outlined as follows.

At Policy Level

A single long-term vision is paramount if the public sector is to best operate as a system in the context of major infrastructure procurement. To do this the political parties would need to agree on the key long-term outcomes sought for New Zealanders and how these translate into physical assets e.g. exhibit collective and strategic long-term leadership.

However it is strongly agreed that our politicians - at both central and local government level - are failing in this regard. Instead through either ignorance or short-term political point scoring, there is thought lacking a will to commit to any agreement on what infrastructure the nation would most benefit from long term. To this end it is believed that the outcomes sought have the potential to be continually redefined by each political cycle. There is also concern that disruption occurs within the political cycle as individuals come and go.

At a project level it is strongly believed that our elected politicians do not understand the concept of outcomes sought versus whole-of-life costs and therefore do not know what 'value for money' looks like. Rather there exists substantial concern that too many decisions made by politicians are designed to drive down costs within their short term tenures so as to reflect favourably with voters that may also struggle with these concepts. In this context capital asset investments become reframed as politicised expenses and voter ignorance is exploited.

Participants also believed that any 'vote grabbing' creates an inherent tension between how procurement staff and elected members act in relation to procurement. While elected members have an immediate incentive to drive down these delivery costs, an informed agency's core objective will be to design for whole-of life that may be as much as 50 years.

Therefore even if the public sector procurement team understands what value for money translates to in a wider triple bottom line context, it is thought that sometimes they may be instructed and/or expected to follow rules to the contrary in aid of the incumbent's political gain.

To cite multiple participants:

> "There is a need for the de-politicisation of infrastructure."

Similarly a lack of committed political leadership was also cited in relation to the construction sector itself.

At Agency Level

Many participants were concerned that the public sector's chief executives are not adequately informed or aware of what is happening in their own agencies in relation to procurement. In many cases they were believed to be completely divorced from procurement activities. Instead many participants were left with the impression that key decision-making was entirely at the discretion of individuals, often without sufficient guidance or oversight.

Concerns were also raised that many chief executives have no understanding of whole-of-life costs and how these relate to achieving value-for-money. Thus it was believed that some chief executives actively push for the lowest delivery cost achievable and contribute towards master-servant adversarial procurement cultures. This was also reflected in comments whereby some participants believed many public sector operations personnel actually have a very good understanding of value-for-money procurement decisions but lacked the support of their chief executives.

At Project Level

Procurement capability at agency level was considered by most participants as challenging overall with some believing the quality to be getting worse as opposed to better. There were concerns that although procurement for infrastructure projects requires a specialist set of skills, the sophistication of procurement teams were often very low, with the belief that some individuals have fallen into procurement roles essentially by accident. A high degree of variance in backgrounds has also been observed - some highly technical and others purely process managers – demonstrating a lack of consistency with regards to the skills, training and experience the public sector deems appropriate. Similarly it was thought that many agencies did not adequately invest in the training and up skilling of their procurement staff and although willing to fund risk transfer (noting that some of these risks will never be realised) are not willing to pay the costs of training, which would likely pale in comparison.

A lack of agency control and ownership over procurement decisions was also cited with multiple parties concerned by what was perceived as a growing level of public sector bureaucracy. This included a belief that lawyers are being allowed to unilaterally drive decision-making when it should be a comprehensive exercise in cost benefit analysis undertaken by appropriately qualified and experienced teams. Specific weaknesses in capability were also cited in relation to identifying the right delivery model and the most appropriate method of market engagement in relation to changing market conditions.

There were fundamental concerns that some agencies viewed procurement of infrastructure as a simple exercise and one no more differentiated in its needs than for the acquisition of basic goods or services. To cite the participants "therefore there are lots of people employed who do not understand procurement" and "when you have people who have no idea you have major issues". It was universally agreed that in order to have intelligent conversations during both tender negotiation and during on-going project delivery you needed commercial and design/technical expertise on both side of the table. As one participant put it:

> "It takes a thief to catch a thief".

Participant thoughts on further contributing factors are noted below. These are framed in the context of research on common causes of failure of people within an organisation.[25]

Expectations don't exist and/or are not communicated

- Shifting changes in political agendas confuse clarity on outcomes sought.
- Roles and responsibilities within procurement teams are not always clear.
- There is no clear vision in place as to what politicians want the construction sector to look like.

Expectations not reinforced

- There is no single party tasked with checking that the public sector 'procurement system' is working at an optimum.
- Supply chain 'complaints' are considered a key mechanism to identify weaknesses – however this mechanism is underutilized.
- Audits are not able to assess the degree of 'intelligence' that has been applied to the process.
- There is not enough follow through in relation to strategy/ policy/guideline documents and the practical implementation of – therefore people will revert to what is familiar and easy.
- There is a general lack of system checks and balances.

Lack of knowledge and/or talent

- Lack of 'real time' market understanding of capability and capacity.
- Insufficient communication with market to understand the impact of procurement decisions.
- Lack of commercial and/or design/technical expertise to sufficiently understand risk and value.
- Lack of due diligence skills.
- Lack of project planning skills.
- Lack of procurement process skills - there is considered limited practitioners in New Zealand.
- Public sector procurement professionals have no mandatory requirement to possess a procurement qualification or to keep all relevant qualifications up to date.
- Lack of data collection and/or analysis to inform decision-making, real time or otherwise.
- Data collected is not done so in a consistent manner and therefore cannot be easily compared.

Data Driven Decision Making

The lack of data associated with the public sector was a strongly recurrent theme among participants. If there are insufficient comparable data sets available, comparisons cannot be easily made between either differing approaches of market engagement, or between differing delivery models in varying contexts. Without sufficient data it is also extremely difficult to recognize or quantify the impacts of poor planning. Without sufficient data it is impossible to establish objective tender criteria, weightings or how to fairly translate a bidder's information into a score. Without sufficient data it is impossible to quantify the waste or opportunity cost incurred through current procurement practices and decision-making. Without sufficient data it is difficult to engage in effective continuous improvement. In short, you can't manage what you can't measure.

Therefore the ability to objectively establish the success of any project is compromised. Multiple participants cited that much more transparency was required in both sectors with regards to the out turn costs on all projects. There was also a strong belief that there is insufficient evaluation of asset success taking place e.g. are the outcomes sought actually being achieved? The public sector did not deny that this is a very real challenge noting that the OAG has not historically required audits to even ensure that there is an 'outcomes evaluation' plan in place.

Essentially insufficiency of data roadblocks evidence based decision-making and the ability to undertake the undeniably complex cost-benefit analysis of whole-of-life cost versus value of outcomes sought that must occur during the planning stage of any investments. While Treasury acknowledge this as a contributing driver for the PPP models – to obtain a better understanding of whole-of-life costs – the delivery and operational model for an asset should not impede the ability to collect data associated with it, noting also that this is a clearly defined step on the 'Review' phase of the current Investment Life Cycle guidance. However one specific criticism was made in this regard "the public sector is not prepared to pay to ensure quality data is collected."

Procurement Culture

It is believed that the above deficit creates fear within many agencies and that this fear drives a bias towards master-servant lowest cost competitive tendering and therefore adversarial contractual relationships. It was proposed that public sector employees are mostly afraid to procure outside of this model due to the challenge of demonstrating value through alternate procurement strategies should they be audited e.g. delivery cost comparisons and risk shedding may be considered the only available indicator of having achieved 'value'. It was further proposed that this fear drove a desire to actively discredit more strategic, progressive and collaborative forms of market engagement and project delivery. One participant cited an example of a collaborative delivery model that was audited over 30 times. Yet the question was asked – where are all the audits of the lowest cost tender traditional build only jobs? Hence all of the associated waste seemingly goes unquestioned. Essentially rather than data being leveraged to improve the quality of procurement decision-making, concerns were raised that probity of process had simply increased.

Fear was also proposed as a contributing factor for what is perceived as the insufficient planning of many public sector projects. It was believed that despite the planning stage of a project being pivotal for success – where outcomes sought, risks, total cost of ownership, budgets, programme, delivery models and method of market engagement are all agreed – many agencies rush to market due to political pressure.

> "90% of project success is defined by the planning stage. Too often the challenges stem from insufficient time invested in the planning phase. Agencies are too hasty to get to market to demonstrate tangible progress."

The fear of losing control of projects was also cited as a reason for many agencies not seeking help.

On Main Contractors

Issues of leadership, capability and culture were also cited in relation to the private sector and a number of criticisms exist. Many of these are a result of observations made during contract negotiations and project delivery, while others are the private sector's own candid view of what they believe to be industry weaknesses.

Context

Participants described the historic model of project delivery in New Zealand - dominating both vertical and horizontal infrastructure - as predominantly being traditional e.g. the design-bid-build model. In simple terms this means that the core key success factor of the main contractor was the ability to build well. The client essentially provided all 'design instructions' and should these be incorrect, a variation could be claimed. Buildings and networks were also of lessor scale, complexity and risk and the most important skills were those of the trades.

However over approximately the past 20 years the role of the main contractor has gradually evolved from that of a 'constructor' into that of a 'risk manager' - construction becoming merely the risk medium. This has been driven by the introduction of both more sophisticated delivery models and more sophisticated building designs. This report does not seek to understand all the drivers of this evolution but many participants have cited that the private sector willingly and proactively pursued this change in role. After all, to remain a constructor reduces bargaining power in the market and renders main contracting as essentially an undifferentiated commodity service.

However a new and additional set of skills is required to be successful as a risk management entity – those of knowledge workers. As has been acknowledged in previous sections of this report these skills do exist in the market. However the past 5 - 10 years have also been characterized by unbelievable growth and hence the challenge faced by the private sector – and the public – has been one of capacity constraints, the pace of demand outstripping the ability for the sectors to prepare for the volume of projects expected of them.

It is in this context that the following observations and speculations have been proposed.

