Procurement Methodology

GETTING THE MOST OUT OF THE INFRASTRUCTURE DOLLAR

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References

A. **Government Rules of Sourcing**

B. **NZTA Procurement Manual**

1 Introduction

This paper has been co-authored by David Prentice of RDT Pacific (RDT) and Andrew Watts of Opus International Consultants (Opus). Both RDT and Opus seek a thinking partnership with our clients, in which the client/supplier relationship is characterised by interaction and dialogue as opposed to the strict limits of contractual engagement. For this reason we welcome the opportunity to put some views and recommendations before the Construction Clients Group with the aim of stimulating discussion around how construction industry procurement relationships could be improved in light of emerging best practice overseas.

This paper is based on advice prepared for a client with a very large property portfolio, a clear organisational strategy, and a desire to maximise return on procurement investment. This client was aware of emerging thinking around procurement and wanted an assessment of how such thinking might be leveraged. The paper is therefore intended for a client-side readership, and does not assume reader familiarity with standard commercial practice in the construction industry. Nonetheless, if circulated to industry it may help stimulate constructive debate on this challenging issue.

2 Caveat

We would like to make it clear that this paper is not a detailed academic study. It represents our views only and is intended as a possible starting point for further discussion of the issue.

3 Terms of Reference

A very wide range of factors come into play in determining whether a given investment in built infrastructure will actually deliver the benefits sought. This paper focuses on one of the most significant of those factors – the way in which a given structure or facility is procured.

The term “procurement” can be applied to a wide range of activities aimed at obtaining something by means of effort. For the purposes of this paper, we use the term procurement to encompass the relationship between the various parties to the funding, design and construction of a building or facility and the responsibilities and accountability that each party has to the others for delivery on time, on budget, to quality and to the desired function and value. This paper does not canvass the variety of financing mechanisms available for capital works projects.

The central tenets of the paper can be applied to procurement practices across public and private sector property portfolios, e.g. non-standard one off facilities as well as multiple repeatable facilities such as office spaces, workshops, catering and other communal facilities.

4 Background

Research conducted by the New Zealand Construction Industry Council[1] (NZCIC) has found that New Zealand procurement practices have historically been based on competitive pricing models focused on the following:

- Economic objectives (e.g. return on investment)
- Cost over value
- Short rather than long-term outcomes
- Construction and not whole of life costs
- Risk and liability transfer to suppliers/providers

The NZCIC research found that these behaviours could result in:

- Hidden costs from increased maintenance, building re-fitting, and increased health and safety risks
- Design quality and integrity, health and safety, training, the environment and innovation sometimes being compromised or inhibited as pressure is exerted to minimise costs
- Bidders, seeking every possible cost-efficiency, underestimating actual costs associated with undertaking the work and pricing at unsustainable levels at the tender stage in the procurement process
- Risks being inappropriately allocated or transferred to suppliers/providers (often through fixed price contracts) who are not always in a position to control or manage them
- Increased tender and construction costs as suppliers/providers seek to cover the increased risks and/or recoup costs through variations requiring greater client input in contract management

Importantly, the research concluded that purely cost-based selection attracts long term costs that erode value.

New Zealand practices are not unique. Internationally there is increasing acceptance that factors other than price minimisation are key determinants in obtaining “Best Value” from procurement decisions. In the United Kingdom, the Latham Report 'Constructing the Team'[2] described the construction industry as ‘ineffective’, ‘adversarial’, ‘fragmented’ and ‘incapable of delivering for its customers’. Latham proposed that the client should be at the core of the construction process and that the industry should move away from its adversarial structure, adopting a more integrated approach with greater partnering and teamwork.

