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Tales from the Big Smoke **‘Bait & Switch’**

While discussing the selection of consultants at a recent meeting, I was surprised to find that the practice of ‘bait and switch’ is not generally known here. Perhaps we live in a cocoon of honesty, a society where dishonest behaviour and corrupt practices are not only frowned upon, but are acted against using the full power of the law.

Nevertheless, as we become further involved in the international arena – both by providing services overseas and buying consultancy and construction services (including those requiring good faith and top performers, e.g., in Alliances) from the international market – it may be worth telling the story of a very large international firm of consultants, one of the largest in the USA which will remain anonymous in our account: let’s call it XYZ. This firm was adept at ‘baiting’ their proposals with a cast of engineering and economic luminaries who, by the time work was to start in the field, had mostly vanished. The invariable reason for this was a contention that the government concerned had delayed their choice of consultants for so long that all the

‘stars’ in their original proposal were too much in demand to be able to wait idly for the contract to be signed. They therefore had to change personnel, providing their client with professionals of lesser qualifications. The ‘switch’!

In one case in Africa, out of eight senior, highly-qualified engineers and geologists, seven were not available after the contract was signed and work was to start in the host country. The selection process had taken only three months after the proposals had been received, a period during which the government and the principals of XYZ had been in touch, as clarifications were sought and the proposal was examined, together with the proposals of competing firms. The government was unable to take action, since the proposal had been carefully drafted with escape clauses and, under the terms of the contract as finally negotiated and signed, the firm was allowed to substitute personnel through causes beyond their control, including delays incurred in the award process.

But this firm was finally caught out: they



Ernesto Henriod, Editor

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Engineering, Christchurch,
New Zealand*

took part in the competitive selection of consultants for a transportation project in Latin America; let's call it the ABC Project. As usual, their proposal listed five eminent engineers with particular expertise in the Project: they were the bait. However, as luck would have it, when the proposals came up for review at the World Bank, one of those engineers happened to be visiting a colleague concerned with the particular procurement. "I see you are working with XYZ", he commented. "What? Certainly not, they tried to get me to join the team for the ABC project, but I turned them down".

Attempts were made to contact the other four engineers: two others had not been approached by XYZ. Their CVs had been included fraudulently in the proposal for the ABC project, and were happy to provide the Bank with affidavits confirming that they had not agreed to participate in the project with XYZ. But worse was to come: the other two engineers were dead, and had been six-feet-under for some time!

XYZ were suspended from all further work in World Bank-financed projects, and borrowing governments were requested to carefully check future competitive proposals, contacting directly all key personnel listed. I have not seen XYZ in recent listings of international consulting firms.

One hopes that the firm ceased operations and is no longer prowling the market of developing countries. Or – did they just change the name and regroup?

Could our projects be affected in New Zealand by 'bait and switch' shenanigans? Not if we are vigilant and thoroughly check the references of those who want to practice in our environment... Heads up!

Ernesto Henriod

DO YOU have a bee in your bonnet?

A particular beef? For instance:

- are you happy with your professional insurance terms and premiums?
- Do you have a problem with the Construction Contracts Act or with Industry regulations?
- Is there any subject you would like us to write about – or for CAENZ to investigate?

Contact us! (see page 12 for details)

The deadline for material for the 5th issue is 31 July 2007

News in Brief...

The Conference on Hot Market Procurement...

...took place on 30 May. Sixteen speakers took the rostrum, in a marathon that Dr Martin Barnes (with tongue firmly in cheek) suggested had broken the previous Guinness record number of speakers for a one-day conference, set by a 'Society of Inarticulate Orators' in Hawaii.

Martin and Phil Heenan, of the Office of Government Commerce of the UK updated us on what is going on with the Industry and Government procurement in the UK and Europe, while prominent Kiwi speakers presented the views of the clients and members of our construction industry: it was an enlightening event thoroughly enjoyed by the full house of participants at the Waipuna Hotel in Auckland.