Leadership

Based on participant feedback the implications of change have not always been well understood, well led or well managed by many private sector firms. This has been reflected by some pursuing rapid revenue growth without a sufficient understanding of the capacity of the firm to deliver. Reasons for this have been cited as short-term thinking; directors divorced from the implications of rapid growth in the context of their new 'risk management' focus; plus a general lack of integrity. This lack of integrity was cited as fiscally driven individuals and a landscape characterized by ill informed, sometime reckless, decision-making. Rapid company growth was thought as not always accompanied by a robustly considered or sustainable company strategy.

> "The fiscal model has overtaken an outcome-based model – there's an erosion of genuine responsibility".

Arrogance and ignorance were both terms applied to leadership within some private sector organizations although a perception of disempowerment on occasion was also cited. The master-servant 'yes man' culture so entrenched in some private sector individuals that they reverted to subservience when under any degree of pressure.

Culture

The absence of well-managed growth within the private sector was believed to manifest as the cultural challenge of shifting mind-sets from reactively claiming variations to proactively participating in the problem solving risk management process. This was cited as evident in a number of contract negotiations for PPP projects where the private sector was believed to struggle with their new role – that of being active collaborators as opposed to providing a reactionary service. The shift of focus from controlling delivery costs to that of driving towards the best value total cost of asset was also cited as not fully understood in relation to the implications on the design process. In this regard elements of the private sector struggle just as much as the public sector and have been accused of trying to 'shoe horn' the new models into the old way of doing things.

The failure to make this mind-set shift from the 'old ways of thinking to the new' has also been cited as evident within delivery teams, which have demonstrated a lack of understanding of their roles under more sophisticated high risk delivery models than previously experienced under the traditional approach. In essence a communication breakdown is believed to have existed between the leadership of main contracting and those on the ground with regards to expectation and understanding.

Capability

As per the public sector, feedback on capability has been framed in relation to common causes of failure of people within an organisation:

Expectations don't exist and/or are not communicated

- Lack of transparency in firms in relation to what has been bid and how it should be delivered e.g. bid teams do not adequately communicate to delivery teams what is required on site in relation to contracts that are not traditional Design-Bid-Build.
- Insufficient training and preparation of teams for new delivery models.
- Lack of mentoring and training.

Expectations not reinforced

- Insufficient systems and processes in place to highlight deficiencies of skillsets/decision-making.

Lack of knowledge and/or talent

- Lack of understating of the levels of due-diligence required prior to committing to a bid.
- Lack of understanding of the change management process.
- Lack of commercial understanding in relation to non-standard delivery models.
- Lack of high quality estimators, project managers and programmers.
- Lack of design managers and design risk management in general – applies to consultants also.
- Low quality logistics planning as sites grow more complex.
- Gradual erosion of practical understanding of first principles of building.
- Graduates enter the market with limited practical and commercial skills.
- Extremely poor knowledge management e.g. sub par knowledge sharing within private sector firms.
- Lack of feedback loops between delivery and commercial teams to inform continuous improvement.

For many in the public sector what was intimated as possible by the private sector failed to convert in reality. As a result of various sub-optimal project outcomes within the private sector it has been recognised that many in the market have a desire to move back to traditional models of delivery. However as one participant observed:

> "The danger of going back to build only jobs is that it leaves price as the only differentiator. This WILL create a race to the bottom."

Shared Responsibility

However the negative experiences of the public sector to some degree also support the impacts of the previous challenges on the private sector – insufficient certainty for staff retention and training, disempowerment at the negotiating table and the self-defeating impacts of high-pressure contexts.

The question was therefore asked - has the public sector always conducted sufficient due diligence on bidding parties or gained sufficient understanding of the market? If so how can they not have been aware of these capacity constraints, capability challenges and what was generally described as "grit in the system"? It was proposed that a responsible' 'intelligent' client should act on this knowledge as they will recognize that it will not end well for either party as a mutually beneficial relationship is key for the long term success of both. However as one participant pointed out:

> "If you underperform in the private sector you simply cease to exist".

While this is increasingly evident within the New Zealand construction market, the public sector is not faced with such consequences.

Conversely those private sector entities considered to be doing the best were those of scale and with sufficiently diversified service offerings – often including interests overseas – that enable them to weather the pipeline uncertainties and policy shocks. Successful firms were also believed to operate strict go-no go policies in relation to the projects they pursued and the contracts that they signed, and to have the cash flow to be selective.

However it was believed that the need for 'scale and diversification' only exacerbates the difference between tier one and tier two contractors and will likely result in a smaller market with fewer bigger players for projects of any appreciable size and complexity.

05

THE PRIVATE SECTOR BEHIND THE SCENES

The procurement challenges cited are pitched for the most part as a confrontation between the private sector and the public sector. However during the planning and delivery stages the private sector plays a pivotal role on influencing the public sector's decision making.

On Professional Cost Planners

The success of any project relies heavily on the accuracy of the budgets proposed during the planning stage. The expectation cited from the public sector is that the private sector use a variety of estimating tools and apply market understanding in order to reduce the risk of a budget being grossly inaccurate when the project is due to market. However major weaknesses have been cited in relation to the quality of advice that the public sector has sometimes received from professional consultancies, the risk of optimism bias notwithstanding.

Scoping should be frozen at the close of the business case phase. However as was cited, when budgets are found to be too low, trade offs start to occur in real time during either the procurement or the design phase as a process of 'swap in - swap outs' start to occur. As demonstrated, this exercise is highly disruptive and costly to all. Achieving realism around budgets is therefore crucial.

Huge challenges were also cited around the ability of the profession to both recognise and/or quantify risk, plus the ability to effectively communicate the uncertainty associated with the numbers provided at the various stages of project planning – especially so in relation to PPP whole-of-life costs. It was also thought that often cost planning, estimating and quantity surveying was thought to all be the same skillset, exacerbating the challenges.

On The Legal Profession

Multiple participants have criticized the legal community for the variable quality of legal advice often being offered to the public sector. This includes the quality and consistency in relation to rewriting general conditions of contract and encouraging what is considered to be inappropriate risk share. Lawyers were largely seen as parties who immediately defaulted to risk transfer regardless of whether this is best for project. They have also been accused of hypocrisy in that once any inappropriate risk transfer is established the same lawyers "do not have to wear the outcome" as they are not invested in any way in the successful long-term outcomes of the project. To cite one participant "they have no skin in the game".

Concerns were also raised that agencies sometimes have little understanding of the legal skillsets required for construction related procurement, thus they are engaging parties wholly inappropriate for the undertaking.

On External Project Managers

It was considered by some participants that when an outside project management company is engaged by the public sector, it generally does not go well. The approach was believed to lack consistency of approach and was subject to the same criticisms as the legal sector – the parties have influence but are not sufficiently invested in the ultimate long-term outcomes of the project.

Key Challenges

Despite the above assertions it should be noted that these sectors have not had the right of reply in the context of this research. Their point of view would be very much welcomed to gain an understanding of the challenges that they too inevitably face. However it can be reasonably concluded that two significant challenges nonetheless exist.

Firstly, the outsourcing of skill sets. For an agency to outsource a skillset that the agency does not possess, the agency must have the means to be able to evaluate the appropriateness of the private sector offering. This applies to all services equally.

Secondly, any misalignment of incentives can create a conflict of interest that is not best for project e.g. if a project manager is incentivised to drive for on time on budget project delivery this could compromise value for money over the total cost of the asset. In short, the parties engaged to serve public sector interests may not always be paddling in the same direction.

06

THE ROUGH AND THE SMOOTH OF NZ

Participant concerns to not apply to all agencies equally. However understanding why is key to identifying what changes might add value to those agencies considered to be struggling. To this end participant feedback has contributed to the following.

Land Transport

Cited by almost all participants as a high performing organization, the New Zealand Transport Agency (NZTA) was continually described as a "procurement centre of excellence" and "streets ahead of other agencies". Reasons cited include a number of strategies that directly relate to procurement challenges highlighted, and which are believed to have assisted the private sector with improving and increasing their resources.

NZTA strategies include a transparent forward works programme and a clear indication of what projects are coming to market. It is understood that due to how funding streams are managed the NZTA are able to commit to and coordinate these projects. The NZTA also actively liaises with industry to talk through these projects and to seek feedback on industry capacity. When policy shocks occur the NZTA works with industry to assess how impacts can be reduced in severity.

In relation to project level strategy the NZTA are considered to have a very good understanding of risk and value and how these considerations inform the most appropriate delivery model. They are also considered to be realistic about what they can get for their money. As they retain a high degree of technical expertise in-house they are able to engage in well-informed best for project risk and value discussions during tender negotiations.

However participants were quick to point out the NZTA's core reason for existing is to build and continually maintain a high volume of land transport options – historically dominated by roads. Therefore the core skills required and highly valued within the agency include by default those that are technical in nature. This enables 'peer-to-peer' dialogue with industry. In addition because the NZTA manage and maintain most of their assets they have a more informed understanding of whole-of-life costs, which enables them their informed understanding of value.

Their tender process itself was described as highly disciplined, utilising established systems and standard contract forms which are not changed. Due to control over funding streams to local councils the NZTA is also able to mandate that their processes be followed, which increases consistency of approach. This funding lever is an important tool to ensure compliance. It was also cited that for the past 20 years the NZTA has required at least one team member involved in procurements over $200,000 in value to have a relevant procurement qualification.

With respect to leadership and culture, the NZTA is believed to "respect and value" its supply chain.

This industry feedback correlates with the NZTA's own purposeful strategy and views on their key success factors. They realise the importance of being closely connected to their supply chain in order to be able to effectively deliver on their own outcomes sought. Given the size and scale of their programme, there is an acute awareness of how their procurement decisions – in terms of how their delivery programme is packaged, tendered and subsequently awarded to market – ultimately impact on how industry shapes and organises itself. To support this the NZTA is continuing to invest in specialist procurement resources to conduct analysis into the market at a local, regional, national and international level to help inform planning and sourcing strategies.