There were a great number of detailed recommendations within the Latham Report, many of which remain relevant to the New Zealand construction industry:

- As the largest single procurer of construction, the government should commit itself to becoming a best practice client
- The New Engineering Contract (NEC) should be adopted more widely as a less adversarial form of contract

[1] *Principles of Best Practice in Procurement in Construction in New Zealand,* New Zealand Construction Industry Council, January 2006
[2] ‘*Constructing the Team – The Latham Report*’ , Sir Michael Latham (1994)

- Dispute resolution should be simplified, with more widespread adoption of adjudication as the primary means of resolution
- Partnering should be used to encourage the establishment of long-term contracting arrangements
- Public sector registers should be established for approved contractors, sub-contractors and consultants
- There should be greater standardisation and better integration of contract documents
- There should be compulsory latent defects insurance
- There should be publication of a number of codes of practice and guidance documents to clarify, co-ordinate and standardise practices across the industry
- Latham suggested that if the full range of measures described in the report were adopted, savings of 30% could be achieved over five years

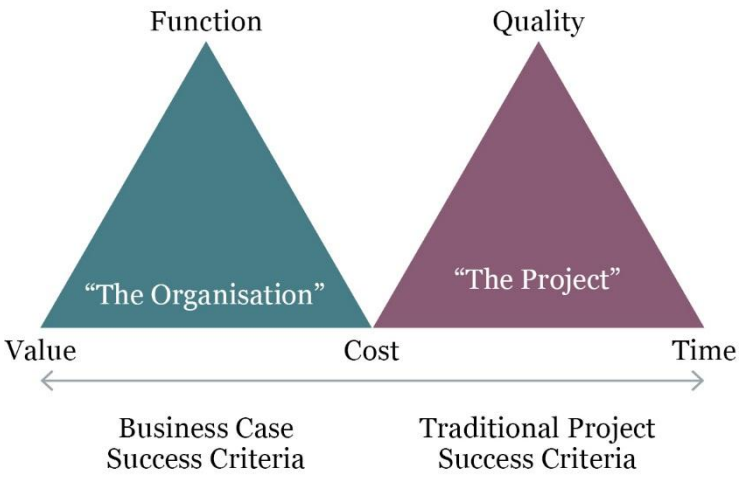
Since the report's publication in 1994 there have been significant moves in UK government procurement to encourage collaborative working and foster partnering, with the government adopting the NEC3 form of contract.

5 Project Success Factors

This paper considers approaches to procurement which achieve not only the three traditional critical success measures for any construction project – completion on time, on budget, and to quality; but also the "function" and "value" that the project provides the procuring organisation.

Function is defined as how a project enables the organisation to operate more effectively and efficiently. Value is the measure of this improved performance. These two criteria are seldom considered in the establishment of procurement methodologies and supporting project management frameworks, yet are typically enshrined in the Business Case and are arguably the most important factors determining a project's success.

The alignment of these five success criteria is best demonstrated in the following diagram:



We think that all five of these factors can be defined in more aspirational terms as targets to be bettered as opposed to limits to be observed. We believe that for this to occur, procurement

methodology must enable two very powerful and inter-related success factors – collaboration and innovation. We'll start by discussing what should happen in procurement practice; followed by a generic description of what actually happens now. We'll explain the delta between the two by identifying what needs to change, and what can be done in the near term. We'll then venture to suggest some new ways in which NZ Defence can structure procurement so as to achieve the best possible outcomes at the best possible price.

6 What Should Happen

6.1 Innovation

The New Zealand construction industry has an extraordinary depth and breadth of capability. Construction industry professionals tend to be driven by the pursuit of excellence as an end in itself and place a very high value on the opportunity to innovate. Procurement methodology must enable this breadth and depth of capability, commitment to excellence, and active desire to innovate to be tapped into. This is a consistent thread throughout the Government Rules of Sourcing, reflected in Principles 1 (be open to new ideas and solutions) and 4 (encourage and be receptive to new ideas and ways of doing things). Rule 35 indicates that the relative "degree of innovation, efficiency or effectiveness" of competing proposals should be considered. The NZTA Procurement Rules indicate that *before* undertaking a procurement activity, an organisation should consider opportunities for innovation (page 2-7). The encouragement of innovation is a strand that runs right through the document.