Previously, a group from CAENZ and Dr Barnes had met with top management from some of the leading construction companies – a meeting in which key concerns of the Industry were discussed. Our next issue will include a wider account of both events.

Important initiative by Roothing New Zealand

Tim Warren has recently joined RNZ as Manager –Industry Self Governance (ISG), a new role reflecting the importance of self governance within

the Construction Industry. He will be located in the Wellington Office and his primary role will be to develop, promote, implement and manage ISG for the road construction sector. Roothing NZ and CAENZ are working on a number of initiatives for the development of best practice for the construction sector. A common thread for Tim is the CAENZ work in developing case histories and knowledge base on the use of the NEC.



Disclaimer

While every care is taken to present articles discussing current trends and techniques in contracting and construction, CAENZ emphasises that the information contained in this Newsletter is not a substitute for experience and expertise, which must be sought by the readers where deemed necessary.

Note also that some articles may propose matters for discussion based on the authors' opinions, drawing on their own experience or theories and, as such, may be subject to further testing, and should therefore not be taken as proven or approved practice.

Discounted Dollars and Future Costs

by Dr David Hutchison

Land transport projects are normally assessed by economic techniques (Lowest Net Present Value or Highest Benefit to Cost Ratio) using a discounted cash flow. The argument for a diminished view of future dollars (whether costs or benefits) is that¹:

The community places a higher value on benefits and costs that occur in the near future, compared with those that occur at a later date. This is not possible to directly combine amounts occurring at different times.

Road Controlling Authorities are required by the Local Government Act, 2002 to produce a Long Term Council Community Plan covering not less than 10 consecutive financial years.

Each year, Transit New Zealand publishes a 10-year State Highway Plan and Forecast, detailing planned state highway maintenance and capital improvements. Both of these sets of documents are concerned about managing costs into the future.

Included in these costs are the maintenance costs arising from both recent new construction and new roads/structure that will be constructed during the 10 year period.

The new projects get evaluated using a number of criteria, one of which is benefit/cost ratio. Benefit to Cost analysis incorporates a discount rate of 10%. This rate has been established by Treasury for all public sector project evaluations².

1 Local Government Act, 2002.

2 Land Transport NZ, 2006. *Economic evaluation manual, Volume 1*. Section 2.6, First Edition, 1 October 2006.

However, the long term plans have been assembled through compiling and totalling maintenance expenditure and costs of still-to-be-built projects on the basis of expected costs in real dollars, i.e. not discounted.

Inherent in these two approaches are two views of future money:

- discounted; and
- non-discounted.

The difference is shown in Figure 1 in a cumulative cash flow for a section of a motorway project. Costs are for the pavement structure and surfacing, i.e. excluding earthworks.

It is apparent that the value of total non-discounted dollars at the 30th year of project life is nearly three times the discounted cumulative sum. The graph shows the growing disparity between discounted and non-discounted cumulative cost.

The project has been evaluated on the basis of a total Net Present Value (to year 25) of less than one third of the actual cost. Because of its reduced view of future dollars, the method favours low up-front cost projects, and pays scant regard to potential large future maintenance costs.

But the future comes.

The potentially large-cost items have to be paid for in real, not discounted, dollars. An example of this is shown at about Year 13 in the cumulative plots, where rehabilitation is carried out on the unbound granular-base pavement. The cost of this operation is relatively insignificant on the discounted line, however, and the tendency to