In addition, the NZTA - in its aspiration to be a modern and continually evolving procurement centre of excellence - continues to place importance on the need to innovate through being open to the trial and adoption of new procurement methods and approaches. The NZTA is proud of their strong track record of contractual innovation, having brought new collaborate style delivery models (like ECI, Alliances, and Hybrid Alliances) to the market.

While the nature of their projects is considered to have been heavily prescriptive in the past - hence claiming variations was believed to be relatively easy for constructors - these concerns would appear less relevant today under these new models. The NZTA have also stressed the need to ensure that risks are mitigated appropriately and prior to construction. Technology can assist with this.

In relation to technology some participants were concerned that the NZTA lack sufficient data collection. However the NZTA - in recognition of their heavy reliance on data - are committed to building capability in this area. To this end they are currently in the process of recruiting specialist roles to focus on analytics while already embedded in the organisation is the capture and application of lessons learnt from both the procurement and delivery of projects. These lessons learnt provide critical inputs to inform new and emerging project procurement strategies and are supported by their PACE (Performance Assessment by Coordinated Evaluation) system. This manages feedback to and from industry to also inform continuous improvement

Of note is the very strong shift currently within the NZTA towards 'system thinking'. This recognises that solving transport infrastructure challenges "may not necessarily result in a roading solution, and instead considers all the moving parts of a connected transport system, keeping the customers at the heart of designing these solutions".

This is likely to reduce in relevance some participant's observations that the NZTA's market has been historically dominated by a small number of players, three of which were described as having extremely strong control over the New Zealand roading raw material supply chain. Similarly whilst the NZTA's pool may have been historically limited to tier 1 contractors and therefore smaller in size, it is likely the NZTA will become more reliant on tier 2 and 3 providers who will engage with a higher proportion of small to medium sized projects. This reflects changes to the NZTA's forward programme as a result of changing Government priorities. The NZTA recognise that new thinking is needed around efficiently packaging projects together to gain greater efficiencies in both design and delivery.

This focus on 'new thinking' is extremely important to the NZTA. While some participants cited concerns in relation to the recent restructure, the NZTA needs to be agile in response to changing political priorities. Regardless it is fully committed to ensuring it continues to deliver on its foundations – a transparent procurement pipeline of work and strong industry connections. To this end the NZTA has highlighted the importance to them of leveraging strong industry contacts to communicate changes such as these.

Part of this evolution is also to provide greater leadership and collaboration with approved organisations, again to ensure that transport solutions are also 'system solutions'. The NZTA recognise the opportunities available for further joining up of programmes thus leveraging cross-agency synergies to unlock greater value through both reduced delivery costs and in relation to outcomes sought.

The NZTA also competes with the private sector for talent, an on-going reality exacerbated by current market demand for key skills. Thus they too are impacted by the boom/bust cycle.

The Three Waters

Currently the three waters (drinking water, storm water and waste water) are controlled entirely at local government level and therefore lack any mandated consistency of approach. Significant concerns exist in relation to this current model and the Havelock North Water inquiry[26] was highlighted a number of times to demonstrate a lack of capability within some smaller controlling entities, the consensus being that no one party achieved sufficient economies of scale to establish appropriate capability in-house.

There were also concerns that a lot of New Zealand's 3 waters infrastructure is coming to the end of its economic life and that future proofing and sufficient upgrading of the systems has been neglected. However the impact of any deficiencies in the 3 waters space is far reaching in the context of both the Ministry of Health and Ministry of the Environment.

However two exceptions cited in relation to this model are Wellington Water and Watercare, both the result of the consolidation of smaller local council controlled operations into professionally managed companies.

Wellington Water

Wellington Water is considered an extremely high performer in the procurement space, and it is likely no coincidence that their Chief Executive previously held a senior role in the New Zealand Transport Agency. In this regard culture and vision alignment are of core importance to Wellington Water. All parties in their supply chain have a clearly defined and single common goal – to serve the customer. To achieve this end Wellington Water cultivate open, honest and respectful peer-to-peer relationships and by doing so are creating extremely safe mental spaces to work in for all parties in their supply chain.

This supportive sharing culture is reflected in a number of innovative approaches in their procurement strategies, where both panel arrangements and delivery models have been 'co-designed' with market. This recognises that before you can learn the project, you must learn the delivery context. By including their supply chain in these discussions they are able to ensure feasibly of an approach in the specific project context, supply chain understanding of the approach, and buy in and commitment to successfully delivery under this approach.

This includes design consultant panels engaged entirely on non-price attributes that meet face to face to divvy up forward work in real time, thus collaboratively agreeing on which firm is best placed with both capability and capacity to delivery. The strength of peer-to-peer is such that a firm can change their mind after reflecting on their choices and firms have even been known to swap work amongst themselves after the event. People are not afraid to say 'actually, I'm not sure that I can do this right now'. A similar approach is taken with their constructors.

> "Act as peer-to-peer within the supplier network – learn to love them."

Wellington Water demonstrates what a sustainable approach to procurement actually looks like by developing a 'Healthy Market' strategy. This addresses the risk that if work is continually won by a small number of players who are able to strengthen their competitive position as a result, Wellington Water will both reduce their own market and exclude smaller players from entering. Thus procurement strategies are designed to create both succession planning plus growth in the local market e.g. there are Key Performance Indicators around the percentage of work that must be performed by local resources with defined protocols on how this is managed. Upshot however is often a transfer of knowledge from a larger national incumbent to a smaller local firm, which also counters the risk of all design expertise moving offshore.

Design and planning processes are also heavily front-loaded and a 'runway approach' utilised where risks are resolved as early in the process as possible. Wellington Water appreciates that the bespoke nature of projects will always throw up unexpected challenges and account for this in their process. In this regard they strongly believe that to commoditise the design process is the worst thing that you can do.

In recognition of the learning curve required across multiple parties, Wellington Water are leading a change management process where there is a gradual and managed transition to more collaborative delivery models. The ultimate aim is to always include the supply chain in the design process so as to marry the design intent to the best construct methodology as early as possible. They have recognised the heavy burden on the private sector involved in pricing for design-construct-maintain contract models and have moved away from this, also removing the lead-time of projects eaten up by the market's need to de-risk their pricing. In this regard they are engaged in a committed process of continuous improvement. Their open safe trusting culture enables robust information flow in both directions. This serves to provide real time feedback on what is and what isn't working and allows constant adjustments of process to be made.

Proof of concept is utilised to entice other 3 waters entities along with them on their journey. They communicate effectively in multiple directions – to the councils that they serve, to their supply chain, to the end consumer. Strategies involve simplifying information and utilising info-graphics to ensure ease of consumption while they have also assisted with establishing a forum that looks for synergies with those of geographical proximity.

Most critically however, Wellington Water are ensured the autonomy required in order to de-couple their operations from politics, and the decision making from those who are not required to have the degree of commercial, design and technical acumen essential for informed decision making. They operate as a separate company under an independent board. It seems to be working. Their CAPEX spend was cited as reflecting 95% of their intended work, with no corners cut. Their focus is always on long-term value creation.

Watercare

Watercare share much of Wellington Water's value set and recognize the need to carefully manage gradual change towards an operational optimum.

Whilst subject to criticisms in the past, Watercare has identified that if they want different results they need a new approach and is now highly committed to moving towards more collaborative relationships with what they describe as their "infrastructure partners". These partners include design consultants, contractors and even strategic material suppliers. It is notable that the heart of this approach is considered to be the supply of their forward works information, relationship meetings with the private sector and market briefings. Again this demonstrates a clear recognition of the need to "help industry, help the public sector".

Change is being pursued under their Strategic Transformation Programme, which also serves to highlight the importance of having a change management plan in place in order to achieve real results in this complex procurement space. Moreover these results are expected to manifest as improved market outputs – a win-win for both parties.

The first step of this relationship-building journey has been to implement a design consultant panel. This panel arrangement outlines clear expectations on what value and performance should look like and thus begins to address the industry challenges cited around not only value identification but also behaviours, and the mutual need for positive participation from both the consultants and Watercare. This exercise includes a relationship matrix that operates at multiple levels and supports these performance expectations. As per Wellington Water work is then allocated via negotiation as well as multiple party bidding.

Recognition of the complexity of infrastructure procurement - even within the waters space that could be considered as homogenous asset management to the layperson - is evident in Watercare's approach to construction related contract models. Work is divvied up into three construction categories: renewals projects, projects of $2 million-$150 million and $150 million+. The aim is to not have a 'one size fits all' approach but to carefully analyse each project and best match the methodology for both Watercare and the market. For projects of the larger contract values a careful exercise in matching delivery model type i.e. traditional design-bid–build, design build, hybrid design build, Early Contractor Involvement – to the characteristics of the specific project in order to ensure 'best fit'. Even smaller asset renewal projects are being rethought and bundled into programme packages – some of over 100 individual projects running under contracts of up to 5 years in duration.

Yet as per Wellington Water, it all starts with a shared vision – to serve the customer "When we shift the conversation from one about features and functions to one about customers and customer outcomes, we deliver more useful, usable, and desirable solutions."[27]

However Watercare also acknowledge that there can be factors outside of an agencies control which can sometime hamper intended progress – such as the realities of the Resource Management Act and the Environmental Court. Again, this highlights the importance of effective and efficient communications with the general public.

The importance of a data-driven approach in relation to 'upstream' decision making was also highlighted, including the limitations of some current data collection "it's no good being data rich but unable to easily access the data available".

This is also starkly evident in the context of this research. Watercare was the subject of some degree of criticism but many external parties may not be aware of the change management plan underway. Ultimately Watercare have acknowledged the poor productivity within New Zealand's infrastructure sector and have both recognised and taken positive ownership of the role that they need to play in order to assist with driving change.