6.2 Collaboration

Commercial arrangements between the parties to procurement must actively promote collaboration. This means more than just a stated willingness to work cooperatively and constructively with other parties to a project. Contractors and consultants have been advertising this since time immemorial, yet in reality relationships are all too often characterised by confrontation and conflict. To add meaningful value to a client, collaboration has to mean the creation of a single productive entity with a single, common interest in the successful outcome of the project. For this common interest to actually govern behaviours, it must be grounded in commercial reality. In other words, *profitability* for all parties to the project must be a function of how well they collaborate. Collaboration will never move beyond rhetoric until this is recognised.

NZTA recognises this reality. In discussing "shared risk delivery models", the NZTA Procurement Rules state that "Successful collaboration demands that all parties' commercial interests be aligned…" (pages 6-17, 8-14).

6.3 Through Life Value

As indicated above, value must be considered on a through life basis. Treasury require this for public sector assets, but it is unclear whether any viable mechanism has yet been developed for assessing the relative through life costs associated with competing proposals for construction projects. If such a mechanism did exist and parties competing for a construction project were aware of it and how it would be applied, a more pro-active approach to reducing those costs would be incentivised.

Rule 35 of the Rules of Sourcing indicate that value for money over the whole of the life of the contract should be amongst evaluation criteria. The criticality of whole of life value in the evaluation of options is repeatedly emphasised throughout the NZTA Procurement Manual.

6.4 Sustainability

Showcase corporate projects aside, sustainable building technology take up in NZ is currently uneven at best. Sustainability is seen by many clients as an add-on for which they pay a capital cost premium, as opposed to a means of reducing the through life cost of an asset or furthering societal sustainability aims. The key principle governing sustainable design is that nothing less than a fully integrated approach will achieve a meaningful outcome. The client, the consultant, and the contractor must work together seamlessly to address such issues as siting, orientation, facades, energy management (including co-generation), waste management, and habitability expectations. Sustainability can only be properly enabled through a team based, collaborative approach to procurement.

6.5 Competition

Competition is perhaps the key feature of a free market economy, and enabling competition is central to realising maximum practicable value for money – access to the best available solutions at the best available price. The importance of competition (and its corollary, fairness of supplier opportunity) is a consistent strand through both the Rules of Sourcing and the NZTA Procurement Manual. However, criteria for competitive assessment need to be based on long term value for money and should address quality from an aspirational point of view as opposed to the attainment of a minimum threshold. It is also worth noting that NZTA expects that use of the lowest price conforming supplier selection method to select a professional services supplier will be rare (NZTA Procurement Manual, page 5-8). NZTA also notes that "Suppliers who have a higher price structure but offer a higher quality of service will sometimes choose not to compete when the price weight is relatively high, recognising that their chances of winning against a supplier with a lower price structure are small…"(NZTA Procurement Manual page 5-12). This applies particularly in an increasingly bullish construction market such as that which applies at the time of writing.

Competition can be achieved while enabling collaboration, in that the means by which projects are competed can be structured so as to allow consultants, contractors, and other parties to collaborate from the bidding stage without the client having to sacrifice any of the benefits delivered by competition. The earlier a multi-party team is formed, the greater the likelihood that commercial aims and risk sharing processes can be harmonised to the benefit of the client.

6.6 Summary

Procurement methodology should stimulate innovation; it should stimulate collaboration by creating common commercial interests across all parties to a project; it should allow the relative value of competing proposals to be evaluated on a through life basis; it should promote sustainability by enabling the aforesaid collaboration; and it should preserve the value incentive generated by free, fair and transparent competition.

