Downer
Relationships creating success

Realising value from an Early Contractor Involvement (ECI) process

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Introduction

Early contractor involvement (ECI) is an approach to contracting used to gain early advice and involvement from a contractor into the buildability and optimisation of designs. It's suited to large, complex or high-risk projects because it affords an integrated team the time to gain an early understanding of project requirements, enabling robust risk management, innovation, and value creation. [1]

The ECI model can complement either a traditional or novated design and build delivery. It can also be used when the client maintains design responsibility, as per the case study described in this paper. Construction delivery can be Target Cost (as per the case study), Measure and Value, or Lump Sum.

With the potential benefits that ECI offers, this form of contract is currently and increasingly in favour with many clients in New Zealand, particularly on their large and medium sized infrastructure projects. Over the last 10 years, Downer New Zealand has completed over 30 ECIs in various forms and with wide-ranging implementation processes, based on client preferences and project requirements.

Increasingly, our clients are asking for our perspective on ECIs, the potential benefits to their upcoming projects, and what best in class ECI management looks like. We find the common areas of value sought by clients include:

The **purpose** of this paper is to analyse and provide Downer New Zealand's perspective on the main advantages for client and contractor teams when the contractor is engaged in the early stages of design, as well as the key considerations for both parties when choosing to enter into an ECI partnership.

NB: Research was carried out by conducting interviews with client and construction personnel involved in Auckland Transport's Downtown Infrastructure Development Programme, which showed several distinct advantages and win/win outcomes using an innovative ECI model.

Key words:

Early Contractor Involvement, Pre-construction Services, Public Value, Collaboration, Constructability

[1] https://www.procurement.govt.nz/assets/procurement-property/documents/early-contractor-involvement-construction-procurement.pdf

History of ECIs

The ECI model was introduced into the UK by the Highways Agency in 2001, but has been around for over four decades. Championed as a way of reducing costs on major road schemes overseas, Waka Kotahi was the first procurement agency to use the model in New Zealand. In addition to cost reduction, Waka Kotahi was seeking to use the model to accelerate delivery of projects (including on many of its Roads of National Significance, such as SH1 Russley Road Four Laning in Canterbury).

ECI is of value to the client and contractor

Through ECI, the contractor is able to create value and drive overall project costs down, helping clients retain their budget and the contractor to retain their margin – a win/win for both parties and the industry as a whole.

Other advantages of ECI include:

- Cost certainty and transparency
- Constructability input often enables better sequencing of works which contributes to both time and cost advantages
- Ability to cope with uncertainty and change better than traditional contracts (changes to budget, design, scope, time, stakeholder requirements, and consent conditions)
- Enables a fast-tracked delivery as construction can normally start before IFC (final design) or before the main construction contract is in place through an enabling works contract (combines the tender design development phase and tender process)
- Ensures the contractor has a better understanding of the project, including risk and opportunity before finalising the price and starting physical works
- Client and contractor can better identify, manage, and allocate risk
- The contractor knows they need to put forward their "A team" to win the ECI
- Design drops can be prioritised to suit the construction programme
- Enhances collaboration to support long-term positive relationships.

By its very nature, successful ECIs are collaborative and encourage improved team work.

Types of contract under ECI

Usually you have an initial ECI contract for pre-construction services which can be either cost reimbursable (with a potential Target Outturn Cost (TOC)) or Lump Sum - if the scope, resources, and timeframe can be well defined. The Main Works contract can be Cost Reimbursable with TOC and pain/gain, Measure and Value, Design and Build, Lump Sum or an Alliance.

To us it makes sense to have a collaborative environment no matter the form of contract – and it starts at the pipeline, engaging with the industry to allow them to make the necessary investments in people and other resources. For example, on Trentham to Upper Hutt Double Tracking ECI, KiwiRail's digital transformational vision was communicated very early - well in advance of procurement. The client's open communication and transparency allowed the market, including Downer, to mobilise and start looking at the necessary investments in people and technology, which enabled us to realise industry-leading innovations such as machine avoidance.

Different ways to form an ECI

A clear ECI management structure and timeline is critical to maintain a focus on project objectives. Based on our experience, if poorly structured or managed, the potential benefits of ECI may not be realised. Considerations about whether and how best to use ECI should form part of the client's procurement strategy from the outset.