> "We are moving to create an environment where we can address the poor productivity in the New Zealand infrastructure sector. This will require Watercare, our design consultants, suppliers and construction contractors to work in a more joined up fashion to collectively address the problem."

Vertical 'Social' Infrastructure

Key parallels between the NZTA, Wellington Water and Watercare are that they all have an incentive to retain some degree of high quality in-house design/technical expertise. This after all is the focus of their service delivery.

> "As an asset owner, it's very hard to be informed unless you operate your own assets."

However this is contrast to social infrastructure where generally speaking the asset itself does not always provide the service directly itself, but rather enables it or enhances the quality of it. Therefore the value of retaining a high degree of in-house design/technical expertise is not always immediately apparent. Examples are discussed below that represent feedback of varying degrees of perceived success.

Department of Corrections

Considered a strong procurer by many, industry has cited multiple times that this is due to their strong and informed procurement leadership. The following comments are in the context of their PPP projects.

As per the NZTA the department conducts early market engagement to assess capacity and capability in the private sector. They also spend a significant amount of time in ensuring that they are absolutely clear on what problem they are trying to solve. This involves highly sophisticated discussions during their detailed business case with regard to how these outcomes are defined and converted into realistic, quantifiable and achievable metrics.

The culture within this procurement planning is one of an outcomes focus e.g. what the asset looks like is of no concern to the department so long as it enables them to meet their service delivery objectives. This fundamental shift has led to operations having much greater representation during the design and planning discussions. It also reduces the need for in house design/technical expertise although it does require an extremely sophisticated skill set. For example the Wiri request for tender was released to market without a single drawing.

This commitment to resolving all on paper is also reflected in their aim to fix their requirements entirely through the briefing or design stages so as to have zero design requests issued during asset construction. In this respect they operate a heavily front loaded planning process and operate a clear go/no go via gateways in this process.

Similarly the relationship with market is one encouraged as peer-to-peer in recognition that high performing assets are the product of high performing delivery teams. These teams require all parties to have full vision alignment, and to approach delivery as a 'family' as opposed to in opposition.

The Ministry of Education

In recent years the Ministry of Education has made many changes in relation to their procurement approaches in recognition that the historic model – where asset procurement was owned and managed by individual school boards of trustees – had weaknesses. These included a lack of big-picture strategic thinking, insufficient capability at a schools level, a dependency on external project managers, and a potential conflict of interest between short terms wants and long term needs e.g. politically driven decision making.

The result of these weaknesses is a historically poor procurement history that has left the Ministry with a reputation of 'lowest cost wins' decision-making. Some believe this to have been to the extreme detriment of their whole-of-life costs and a connection between lowest cost and leaky schools was proposed.

The current intent is understood as a strategic approach where the context of the project is intended to inform the procurement approach. Procurement is no longer managed at a schools level and project management is increasingly performed in house to ensure alignment of core drivers and a consistency of approach. 'Innovative Learning Environment' design requirements are utilised to define educational outcomes sought – it is unclear what additional value-add the Ministry may look to 'pick up along the way'.

What is also of interest is how much the boom/bust cycle, and especially the current boom, creates challenges for the entity. Again, a lack of long term planning from a systems perspective coupled with escalating construction costs has resulted in the need to build more but on increasingly constrained budgets. Parallel to this is the need for sufficient in house capability and the funding to support this i.e. while the Ministry may be granted funding to cover increased capital expenditure their internal operating budgets may remain the same. This means fewer people to manage more procurement. From this perspective therefore, the Ministry of Education, and presumably many more government departments are faced with many of the same constraints as the private sector entities.

Despite the changes negative perceptions of the Ministry still exist. There were concerns that rather than utilize their procurement culture and practices to mitigate history repeating they have chosen to react legalistically, engaging in increased risk transfer to the private sector as opposed to in "more intelligent conversations" in relation to best practice risk management and value-add. To this end some believed the Ministry of Education to be characterized by a high degree of fear and that this has resulted in a tightly controlled internal procurement environment with a 'cookie cutter' approach.

Such negative feedback demonstrates the extremely high reputational risk incurred if active communication with market is lacking. Unless 'good news stories' or measureable improvements are actively publicised firms will remain with what could now be out-of-date perceptions. Regardless of any positive changes the bidding pool will still be constricted.

Housing New Zealand Corporation

The Housing New Zealand Corporation (HNZC) was heavily criticised and believed by some to be the worst client operating in the public sector space – perceptions of a master-servant relationship and a lack of positive participation in the procurement process were specifically highlighted and included such feedback as "HNZC are demanding but don't deliver on their own stuff in a timely manner".

A negative procurement culture was considered to be a significant barrier to unlocking long-term value for HNZC where it was strongly believed that decision-making was price-driven and mistrust of the private sector extremely high. HNZC were not thought to support "in any visible or concrete way a sustainable sector that will continue to deliver value".

There was also concern that despite engagement with industry very little tangible change had been witnessed. This is perhaps demonstrative of the huge challenge that exists if the fundamental belief systems of an organization – its culture – are the drivers of its procurement weaknesses.

It is important to acknowledge however, that HNZC did not have a right of reply within this research. In addition, it is not unreasonable to conclude that, like the Ministry of Education, HNZC are subject to the same challenges in terms of reactive planning due to policy shocks, market escalation, and internal capacity pressures. They are also competing with the private sector for capability in a market short of skills.

It was also highlighted that within both the Ministry of Education and HNZC, the design and construction of their assets is not the only focus of the organization – "this is only part of what they do" – resulting in the perception of buildings as ancillary to service delivery only and with a potential under-valuing of design/technical skillsets. It was thought that those who did possess these skillsets often lacked sufficient authority to influence decision-making within the early investment planning stages. Thus their value-add to the procurement is reduced.

While the above may or may not be true, it is important to acknowledge that although procurers of relatively 'small infrastructure', the creation of a large volume of small assets can compound risk equivalent to any major project. Yet as Audit New Zealand explained, small projects are often deemed "not big enough" to require experts. Thus agencies can falsely assume that size is the only driver of risk and/or waste.

District Health Boards

This theory of how important an agency views an asset in relation to their service delivery and how this impacts on the quality of their procurement was also reflected in comments made in relation to District Health Boards (DHBs).

Although not considered to be on par with the NZTA, there was some positive feedback in this regard. It was believed that many DHBs recognize the integral function that their assets play in relation to the quality of service delivery and therefore place a corresponding level of importance on the procurement of them. Ultimately however these agencies were often restrained by capability in this space due to the high degree of size and sophistication of some of the assets they require.

Local Government

Concerns were primarily communicated in relation to how the size of the entity can adversely impact on the quality of its procurement. Smaller local government entities that do have a need to procure enough of the same asset often enough were considered to significantly struggle with infrastructure procurement. Some alarming anecdotes concerning smaller entities were relayed. Conversely larger entities that procured more often were considered more likely to hold appropriate capability in house - certainly this was the general expectation from participants.

> "Best result is when you have trust and can consistently deliver projects".

Characteristics of High Performing Agencies

Based on the above the following 3 characteristics emerge of high performing procurers within New Zealand, noting that all three conditions are in place in these agencies.

High Volume of Repetitive Projects

Those that procure often are enabled to procure well, simply through having sufficient opportunity to refine their understanding of the process and/or have the economies of scale to build up the construction related procurement capabilities required - volume enables practice and practice builds mastery. However the asset under procurement matters. Even for those that procure often, should they step outside of their 'business as usual' procurement activities they may struggle.

Agency's Service Delivery is Predominantly Technical in Nature

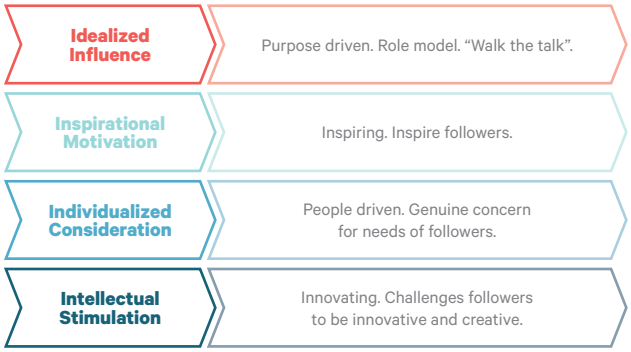
Those agencies that procure horizontal infrastructure have an immediate advantage over those that procure social by default of their core delivery service focus being the asset itself. Thus they are incentivised by this core focus to retain a high degree of design/technical expertise in house, which improves risk and value understanding.

Performance based requirements such as those under the department of corrections PPP projects circumnavigate this need to some extent. However the advanced skill set required in assigning metrics to outcomes plus the huge bidding costs involved do not make the model appropriate in all cases. Thus some agencies are in skill deficit simply by merit of their service delivery focus i.e. you can't assess or value what you don't understand.

Transformational Leadership

Arguably the single most important component was leadership, and leadership able to articulate a shared vision and which can cultivate collaborative and respectful peer-to-peer behaviours within the organization – a style best described as transformational.

Figure 11: Characteristics of Transformational Leadership[28]



07

PUBLIC SECTOR QUALITY ASSURANCE AND QUALITY CONTROL

The public sector is aware that there are weaknesses within New Zealand public sector procurement. To this end the following initiatives are either in place or pending.

Cabinet Office Circular CO (15) 5

In 2015 Cabinet Office circular CO (15) 5 was issued which states that the investment management system must "enable Cabinet and agencies to prioritise and coordinate significant investments according to government and State services long term priorities".[29] However as per participant feedback, CO (15) 5 does not comment on whether the capability and capacity of the New Zealand construction sector is one of these priorities.