7 What Happens Now

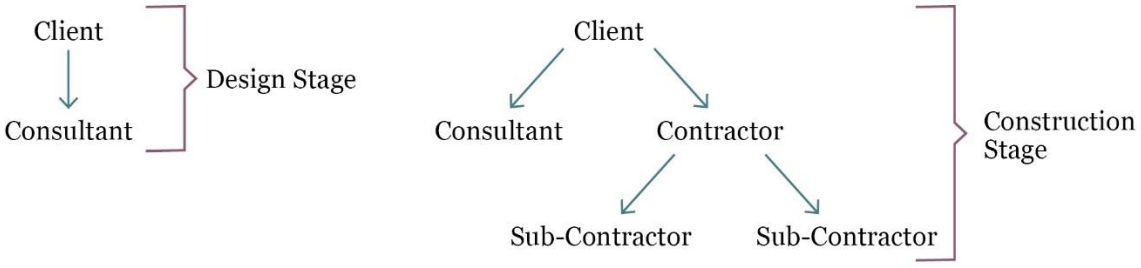
7.1 Competition (at the exclusion of all else)

The only success factor outlined above that is routinely in place is open competition. We would argue, however, that as the NZCIC research quoted above indicates, the competitive element dominates construction industry procurement to an extent that actually leads to negative outcomes for clients. Although some clients seek to evaluate proposals on the basis of both pricing and qualitative criteria, capital pricing remains by far the dominant consideration. The behaviours and outcomes thus generated include:

- An approach to bidding which seeks to address the bare minimum stated requirement and no more. "Added value" features are presented as costed add-ons. Quality is seen as a threshold to be attained, not an aspiration to be exceeded.
- Lip service at best to through life value.
- When times are lean, bidders can reduce pricing to the point where the profitability margin amounts to little more than a contingency margin over cost, if that. Some bidders will even "buy" projects – in other words, submit prices lower than the cost of completing the project, so as to maintain liquidity and keep a work force employed. In the UK this is known, for good reason, as "suicide bidding". It can lead to an aggressive approach to variations to contracts, with every opportunity being taken to seek additional fees to compensate for "tagged" circumstances or client driven changes.

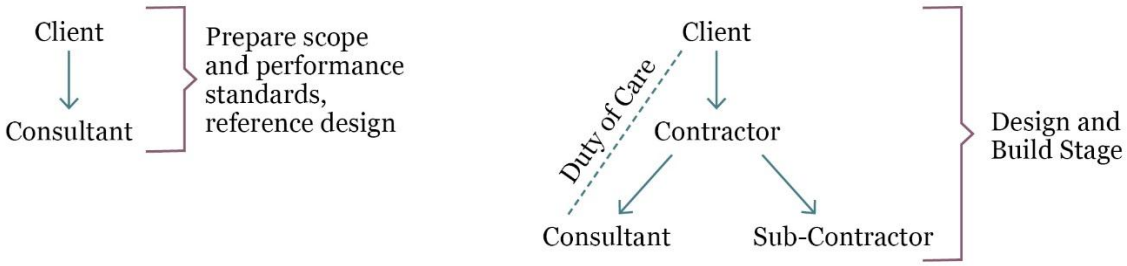
7.2 "Traditional" Procurement

In the past, construction industry procurement has been governed almost exclusively by what is now termed either the "traditional" or "design-bid-build" process, in which consultants and contractors are separately and sequentially engaged (the consultant develops the design to the detailed stage at which point tenders are issued for contractors to build that design). Too often this process leads to an adversarial relationship between the client, the consultant, and the contractor, as each pursues a narrow set of interests that are often in conflict with those of the other parties. In particular, consultant and contractor often become mired in a blame game as each attempts to attribute issues and delays to the shortcomings of the other. This state of affairs absorbs energy and resources that in a collaborative environment could have led to superior outcomes for the client. Critically, traditional procurement denies the contractor involvement in the design process, which means that costs and risks are often higher then they need to be because issues such as "buildability" have not been properly considered in the design. Traditional procurement thus exploits the full capabilities of the consultant, but not the contractor.