Compare cumulative costs, discounted and non-discounted

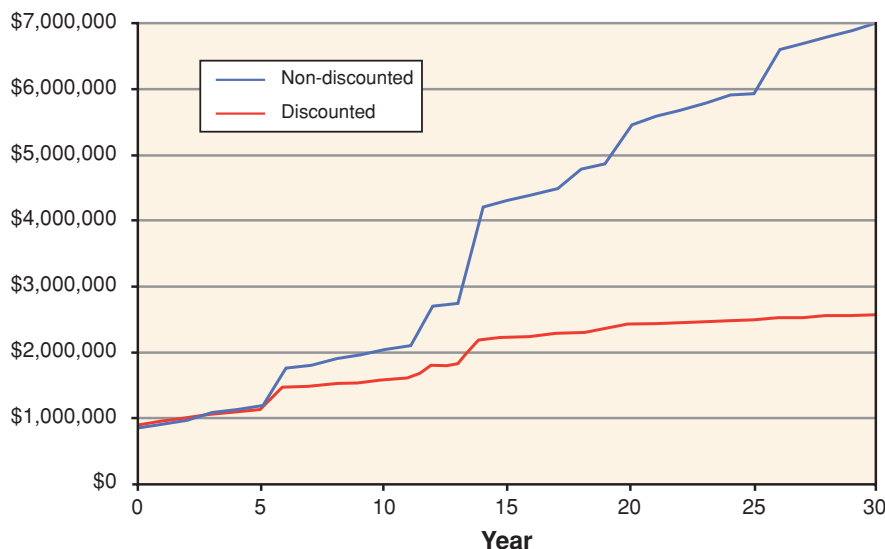


Figure 1: Cumulative cash flow for a section of a motorway project. Costs are for the pavement structure and surfacing (i.e. exclude earthworks)

ignore it is thus a feature of calculating the Net Present Value.

It can be argued that discounted cash flow is an economic tool. What is the point of this contention? The effect of using this tool is to discourage “up-front” expenditure, and hence to reduce the value and hence longevity of projects, while “playing down” very significant

future expenditures. In the example above, by Year 30 (short in the life of a major road), the total cost will have been nearly eight times the original cost.

In Figure 2, the cumulative non-discounted costs for an initially more expensive version (structural asphalt) are compared with the unbound granular project.

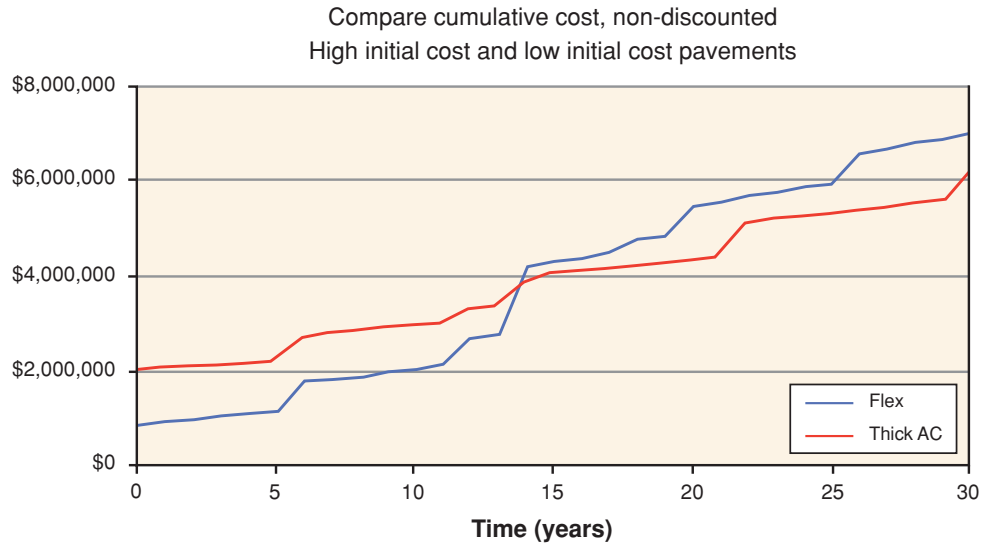


Figure 2: Cumulative non-discounted costs for structural asphalt compared with unbound granular.

It is apparent that the two projects reach equivalent cumulative cost in Year 13, and that the annual average cost (the slope of the bumpy line) is always less for the initially more expensive cost, i.e. money continues to be saved.

It is apparent from the figure above that by year 30, the more expensive project will have cost an additional \$4 million; however, the initially cheaper project will have cost an additional \$6 million.