However within the planning stage of an investment an agency must "before committing to the next phase, decision makers also have to consider: the capability and capacity of agencies or markets to deliver the investment; the need to scale, phase or consolidate investments; and the impact of such actions on the expected value of the investment". As per participant feedback, the public sector may be struggling in this regard.

While Treasury may 'lead' the system this does not relate to any ultimate authority of decision-making on an asset's access to funding or timing to market. Ultimate sign off sits with cabinet. There is no mention of an active prioritisation, or 'coordination' of pipeline. In this respect pipeline is mentioned only once and only in relation to Public Private Partnerships.[30]

Therefore based on the challenges identified by participants the following weaknesses are believed to exist:

- Major Infrastructure projects are often tied to timeframe of political promise, thus cabinet sign-off creates a conflict of interest between 'best for system' and 'best for political agenda' in relation to timings.
- The system does not account for the cumulative effect of multiple small projects to market such as would be typical under the Ministry of Education.
- There does not appear to be any one entity responsible for the overall management of the public sector's works pipeline, major projects or otherwise.

However a newly introduced initiative in 2018 includes a collaborative forum whereby capital-intensive agencies meet to discuss all things construction procurement related. They are charged with providing pipeline intentions for the next 2 – 5 years and meet to share intentions and collaborate on solving any bottlenecks. Yet while this is a positive change, any individual agency concession 'for the good of the system' appears to remain discretionary.

MBIE Government Rules of Sourcing

Intended as the identification of good or 'best practice' the MBIE's Government Rules of Sourcing exist to assist government agencies with improving their own procurement practices. Although a cabinet directive and not legislation, this has been cited as a positive as it provides for flexibility and allows the rules to be more easily changed. They are also linked to trade agreements and therefore to the ability to export to other countries, which dictates some of the protocol.

However weaknesses have been identified in relation to these rules. In reality the rule have limitations of reach and MBIE do not have the resources available to enable them to check the compliance of all affected agencies. Should the private sector believe that breaches of the rules have occurred they are invited to approach MBIE. However it must be clearly understood that MBIE can only act on substantiated complaints and the private sector have strongly intimated that they do not feel comfortable issuing complaints against the public sector. In this respect the rules could be considered as a useful quality assurance tool but with insufficient quality control.

Furthermore while the rules are mandatory for a number of agencies they do not cover all. Therefore many agencies involved in significant infrastructure undertakings are not covered, such as local councils and territorial authorities.

MBIE Procurement Capabilities Index

MBIE is currently undertaking a work programme to compile a Procurement Capability Index (PCI). This Index is based on a self-assessment that each agency performs in relation to its procurement capability. This self-assessment generates a rating and also serves to identify areas of improvement. Every agency must compile evidence to substantiate their inputs and if this evidence is deemed insufficient the agency will be subjected to an independent review. MBIE expect to publish this Procurement Capabilities Index at the end of 2018. The PCI does not extent to Local Government.

However concerns have been expressed in relation to the usefulness of this. Participants are concerned that MBIE 'might not be asking the right questions'. Similarly the index will not differentiate the procurement of basic goods and services from that of construction related infrastructure. To this end it is key to understand that construction related procurement is neither a good nor a service but 'out sourced problem solving' which requires on-going interaction between multiple parties. In many respects it is the procurement of a long-term relationship, the quality of which can make or break a project.

This undifferentiated view of procurement capabilities also raises concerns in relation to how 'continuous improvement' is measured in relation to procurement. Audit New Zealand advises that MBIE regularly report savings against 'All-of-Government' contracts. However treating infrastructure procurement in the same manner would be to treat it as an expense as opposed to an investment. To quote Audit New Zealand "the focus on savings runs the risk of cutting across the value for money objective (a balance between price and quality)."

Treasury Tools

Treasury has a number of tools that they utilize to gain insights into the level of capability that exists at agency level. Two relevant tools include the Better Business Case Process and the Investor Confidence Rating.

Better Business Case (BBC) Process Independent Reviews

Essentially a quality control strategy relevant to any investment over $20 million the process includes a series of reviews that take place at various stages throughout the procurement process. An independent panel of four that interview a range of projects stakeholders undertakes these reviews. A report is then issued to the Senior Responsible Owner of the project that includes both a rating and any recommendations. If the report flags a red rating, Treasury is notified and issues a letter voicing any concerns.

It is unclear if the pubic sector projects widely considered problematic by the private sector were red flagged under these reviews, or if the reviews focus solely on protecting the public sector's position.

Investor Confidence Ratings (ICR)

Intended for investment intensive agencies that spend a lot of money, an agency's ICR influences the degree of autonomy the agency is afforded when undertaking procurements. Again, an agency is assessed and issued a rating. It is understood that the results form MBIE's Procurement Capability Index will form 5% of this rating.

Triangulation

It has been advised that the intent of the PCI, ICR and BBC is to utilise the information obtained in order to achieve a more accurate picture of reality. This knowledge can then inform the leadership of individual entities plus connect procurement performance with incentives and consequences. However these tools do not differentiate between investments relating to solely to construction and so the accuracy of the findings could be questioned.

Procurement Qualifications

There are currently two procurement qualifications utilized by the public sector. The first is the New Zealand Qualification Authority Certificate in Infrastructure. This is "designed to provide the infrastructure industry with procurement practitioners capable of planning and implementing infrastructure procurement strategies" and was cited as costing less than $5000 per person. The certificate is utilised by the NZTA and other agencies have been enrolling their staff on the course. As the course runs part time it enables staff to increase their procurement skills in relation to real world projects, through which trained professionals support. Feedback from participants on this course has not only been positive and empowering but has also highlighted to participants themselves – employees of the public sector – the procurement weaknesses that exist. To quote one comment:

> "Tender evaluation and transparent scoring of tenders is generally not well done within the industry."

However MBIE are not believed to actively support this qualification and instead promote the UK's Chartered Institute of Procurement & Supply qualifications. It was not fully explored why the New Zealand 'home grown' qualification isn't the norm or why there is no 'system' agreement - an issue worthy of discussion.

08

BEST PRACTICE INTERNATIONAL CASE STUDY

Infrastructure New Zealand has undertaken a number of research trips in relation to identifying best practice around the globe. Countries have included the United Kingdom, Canada, the USA and Australia.

While many of these countries have developed highly effective strategies in relation to procurement, Scotland has been identified as the 'best fit' comparison to the New Zealand context. With a population of 5.45 million and a similarity of population density - the majority of the population concentrated in only a small number of urban areas and sparsely populated rural highlands - Scotland and New Zealand enjoy similarity of population size and distribution.[31]

In addition, Scotland has gone on its own journey to improve the public sector. In 2008, "First Minister Alex Salmond made a statement in Parliament about the Scottish Government's plans to simplify public services.

It laid out an intention to reduce the 199 national public service organisations by at least 25 per cent with the aim of achieving less duplication and bureaucracy".[32]

While it is not suggested that New Zealand follow suit in relation to public sector structure it is relevant that New Zealand's number of public sector agencies is not dissimilar – totalling in excess of 199 in relation to central government[33] and 78 in relation to local government,[34] excluding school boards of trustees, crown entities and crown entity subsidiaries. The findings of Scotland's research into the weaknesses of construction related procurement attributable to system structure might therefore provide valuable insights for New Zealand.

An example of a mechanism that Scotland utilises in order to assist with their construction related procurement challenges is the Scottish Futures Trust.

Scottish Futures Trust (SFT)

Established by the Scottish Government in 2008, the purpose of the Scottish Futures Trust (SFT) is to help ensure better value for taxpayers' money in the delivery of vital public infrastructure projects. To this end the SFT acts across all phases of the infrastructure investment cycle.

It is worth noting that Scotland first attempted to address all procurement challenges through categorising them nationally, locally and even by sector. However it was then realised that construction related procurement required its own distinct approach due to it being neither a good nor a service by its normal definition, but rather a much more complex outsourcing of iterative problem solving. This prompted the 'Review of Scottish Public Sector Procurement in Construction'. Completed in 2014 this included 66 recommendations of which the SFT was invited to support the Scottish Government in addressing those that were focused on asset delivery.

While some recommendations related to policy it is notable that Scotland has enjoyed relative political stability and their infrastructure investment planning was cited as going out well beyond the political cycle. Thus the private sector is not as vulnerable to pipeline impacts whilst simultaneously has access to a significantly bigger and geographically closer market in which to secure work than that of New Zealand firms.

Scotland found that procurement capability varied across sectors, agencies and regions. Correlating with the characteristics of high performing procurement agencies in New Zealand, Scotland also found that agencies within the horizontal procurement space demonstrated higher procurement capabilities due to the presence of in house engineers that enabled an 'intelligent client'. It should also be noted that Scottish Water exists as a consolidated service provider in the 3 waters space. Consequently the SFT has a large focus on social infrastructure procurement.

The success of the SFT has relied on a number of key aspects – they are run by an independent board and thus operate at arms length from government, they have a clearly defined vision and set of values, and they employ a multi-disciplinary team of skilled individuals, many of which have migrated across from the private sector with real world experience. They do not seek to take ownership of a procurement outcome away from the agency that owns the need, but instead operate as a centre of excellence to assist agencies with their transition into the expert 'intelligent' client space through guidance, support and intervention.

To assist agencies on this 'procurement journey' the SFT have developed a number of tool kits specifically targeted at improving capabilities and decision making in the public sector, and go as far as to provide reference designs and benchmark costs as proof of concept for challenging procurement mind sets. However in contrast to the procurement functional leadership of MBIE, the SFT have in some instances funding levers they can employ to ensure that agencies actively engage in this up skilling process and so more reflect the NZTA in this regard. Consequently they have achieved traction when able to leverage these.