7.3 "Design-Build" Procurement

Design-build procurement is now being employed on a significant number of projects. In this methodology, the contractor assumes full responsibility for delivery, with the consultant accountable to the contractor for design services (but retaining "duty of care" responsibility direct to the client). Design-build achieves the alignment of the commercial interests of the contractor and the consultant referred to above and provides clients with a single point of accountability, avoiding the adversarial relationships inherent to traditional procurement. Because the design process is contractor led, buildability is considered from the outset. For relatively low complexity projects that require design options to identify best operational fit to unlock value, design-build represents a major advance over traditional procurement. However, it does not fully exploit the capabilities of the consultant, who does not engage independently with the client on potential design solutions at the critical initial stages when alternatives are being evaluated. In addition, one of the advantages of traditional procurement, which is that contractor prices can be compared on an "apples for apples" basis because all are bidding to build the same design, is lost, as all bidders are submitting different design solutions. This is not an insignificant issue, given that around 90% of total capital costs are incurred by the contractor. Design-build exploits the full capabilities of the contractor, but not the consultant.



7.4 "Early Contractor Involvement" Procurement

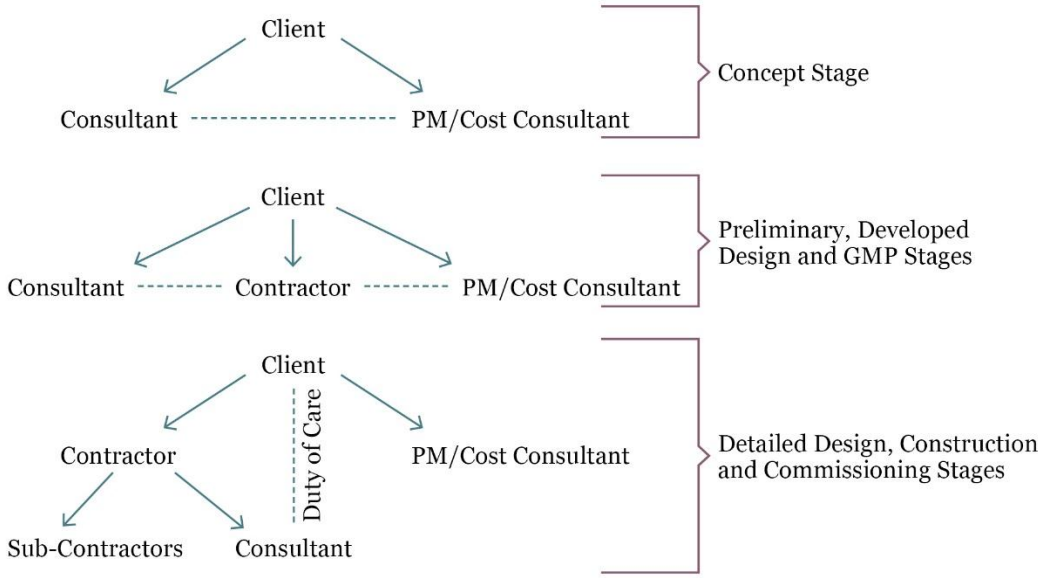
A variation on the design-build theme, Early Contractor Involvement (ECI), offers particular advantages for complex projects where the arc of potential solutions is imperfectly understood, or where there is a will to energise consultants by allowing them free reign to produce concepts unconstrained by subordination to a contractor but without reverting to the adversarial relationships intrinsic to traditional procurement. The concept design stage is restricted to the consultant, who prepares options (which can be priced) from which the client can select that to be taken forward through the full design process. Ideally, the contractor is engaged after the concept stage to work alongside the consultant to develop a Guaranteed Maximum Price (GMP). As the latter is usually based on the product of the developed design phase which can be independently priced by the client with a high degree of confidence, the client has reasonable assurance that the GMP represents value for money.[3] At this point the consultant can be "novated" to the contractor (ie the consultant's design services responsibilities are transferred from the client to the contractor) while retaining duty of care responsibilities direct to the client, at which point contractual arrangements become to all intents and purposes the same as for design-build. ECI is more likely to exploit the full capability of both consultant and contractor than traditional procurement, while

[3] *In addition, the client shares in any savings generated, while downside risk is passed to the contractor.*

avoiding the adversarial relationships typical of traditional. It also provides the single point of accountability advantages of design build.