There are various ways to form an ECI, with many of our clients taking a "horses for courses" approach. Options include:

- **Client-led** – the client retains design development risk
- **Contractor-led** – contractor takes on design ownership in a consortium relationship with the designer
- **Sole contractor**
- **Several partners** – either selected individually by the client or selected by the market as a consortium, which allows the consortium to bring in partners with the right skillsets
- **Preferred subcontractors** – key subcontractors and suppliers can be part of the ECI to provide specialist support and value
- **Consultants** – either engaged by the client, novated to the contractor or part of the contractor's consortium
- **Competitive ECI** – the client engages two separate teams / consortia to operate in parallel.

The typical length of an ECI is around six months, but the duration can vary depending on the size of the project. A competitive ECI process can be costly and resource-heavy and is really only suited to larger projects.

In New Zealand, we have seen various forms of the ECI with clients customising the process, contract and above options based on their specific needs. The Downtown Infrastructure Development Programme (DIDP) in Auckland is an example of Auckland Council Group (ACG) taking an innovative approach to ECI to deliver a major programme of works in a constrained timeframe.

The lead agency, Auckland Transport (AT), selected a contractor who then engaged other contractors to support delivery. Design was procured separately and was not novated across to the contractor although the two teams were co-located and worked closely together. This bespoke model has unlocked new ways for ACG to plan and deliver infrastructure projects of a similar nature.

A collaborative procurement and contract model based on NZS3910

In 2017, it was announced that Auckland would play host to the 36th America's Cup (AC36) in 2021, followed closely by APEC. Auckland Council, Auckland Transport (AT), and Panuku then made the bold decision to accelerate their 10-year visionary transformation of the water's edge and deliver six discrete Downtown projects as one programme in less than three years - in time for the AC36 event.

The formation of a single programme enabled a more effective and efficient procurement strategy and plan to be developed. It also enabled an integrated, consistent design approach across all projects. AT was identified as the procurement and delivery lead on behalf of ACG responsible for implementing the joint procurement strategy.

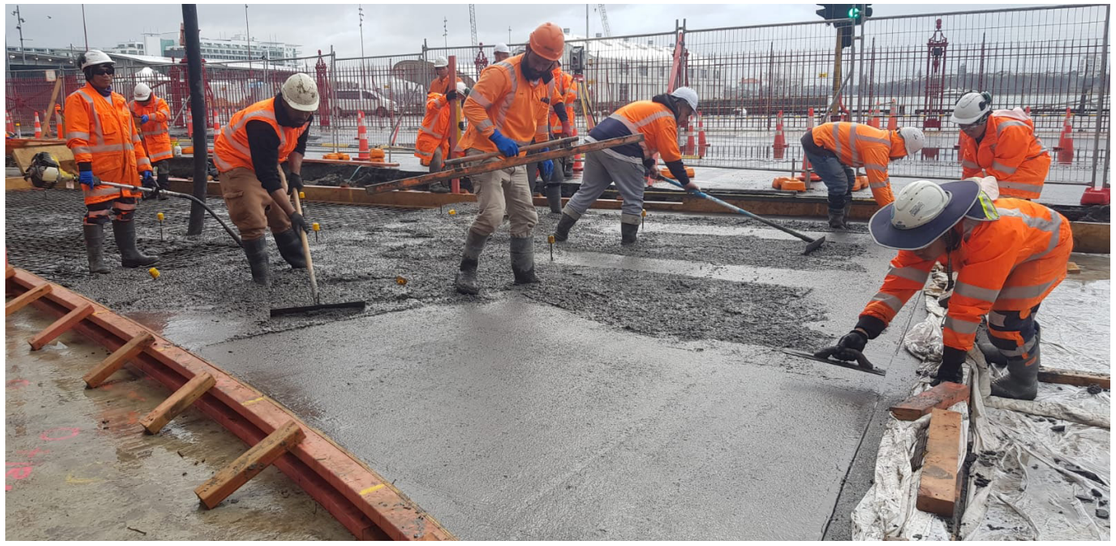
AT undertook significant market engagement prior to procurement to ensure their requirements and delivery approach were well understood by the industry. An ECI process was agreed in response to the need to develop and refine scope, optimise constructability, fast track the project and manage budgets.