While the SFT's focus was originally on reducing the delivery costs of public sector projects it has since shifted to assisting agencies with both improving the quality of their outcomes – i.e. the optimised balance between whole-of-life costs and the value of outcomes sought - plus the productivity of the construction industry. However this has required them to develop a new set of metrics by which to measure successes. It is recognised that these must include both qualitative & quantitative considerations across economic, social and environmental contexts e.g. triple bottom line value assessment.

> "It's harder to quantify doing the right thing than it is to quantify doing things well."

In this regard the work of the SFT is strongly people centric in its focus and employs specific approaches to encourage joined up thinking such as their 'place first' and 'inclusive growth' strategies. These require a complete understanding of the wider economic needs of the area that the asset is intended for plus an understanding of how the intended asset relates to all other public sector assets or strategies already in place in that physical geographical location.

For example it is through their 'place first' approach that synergies, marginal benefits or alternative solutions can be identified and again, as per the department of corrections PPP approach, shifts the attention squarely to outcomes sought as opposed to the physical attributes of the asset. As per Wellington Water, through 'inclusive growth' the SFT actively leverages the asset's delivery to unlock further value e.g. by utilising KPIs to measure or quantify work awarded to local companies, to include roles for apprentices, or even to provide opportunities for the unemployed. Essentially the procurement journey for each project is characterised by the question "what extra value can we pick up along the way" whether that be through the asset's design process or the asset's physical delivery.

To ensure decisions are objective and informed the SFT is establishing the means for improved data-driven decision-making and works with agencies to develop their approach in the management of their asset data as well as supporting wider digital data strategies. As per the New Zealand context, there was/is a need to standardise data collection approaches so as to allow for comparative data sets and meaningful information comparisons.

The value of a portfolio approach is also recognised through their HUB delivery model. Just as Treasury owns the PPP delivery model within New Zealand the SFT facilitates an initiative called HUB. HUB is essentially formal partnering with the private sector, which takes a long-term view on asset procurement of community services. Clear risk allocation within both contracts and throughout delivery ensure a clear understanding of risk ownership, while joint working enables teams to collaboratively identify and resolve risks. In addition risk contingency can be pooled across multiple projects to ensure that contingency is both available if required but not spent on minimal value-add extras if not. In keeping with this collaborative approach, the SFT encourages the market to come forward with ideas for improvements. This is akin to the Wellington Water approach.

It is notable that the SFT journey commenced with a chair that has been described as having both strong visionary leadership and strong relevant market experience. Endorsed by market his presence at the SFT attracted further high quality individuals into the organisation. It all starts with clear vision and strong informed leadership.

> "SFT has the capacity to transform the delivery industry – enabled by commercial approaches, great people, and technology."

09

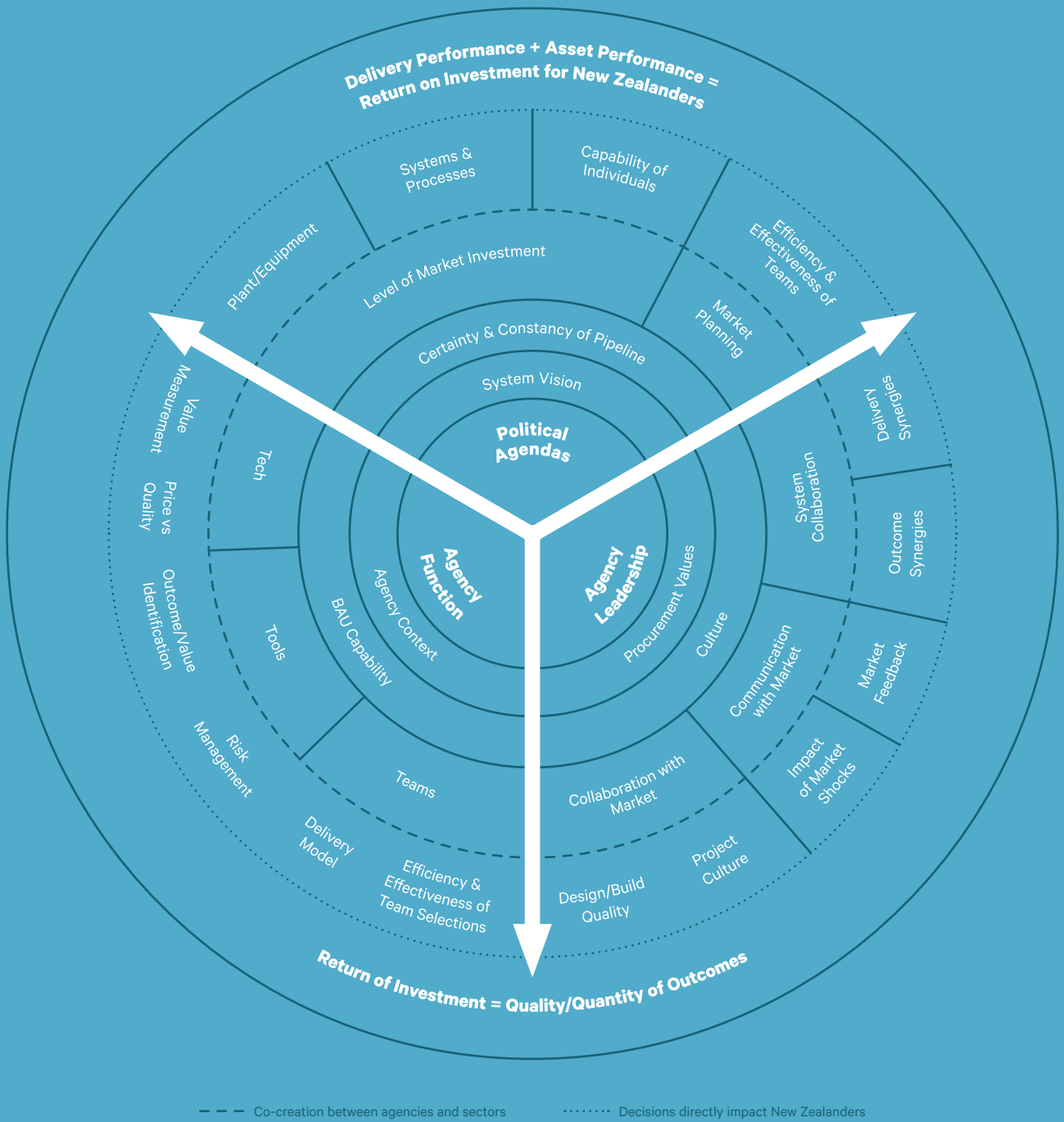
THE PROCUREMENT SYSTEM

Based on the research 'what good procurement looks like' is proposed as a system where political alignment, agency leadership, and agency function all play a key role in determining positive procurement outcomes.

What Good Looks Like

As it is a system, the best outcomes can only be achieved when all of the individual components are both present and operating at an optimum. Figure 12 has been developed to best represent the core drivers and dependencies. The system can be described as follows:

Figure 12: The procurement system – drivers and dependencies



1. The Importance of a Long-Term Vision

Political agendas drive New Zealand's infrastructure vision and this vision drives both the certainty of future pipeline and the timing of projects to market. These factors influence both market's appetite to commit to long-term strategic investment e.g. in people, equipment, systems and processes and its ability to build effective and efficient teams. The nature of these investments and planning is determined by the firm's service focus, role in the supply chain and whether the pipeline is able to dictate a steady flow of demand or if peaks and troughs are anticipated.

The optimum is for a state of political alignment and thus agreement on a long-term vision for New Zealand's infrastructure planning. Ideally any vision would manifest in a confirmed and prioritised master plan of major projects - major being relative to all projects - that seeks to create steady-state demand within this pipeline. This is the ideal context within which to drive efficiencies in the market. To demonstrate this point further the construction and manufacturing industries can be compared.

Manufacturing industries are able to reach efficiencies by running their production lines at a constant rate of output. This enables full utilisation of company resources at all times and hence reduces waste. This is a defining characteristic of efficiency. However one of the key success factors of manufacturing is that products can be stored. Therefore production efficiencies are not impacted by short run fluctuations in demand, providing that the aggregate over the long run is constant. In contrast, construction services are provided in real time and therefore cannot be stored. However by providing a steady stream of projects coupled with pipeline certainty a closer approximation to the manufacturing model can be achieved. Providing that this stream of projects is only envisaged to increase, firms are incentivised to both retain and invest long-term in a stable base of capability.

Politics also defines to a large extent the future fate of the industry. Cited as the most influential single client, the government has the power to influence the balance of global v local providing that they have a clear vision for this in place. Procurement strategies can therefore consciously support this vision – whether the intent is to increase the number of both knowledge workers and/or manual labour within New Zealand or if it is to actively source this capability offshore. Ideally procurement could be utilized to attract the right offshore companies that could then be leveraged to assist with up-skilling the domestic market, thus improving its productivity.

Finally a long-term vision also enables agencies to have a clear understanding of how individual agency needs fit within overall system priorities, which assists with pipeline coordination of smaller scale projects.

2. The Power of Transformational Leadership

Agency leadership defines an agency's values. These values are what define the acceptable behavioural norms of an organisation – the culture. A hierarchical adversarial culture will negatively impact on the quality of procurement teams, the incentive to communicate with market before, during and after contract engagement, and the ability to collaborate with other agencies. Conversely a transformational style of leadership can assist with clearly articulating both the system and agency vision and ensures that a value-add collaborative peer-to-peer culture is in place to achieve this.

This positive peer-to-peer culture enables synergies across agencies to be identified, which can unlock value in both outcomes sought and asset delivery. Identifying these synergies is essential to both informing an effective and efficient master plan of major works as well as on-going agency asset needs.

A positive peer-to-peer culture coupled with informed procurement teams also enables respectful value-add interaction with market and can potentially reduce the impact of market shocks, noting that these will not always be avoidable or politically motivated. This trust and respect also ensures that the best and brightest from industry are always engaging with the public sector thus maximising the design and build quality sought. Furthermore trust and respect are pivotal for a more effective feedback loop, which in turn supports continuous improvement.