ECI is sometimes referred to as the "fast track" method, as there is no delay between completion of detailed design and the commencement of major works required by the contractor tendering process inherent in traditional procurement. Notwithstanding, one of the challenges in this approach is ensuring contractor input for not just traditional building components (e.g. the structure) but also elements such has building services where the expertise typically lies with the sub-contractor.

ECI has been used many times as a procurement method with success often determined by the manner in which it is managed. For instance, the adoption of formalised partnering processes assists in ensuring the project team is adhering to the shared project objectives.



7.5 *Summary*

In summary, construction industry procurement is negatively impacted by a narrow view of value which stifles innovation, and despite signs of change such as the increasing take up of design-build and ECI, by adherence to a procurement methodology which promotes adversarial behaviour and fails to exploit the full range of industry capability.

8 What needs to change

8.1 Incentivise Genuine Collaboration

Collaboration needs to be stimulated by procurement methodologies which align the commercial interests of all parties. Innovation will follow collaboration; the product of client/consultant/contractor collaboration is potentially much greater than the sum of the parts.

8.2 An Embedded Whole of Life Approach

Innovation must be stimulated by procurement methodologies that reward whole of life value. For instance, existing management and maintenance contracts should be integrated into the calculation of whole of life costs at the procurement stage.

8.3 Competition based on Aspiration

Competition must be preserved in a way that rewards innovation, and should be based on aspirational targets as opposed to minimum thresholds.

9 What could be done now

9.1 Adopt the methodology best suited to the project

It is tempting to recommend ECI as a default methodology for NZDF infrastructure projects. It is certainly superior to traditional and design-build methodologies where there is any level of complexity or uncertainty and a desire to maximise collaboration and innovation so as to address that complexity. However, design/build offers the advantage of a single point of contractual accountability, and could be suitable for projects of relatively low complexity where risks are well understood and manageable. Similarly, traditional procurement offers the advantage of maximising contractor price tension (tendering contractors submit competing prices for the full delivery of the main works), and could thus be suitable for projects where complexity is low and where budgets are particularly tight and there is a desire to obtain the best possible price.

9.2 A new form of contract?

The form of contract used for construction procurement could also be considered. The New Engineering (NEC) contract offers a number of advantages, including greater flexibility and an "early warning" mechanism[4], whereby parties are contractually required to alert the client to threats as they emerge.

10 Bold Thinking

The careful stewardship of public monies and an innovative approach to infrastructure are not mutually exclusive. In fact, we would argue that to persist with traditional procurement methodologies would generate higher costs and lower value than the adoption of ECI when appropriate to the requirements of the project. However, ECI could perhaps be regarded as an interim step on a journey towards a much more productive relationship with industry. Several more advanced concepts have been adopted in Europe and the US, and we believe that these should be considered for future large scale NZDF infrastructure procurement. Three that we think could be of particular interest to New Zealand construction industry clients are Early Market Engagement (EME), Procurement Clinics, and Integrated Project Delivery.

[4] *The recently published NZS3910:2013 includes provision for an early warning system*

10.1 Early Market Engagement (EME)

EME is a concept applied by many public sector organisations in the UK and Australia to engage more effectively with industry prior to actual procurement. It does not constitute a procurement methodology in and of itself; rather it can be viewed as a pre-cursor process that could substantially enhance the quality of the eventual outcome.

EME acknowledges that clients cannot be expected to be sufficiently abreast of developments in industry capacity and potential to be able to specify requirements in a way that maximises that capacity and potential. The European Union Sustainable Construction and Innovation through Procurement Network (SCI Network) cites the following key benefits of EME:[5]

- Confirming that the scope and objectives of the procurement are sound and achievable
- Confirming that the proposed approach is, in general terms, acceptable to the market
- Finding out about new, innovative or alternative ways of meeting the requirement
- Flagging potential issues or problems with the project, or identifying gaps in current provision where innovation could be stimulated through public procurement.