In mid-2018, Downer and Soletanche Bachy (the "Downtown JV") were selected to participate in a client-led ECI process. The contractor JV was set up to respond to the complexities of the scope and timeframes and a key feature of this approach was the collaborative negotiation between the client and JV to bring in additional contractor partners to deliver the complex marine works (HEB as a JV partner) and streetscaping (JFC as a sub-ECI). .

There was robust, iterative value engineering throughout design development and IFC development, **resulting in savings of over $30M across the programme**. This ECI process involved engaging with AT and mana whenua to agree a definition of value and create a set of value criteria against which costs were tested to assist with decision making. The team then assessed a series of opportunities against these criteria to make savings, while maintaining overall project value and outcomes.

During the ECI phase a partnering style NZS3910 contract was jointly developed by AT and the contractor JV for the Main Works contract. Features included:

- A cost reimbursable basis with a TOC with commercial/financial tension through pain share/gain share and financial KPI's aligned with the agreed KRAs'
- Contract mechanisms to deal with evolving scope and removal/addition of projects
- Variation benchmarking used to give guidance to variation entitlement
- Setting up mission and vision statements, KRAs, and behaviour expectations, similar to an alliance
- Joint selection of Engineer to the Contract (EtC) based on their ability to administer the contract fairly and in line with its underlying principles and objectives



Better outcomes as a result of collaboration

Collaborative contracts attract the A team and boost staff satisfaction and retention

Resource availability will continue to be an issue for the next few years and the "best dressed" client and contractor will get the resources. Tendering for work is a costly activity for contractors, so we need to ensure we have a high win rate. To achieve this win rate, we need to be selective of the right client, project, contract model, risk profile, and partners.

Early market engagement by the client of an ECI model can also secure the A team – hopefully on both sides. Contractors invest, retain, and even hold capacity when there is visibility or certainty of the pipeline.

Collaborative working arrangements create a powerful group dynamic. ECI provides the collaborative framework and environment to build strong relationships from day one and a team ethos based on long-term relationships. The ability to collaborate is enhanced through co-location and an agreed set of "above the line" behaviours, values, and objectives.

The contractor can be used to test preliminary design against client's budget to ensure affordability and generate opportunities in design optimisation and value engineering.

There are numerous benefits of working with designers in an ECI setting, including the willingness to collaborate, provide constructive challenge, and working within the client's budget. If the client openly shares the budget from the beginning, the contractor is better equipped to help resolve budget issues, including understanding the client's pain points and constraints.

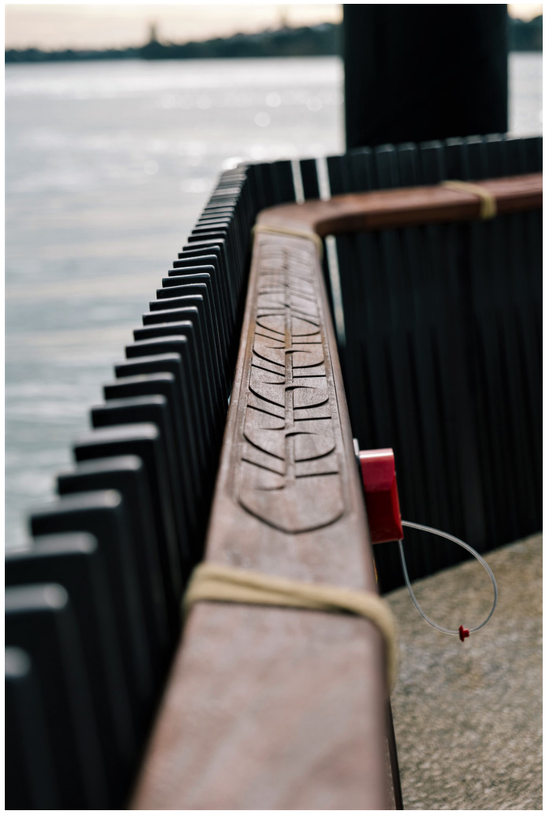
ECI should involve the contractor at the point where the most value can be extracted. If the main details are already established, then often opportunities for improvement may have already been missed. For example the early involvement of contractors can identify potential variations to resource consent conditions, based on construction methodology, which can create value without impacting environmental outcomes.

This requires us to match vision and budget with buildability. As time moves through the various stages of the design process, the ability to influence design diminishes as the costs increase. The contractor has the ability to run a series of hold points throughout the process to ensure that both design and costs are understood.