3. Teams, Tools & Technology

The function of an agency will define its procurement context. As demonstrated, this context will have a key influence on the procurement capability held in-house. Procurement capability at the project level can be described as a need for teams, tools, and technology.

Teams must be multi-disciplinary, appropriately qualified and include expertise in procurement process/probity, project management, construction law, all commercial aspects and the relevant design and technical field. Tools provide the ability to improve all aspects of project planning while technology is the key to enabling data-driven decision-making around whole-of life costs v the value of outcomes sought i.e. the optimum balance of price vs. quality.

Data will also enable a feedback loop to assess if outcomes sought are being achieved at a project level, a political level, and a market level. This is essentially the review intent of Treasury's Investment Life Cycle. This feedback loop will also inform the vision and assist with setting outcome related metrics or informing any modifications that would enhance the master plan.

The expertise of these teams when combined with this data enables high quality risk and value discussions and the selection of the correct delivery model and type of market engagement. The expertise of these teams when combined with data and tools enable relevant market evaluation criteria, correctly weighted attributes and objective guidance on scoring the market.

Finally informed teams and positive peer-to-peer market interaction enables sensible contract agreements and positive public sector participation during the delivery of the project.

Where Are We Now?

'What good looks like' is represented under Figure 13. However feedback from research participants suggests that the New Zealand public sector is falling short in a number of areas – represented by the traffic light colour coding. Green is good, orange is highly variable and red is extremely weak.

1. The importance of a long-term vision.

Presently a long-term vision for New Zealand's infrastructure needs is not in place, thus the flow on value-add of certainty and constancy of pipeline are not possible. Long-term market commitment is highly variable and in part dependant on how diversified the company is in relation to other sectors and regions.

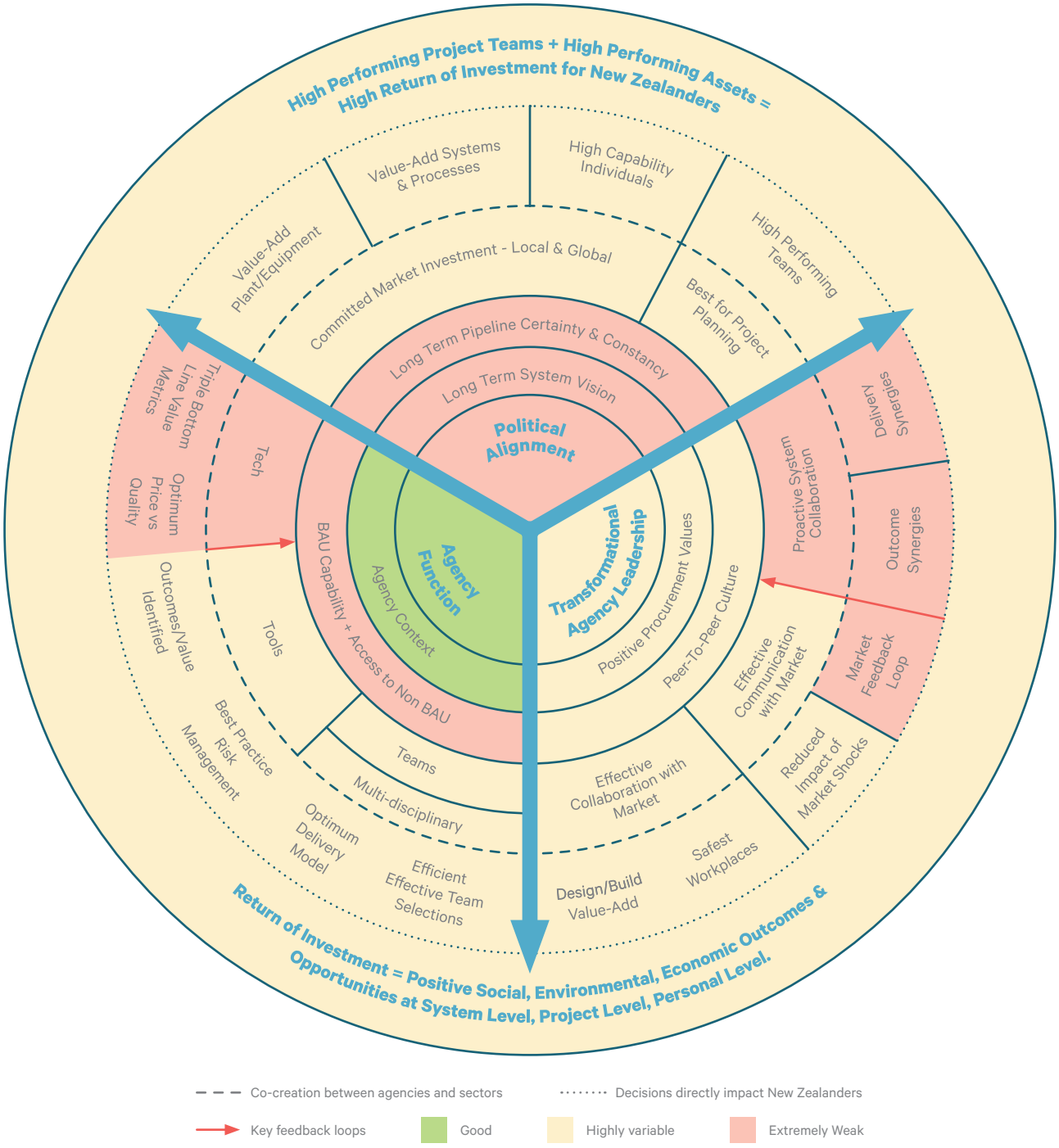
2. The power of transformational leadership.

Huge weaknesses are believed to exist in relation to construction procurement leadership within agencies. Participant feedback suggests a significant spread of quality with some agencies strong in value-add procurement leadership, and others extremely weak. There appears to be minimal evidence of cross agency synergies relating to both outcomes sought and asset delivery.

3. Teams, tools & technology.

Capability is variable and research suggests is based on context. Participant feedback cited a significant spread exists in relation to this where positive experiences can be the result of chance as opposed to the strategic purposeful management of an agency's human capital. The use of technology and objective triple bottom line value metrics is almost non-existent.

Figure 13: Where are we now?



The Art of the Possible

A long-term vision is achievable providing that the political will is in place to enable this. Improved procurement leadership is achievable providing that both Local Government and the State Services Commission (SSC) have the incentive to drive for this. After all it is the SSC that are responsible for "managing and mentoring chief executives".

However the issue of agency context is more challenging. Either an agency is able to access the capability they require to procure the asset or the asset procurement is removed from the remit of the agency. Following extensive discussion with participants it is concluded that the latter creates too great a separation between the party that is procuring the asset and the operators and/or users of the asset – particularly problematic in the context of social infrastructure projects.

To this end participants contributed to the following approaches:

Utilising a water regulator to drive further consolidation within the 3 waters space

Regulation is strongly supported in the three waters space to ensure that all agencies managing this vital infrastructure are meeting health and environmental standards. It is expected that this regulation would highlight deficiencies of capability and capacity within some entities and drive these parties towards the benefits of consolidation. Thus they would seek to establish entities similar to Wellington Water and Watercare, or simply amalgamate their 3 waters needs into agencies such as these if geographical context permitted.

Supplementing capability

It was proposed that for agencies that procure similar constructed assets on a regular basis they should hold sufficient capability in house for these 'business as usual' (BAU) undertakings. However it is inevitable that an agency may on occasion need to procure outside of these activities. It is therefore suggested that having access to a specialist team on a short-term basis is of high value to these parties. For major undertaking this can be either specifically established on a fixed timeframe basis as was undertaken for the department of corrections under the Regional Prisons Development Project (RPDP) model, or could be essentially 'borrowed' from a centralized skills base.

Establishing what falls outside of BAU would be related to the typology, size, complexity, and risk profile of the intended asset in relation to BAU activities. Since 'you don't know what you don't know' could compromise project designation, the system would require external oversight of agencies in relation their procurement decision-making processes.

Creating informed leadership

For those agencies struggling with a negative procurement culture or lacking in BAU procurement capability, strong informed leadership is essential in order to address these issues. However strong informed leadership may require the challenging of the core beliefs of agency chief executives. Multiple participants cited the potential for proof of concept case studies to drive change, and the key role that financial data plays in this.

Managing the Procurement System

If the procurement system is to conform to standards of operational excellence it requires its own leadership, systems and processes, and checks and balances to ensure it is functioning at an optimum. To this end a specific party operating at central government level is proposed. This party's specific mandate would be to lead and monitor agency procurement decisions based on actual metrics that would increase in usefulness over time. In addition this entity could assist with change management in the leadership space and both the improving and supplementing of agency capability.

While some propose that this functionality to some degree mirrors that of MBIE, MBIE are subject to the same challenges as many of the procuring agencies. The procurement of constructed assets is not their core or only focus. Neither does their mandate extend to local government.

Instead, and based on the key success factors of New Zealand's consolidated 3 waters providers and the Scottish Futures Trust, there is reason to believe that an arm's length separation from politics would increase the effectiveness of such a party by ensuring that maximum objectivity was inherent within decision making.

Incentivising Change

Multiple participants stress the pivotal role that incentives have to play in both driving change and improving procurement performance.

This central party could therefore act as the collator and repository for successful public sector projects, where both public and private sector outcomes inform success – for which triple bottom line 'system metrics' need to be further developed. Objective evaluation enables a communications strategy to both the general public and the public sector to be established based on data accompanied proof of concepts. These proofs would include a full breakdown of the key success factors of any given project. It was noted that this would benefit the private sector also.