Actual engagement can be effected in a number of ways. The most basic (and least ambitious) form is a market survey, typically in the form of a Request for Information (RfI). The RfI would need to be non-prescriptive and outcomes based to realise the benefits of EME. A more ambitious and potentially more productive form of engagement might take the form of an industry briefing, in which the client describes in aspirational terms the outcome sought. If this briefing involved all segments of the procurement supply chain, including consultants, main contractors, sub-contractors, subject matter experts (for instance, in sustainability), and specialist fit out suppliers, we feel there is a strong prospect of highly constructive engagement that would lead to well informed statements of requirements when formal requests for proposals or tenders are eventually issued. The briefing could also promote partnering between suppliers, in that dialogue could enable common ground and aligned thinking to be identified.

10.2 Procurement Clinics

The procurement clinic concept can perhaps be viewed as a more ambitious, comprehensive form of EME. Interaction goes beyond briefing and dialogue. Representatives of the client and supply chain organisations collaborate in workshops to arrive at collective approaches to addressing the client's needs, principally through the development of criteria for competitive bidding – these criteria thus being based on a much deeper understanding of the client's aspirations and industry's potential to meet them than a conventionally produced tender document. Procurement clinics have been used in Finland for public sector housing projects and the outsourcing of municipal engineering services, and are promoted by SCI Network as an example of good procurement practice. Considerable thought would be needed to adapt this concept for New Zealand conditions, particularly to ensure that the selection of industry clinic participants was fair and transparent – there would need to be pre-selection to prevent the number of participants exceeding that which

[5] *Preliminary Report on Use of Early Market Engagement and Supplier Relationship Management to promote innovation; Supplier perspectives on innovation through public procurement* (August 2011), SCI Network, available on line at http://www.sci-network.eu/fileadmin/templates/sci-network/files/Resource_Centre/Reports/Innovation_in_construction_procurement_-_Preliminary_report.pdf

could be practicably managed. There would also be an overhead associated with convening and moderating the clinics.

10.3 Integrated Project Delivery

The following is an extract from a guide to Integrated Project Delivery (IPD) published by the American Institute of Architects (AIA):[6]

> ***The project team is the lifeblood of IPD. In IPD, project participants come together as an integrated team, with the common overriding goal of designing and constructing a successful project. If trouble arises on a traditional project, the tendency is often to "batten down the hatches" and protect one's financial interests. Cooperation suffers and the project flounders. In contrast, IPD demands that participants work together when trouble arises.***

IPD is based on the elimination of conflict by the elimination of conflicting interests. All parties to a procurement, including the client, consultants, and contractor, are contractually bound together in a single team from inception through to delivery. IPD thus achieves the convergence of interests essential to effective collaboration and innovation. New processes impacting all parties to a project, such as Building Information Modelling (BIM), are much easier to implement in an IPD construct. Differences in terminology aside, the AIA paper provides a clear explanation of the situation IPD was created to address, ways in which it could be implemented, and advantages it can deliver.

One of the main obstacles to IPD implementation in NZ could be the lack of a suitable form of underpinning contract consistent with both the IPD methodology and the Construction Contracts Act 2002, although the New Engineering Contract x12 option, which is specifically designed for multi partner contracts, could be an option. Industry conservatism could also be an obstacle, given historic "silo-isation". Nonetheless, these challenges have been overcome in the US, where IPD take up has been significant.

We note that almost all significant change in construction industry procurement in Europe and the US has been public sector led, including the adoption of BIM. Public sector clients are powerful, particularly in NZ, and can be powerful agents for change.