ECI mitigates risk

Based on our experience, ECI enables improved risk management with fair allocation of risks. The contractor's role is to understand, manage, and actively mitigate risk, as well as to lead mature conversations on the risk profile. Based on experience, it is better to have these conversations early (pre-tender) to mitigate both client and contractor risk, as we are all affected in the end if risk is not well managed. In our pricing we will have less risk allocation where we build in extra costs on the unknown. ECI helps mitigate risk rather than transferring it. By identifying risk, it provides opportunity for innovation to manage that risk.

Generally, there is a longer and improved handover process between the ECI team and construction team, as opposed to the bid team and construction team in typical tender process. With this overlap, an ECI typically shortens the overall project duration (up to 20-30%), which is especially important in an environment of price increases and cost escalation.



Money saved with ECI

The up-front cost of ECI is outweighed by the value that is added. The ECI portion is only a small cost at the start of the project – on average 0.4% of the final construction costs, and can save clients significant dollars in the long run. It typically enables shorter construction periods and reduced impact of any issues during construction.

Contractors have slim margins and usually bid on around 3 to 5% profit. Both the client and contractor need to understand margins to support enduring relationships – a contracting relationship needs to be sustainable for both parties. When the contractor makes a fair margin, they tend to give the client the better outcomes, and unfortunately the opposite is true as well.

Cost does not equal value - ensuring Value for Money in ECIs

To win work and differentiate ourselves from the market, we need to bring smarts to the table that are valued by the client. We know that the client needs to demonstrate value for money and that this does not always mean lowest cost. The challenge for Downer is to demonstrate value whether its quality, safety, technical innovations, or broader social outcomes. While appropriate pricing is typically demonstrated with the use of an Independent Estimator during the ECI phase, value for money is demonstrated by the having the right price while ensuring the clients objectives will be attained through delivery.

Social outcomes are becoming more and more important, but both parties are struggling for alignment on what this means and how it is valued. We will only achieve step change if the client is bold in their thinking.

The client needs to articulate what is important to them and how they will value attainment of the outcomes they are seeking during delivery- often in the form of KRAs. We are very supportive of both financial and non-financial KPIs in contracts – these are best used to define and drive performance excellence through reward.

Clients should test themselves to structure their ECI process (including the scope of ECI services) around their most important procurement and project objectives, rather than extensive and complex ECI processes and scoping requirements that may be difficult (or even unnecessary) to achieve. A 'focused' ECI process is likely to achieve better outcomes.

ECI and stakeholders

Under an ECI model, there is more opportunity to engage with stakeholders early, enabling effective planning to minimise disruption. Integration of stakeholder, planning, and ECI workstreams can also help to de-risk the consenting process. By focusing on the needs as well as the expectations of the build, stakeholders are able to input into the design or construct solutions, minimising the risk of variations later, saving on additional costs

ECI and sustainability

ECI also helps optimise sustainability outcomes. The biggest opportunity to reduce the embodied carbon footprint of a project is during design. Through ECI, the contractor can provide input into materiality assessments, including re-use of materials (e.g. aggregates), selection of appropriate equipment, and sequencing, to identify what is most efficient in terms of time, materials, and energy, as well as making changes to the design to facilitate a more efficient build.

For example, a 3D BIM model is being used to track the projected carbon footprint of Auckland's largest transport project, the City Rail Link, in an Australian and New Zealand first. Downer is part of Link Alliance delivering the City Rail Link, which is targeting an ambitious 15% reduction compared to the Reference Design, as part of its overall target of an Infrastructure Sustainability (IS) 'Excellent' rating for both the design and construction phases.

As the design progresses, the BIM model is updated and monthly take-offs produced with data on material quantities (mainly concrete and steel) used by each of the 100+ design packages. These quantities are then converted into a carbon footprint by the Sustainability team and compared against the Reference Design, with results communicated back to the Design team.

Is ECI right for your next project?

In assessing whether ECI is right for your next project, key questions to ask include:

Is it a significant infrastructure project?

Is the project scope still to be finalised?

Are final stakeholder and consent requirements uncertain?

Are there budget constraints?

Is the project in the early stages of design?

Are social and sustainability outcomes important?

Is it a technically challenging project?

Are there programme pressures?

Are there significant risks that need to be understood, valued, and mitigated?

If you answer **yes** to most questions, we recommend you consider using the ECI model.

To find out more about Early Contractor Involvement, get in touch with Bruce Cullen

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