As per the NZTA and the Scottish Futures Trust, any agency requiring centralised funding would be mandated to engage with this central party, thus allowing funding to act as a lever for change.

Capability Pool

Multiple participants believe that any central party would need to retain a team of procurement specialists in all of the relevant disciplines. Rather than be an outsourced procurement resource these 'experts' would guide and support decision making within agencies. They could also assist in the selection of individuals if and when an agency needs to supplement their capability on a short term or long term basis.

Monitoring Function

It is agreed that greater oversight of less capable entities would add value to the system. Thus any central party could provide a monitoring function through a variety of means.

Firstly it could compare data across agencies as applicable. Secondly it could build on the work of the MBIE Procurement Capability Index by establishing one specific to constructed assets. Thirdly and importantly it could act as a neutral 'safe space' within which the private sector could openly voice concerns. Acting as one point of contact, private sector membership organizations could engage in on-going liaison to provide structured feedback. Furthermore this party's pool of capability enables more informed discussion around grievances.

The Big Win

One of the single greatest wins out of an independent overseeing party would be the ability to impartially facilitate a master planning exercise, having no conflict of interest with any specific political agenda, agency mandate or public service outcome sought.

As if in support of the above and in relation to the public sector, Audit New Zealand have assessed "structure and organisation as the greatest weakness. We see lots of examples of procurement devolved across the organisation with limited central expertise, oversight or control. Often many people have procurement as a small element of their job."

10

CONCLUSION

"In The Middle Of Difficulty Lies Opportunity."

Albert Einstein

The research suggests that the procurement challenges experienced by market are the function of short-term political decision-making, inadequate agency leadership and focus, and market weaknesses. When these three contexts converge they create the 'perfect storm' for both sectors.

While the procurement challenges are systemic and exist in relation to all steps in the public sector's investment life cycle, the macro-economic challenges of pipeline uncertainty and the boom/bust cycle were cited as the most negatively impactful as they disable both industry and often the public sector agencies too from preparing themselves to add value over the long term.

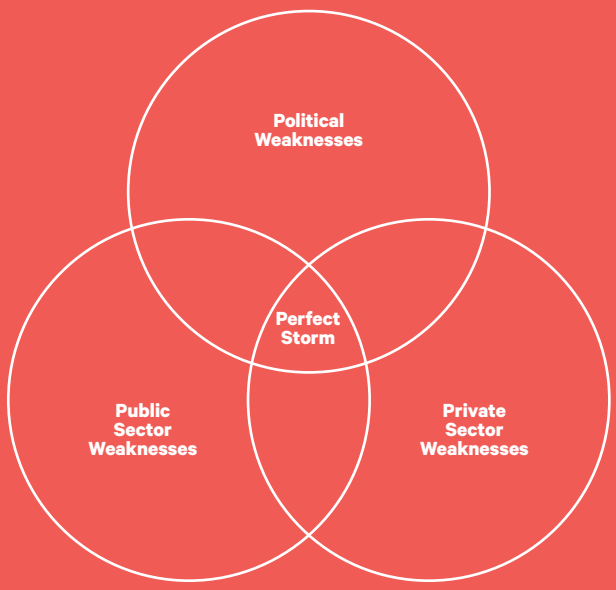
Multiple project-level 'micro' challenges exist in relation to waste associated with the selection of a delivery model and within the transactional tender process. This waste is easily eliminated in many cases providing that the agency has the sufficient capability to do so. In the context of the World Economic Forum's statistics this could be up to 15 cents in every dollar spent, and that's before the opportunity cost associated with the asset 'in use' is calculated.

A significant challenge is that of uninformed agency leadership in relation to procurement. Without positive change in this space the public sector will never access the true value-add of industry – remembering that infrastructure procurement is the outsourcing of public sector problem solving.

As identified however, through minimum structural changes and the inclusion of a party specifically mandated to oversee the procurement system – both at central and local government level - positive change is possible. It is notable that positive change is being achieved in other parts of the world, thus providing proof of concept. New Zealand's small population is also in its favour.

This party would be able to fully capitalise upon the tools and ideas already in existence in New Zealand that could drive change from the bottom up in parallel to a top down approach. These tools include the NZQA procurement qualification and industry apprentice training schemes such as the Civil Contractors New Zealand 'Civil Construction Skills Accord'. The Kiwibuild initiative is also well placed as a test bed for trialling best practice procurement approaches identified here.

Figure 14: The perfect storm of procurement failure



As multiple participants state, there is no silver bullet. Incrementally managed change however has the potential to enable year on year improvements, noting that maximum value creation is only possible with the commitment of the private sector who in turn require commitment to a long-term plan on the part of the public sector. This is imperative. Purposeful change management strategies will be required on multiple fronts.

To cite Audit New Zealand "procurement is a major activity for most public sector entities". Therefore any facilitated improvements in this space – especially concerning procurement qualifications - benefit not only construction related procurement, but all procurement in the public sector. Incidentally, the area of ICT procurement is a "continuing concern" for Audit New Zealand and is an area extremely similar in nature to infrastructure procurement - it too is the outsourcing of public sector problem solving.[35]

Improving leadership and capability in the public sector is also believed to be a pathway to staff empowerment, which has the potential to improve staff engagement and thus staff retention. It is difficult to believe that those in the public sector who may be working in an adversarial culture enjoy or appreciate this either.

Therefore it is hoped that the research contained herein highlights not just the perceived deficiencies within the procurement space but highlights the huge opportunities that also exist if the political agenda will permit.

ENDNOTES

1 This is based on planned spend by both central and local government on non-residential buildings and infrastructure projects as per MBIE National Construction Pipeline Report 2018.
2 See Health Quality & Safety Commission New Zealand (2016) Suicide Mortality Review Committee -summary report May 2016.
3 See PWC (2016). Valuing the role of construction in the New Zealand Economy.
4 See https://www.hnzc.co.nz/about-us/
5 See http://www.ssc.govt.nz/what-is-the-public-sector
6 See http://www.ssc.govt.nz/node/10577
7 For more information on delivery models please refer https://www.nzta.govt.nz/roads-and-rail/highways-information-portal/technical-disciplines/procurement/
8 See https://www.procurement.govt.nz/procurement/principles-and-rules/government-rules-of-sourcing/definitions/
9 See https://treasury.govt.nz/information-and-services/state-sector-leadership/investment-management/better-business-cases-bbc/bbc-and-investment-management-life-cycle
10 See https://www.buildmagazine.org.nz/assets/PDF/B111-66ResearchBoom.pdf
11 See http://www.heskethhenry.co.nz/insights-opinion/new-zealands-looming-construction-boom-00146/
12 See World Economic Forum (May 2016). Shaping the Future of Construction. A Breakthrough in Mindset and Technology.
13 See https://www.procurement.govt.nz/assets/procurement-property/documents/guide-risk-and-value-management-construction-procurement.pdf
14 See http://www.businessdictionary.com/definition/construction-risk.html
15 See World Economic Forum (May 2016). Shaping the Future of Construction. A Breakthrough in Mindset and Technology. World Economic Forum.
16 A note on Audits from Audit New Zealand – "The annual audit of public sector entities undertaken by Audit NZ and other providers has a primary focus on the financial performance of the entities. The annual audit has a broad but much lighter focus on non-financial performance areas. Some attention is paid to procurement and asset management. However, if a much deeper review of these non-financial performance areas is required then this can occur through the internal audit function of an entity or by the entity engaging an IQA provider or someone else to do a review. On a much more limited basis the OAG may undertake a performance audit into the matter or possibly an enquiry if sufficient concern exists. Obviously all these approaches are after the event. It is much better if an entity engages a real time provider to support whatever project it might be undertaking. Then issues can be identified and resolved at the time they occur."
17 See PWC (2016). Valuing the role of construction in the New Zealand Economy.
18 This is based on the 420,000 in 2015 expected to rise by 2021. Refer http://www.mbie.govt.nz/publications-research/research/construction-sector-productivity/future-demand-for-construction-workers.pdf
19 See https://www.weforum.org/agenda/2017/11/why-stress-can-lead-to-making-poor-decisions
20 See https://agileleanlife.com/push-yourself/
21 See Health Quality & Safety Commission New Zealand (2016) Suicide Mortality Review Committee -summary report May 2016 with the quotation from https://www.sitesafe.org.nz/guides--resources/case-studies/netcon/
22 See World Economic Forum (May 2016). Shaping the Future of Construction. A Breakthrough in Mindset and Technology. World Economic Forum.
23 See World Economic Forum (May 2016). Shaping the Future of Construction. A Breakthrough in Mindset and Technology. World Economic Forum.
24 See Singer L (2018). Improving Government Procurement of Architectural Services. New Zealand Institute of Architects.
25 See Wilson Perumal & Company's Vantage Point 'Achieving Operational Excellence in the Face of Complexity'
26 See https://www.dia.govt.nz/Government-Inquiry-into-Havelock-North-Drinking-Water
27 See https://www.waternz.org.nz/Article?Action=View&Article_id=1420
28 See four basic components in transformational leadership (Bass 1985)
29 See https://www.dpmc.govt.nz/news/new-cabinet-office-circular-published-co-15-5-investment-management-and-asset-performance-state
30 See Paragraph 71 of Cabinet Office Circular CO-15 (05). Retrieved from https://www.dpmc.govt.nz/news/new-cabinet-office-circular-published-co-15-5-investment-management-and-asset-performance-state
31 See https://www.ukpopulation.org/scotland-population/
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33 See https://www.ssc.govt.nz/sites/all/files/guide-to-central-govt-agencies-1feb15.pdf
34 See http://www.lgnz.co.nz/nzs-local-government/
35 See Audit New Zealand Procurement in the Public Sector presentation. Retrieved July 2018 from https://www.auditnz.govt.nz/publications-resources/information-updates/2018/wellington/procurement-in-the-public-sector/view