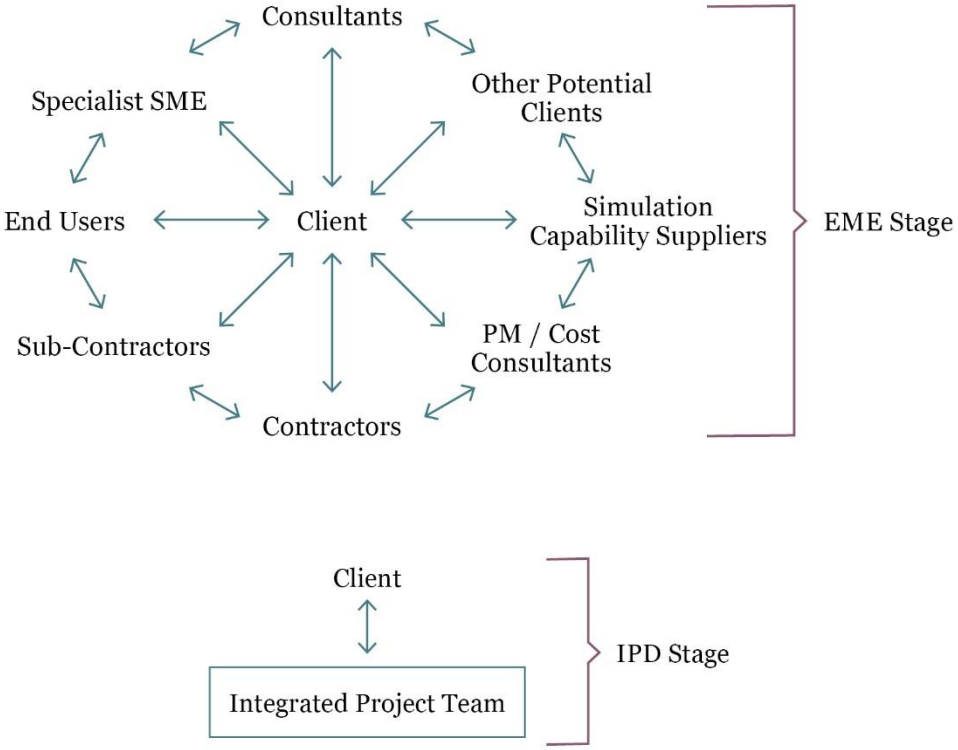
11 A potential procurement scenario

A major bus company has identified a need to improve driver training and safety through the use of advanced simulation technology. The company's operational managers have a broad understanding of the types of simulation available having seen such capabilities in operation at industry events, but the technology and the infrastructure needed to house and support it are imperfectly understood. An EME briefing is convened, to which suppliers of simulation technology, architects, consultants (design and project management), contractors and sub-contractors are invited. A major trucking company is also invited, in view of potential shared use opportunities.

[6] *Integrated Project Delivery – A Guide* (2007), American Institute of Architects, available on line at http://www.aia.org/aiaucmp/groups/aia/documents/document/aiab085539.pdf

Input is received during and after the EME briefing (a closing date for submission is advised) which enables the bus company to compile an outcomes based requirements document. This is issued to industry, inviting the formation of IPD teams and the submission of proposals which are evaluated on the basis of team attributes, track record, and methodology, to arrive at a short list. Short listed teams are then invited to submit costed proposals based on solution concepts. Proposals would be required to address whole of life costs, not just initial capital. That which provides the best value for money over the life of the capability is selected.

The bus company's representatives join the IPD, which is managed in accordance with best practice to deliver a facility that exceeds client expectations in capability and through life value for money.



12 Conclusion

Resistance to change is often justified on the grounds of containing or avoiding risk. We believe that conservatism in infrastructure procurement achieves exactly the opposite effect – risk is increased, not reduced. Adherence to the traditional procurement methodology regardless of risk, complexity, and opportunity for innovation is likely to lead to significantly poorer outcomes than the newer, collaborative approaches we have described in this paper. In particular, industry's capacity to innovate will not be effectively harnessed.

There are now procurement methodologies and processes which enable the collaboration essential to the best possible project outcomes. ECI in particular is a halfway house that can be adopted now; IPD is an aspiration that could be realised with the necessary attention to process and with an appropriate form of underpinning contract.