The maintenance operation of the motorway example will continue for several decades after year 30, and the saving over the initially cheaper project will continue to increase.

In simple terms, this means that if we build a more expensive option then the downstream savings in real cash terms will continue to accumulate. For a fixed annual allocation of funding, in time we will have funds to construct additional higher quality projects with attendant long term savings.

The downside is that we need more cash up front. But the downside becomes an “upside” if a long term view is taken: “spend now, save later.”

Application of discounted cashflow considerations negates the possibility of a realistic long-term view.

It is imperative that we take a long term view of essential infrastructure costs, expressed in real dollar terms. The short-term view, supported by the 10% discount rate, should be discarded in our

thinking, planning and consideration of optimal new project forms.

David Hutchison



David is currently Chairman of Roothing New Zealand’s Pavements Committee, and the material above has been produced with input from its members.

David is Technical Manager, Pavements, at Works Infrastructure Limited.

Editor’s Note:

Dr Hutchison’s reasoning is certainly sound. However, he portrays the infrastructure owners’ eternal economic conundrum – which is usually resolved by the financial restraints we all face. In New Zealand we have a very substantial network of highways, a huge inheritance from the past, a vital asset which must be maintained. The dilemma places us between a preference for substantial (or substantive) new works and budget restrictions. We are led to save in construction costs in order not to neglect maintenance.

There are additional economic factors in the choice of pavement which would merit study and comment from Roothing NZ and our readers: are there additional costs to the economy from the use of granular surfaces, in terms of tire wear, fuel consumption and travel times? CNZ will welcome your views on this and also on cab noise and driver fatigue issues.

Decision Making in the Context of Risk Management for Projects

By Garry Miller

Capital works projects typically involve complex decision-making, multiple stakeholders, with a need to make value tradeoffs, and which are likely to come under scrutiny following contract award. Risk management needs to be at the heart therefore of the development of the project business case.

The HM Treasury Green Book (2003) sets out the UK Government's policies for the appraisal and evaluation of public sector procurement projects. This document claims to "take account of the wider social costs and benefits of proposals, and the need to ensure the proper use of public resources". It sets out an appraisal process as shown in Table 1.

The Green Book was revised (2003) and calls for the first time for adjustments to be made for optimism bias, stating; "There is a demonstrated, systematic, tendency for project appraisers to be overly optimistic appraisers tend to overstate benefits and understate timings and costs, both capital and operational."

In an attempt to provide a consistent methodology for making appropriate levels of adjustment, HM Treasury commissioned Mott MacDonald to undertake a study of the outcome of large public sector procurement projects in the UK over the last 20 years. This resulted in the HM Treasury Guidance document (2002) "Review of Large Public Procurement in the UK", which provides an analysis based on historical projects of the

percentage difference between estimates at appraisal stage against the final outcomes. The summary shows the average optimism bias as can be seen in Table 2.

As a consequence, the Green Book now recommends that adjustments be made to the estimated capital cost of projects in accordance with "the best empirical evidence". The Mott MacDonald document provides further detailed guidance on appropriate levels of adjustment, based on factors such as complexity of the project. This approach appears to have much to commend it, adopting a process similar to that recommended by Bazerman (2002), (i.e. to adjust intuitive predictions based on outside information), as a method of improving decision-making.

The Mott MacDonald study concludes that, "the most important contributing factors to optimism was the inadequacy of the business case and not addressing the needs of stakeholders."

Risk Management

This all points to the need for robust risk analysis and management tools. The traditional approach to risk management measures risk as a product of likelihood and severity. Such an approach has significant limitations, including the following:

- Fails to identify the monetary value (cost) of the risk.

Stage	Activity	Comment
1	Identify and value the costs of each option.	Standard NPV cost-benefit appraisal
2	Identify and value the benefits of each option.	
3	Adjust for the timing of the incidence of costs and benefits by discounting them to obtain their present values.	
4	Adjust for material differences in tax between options.	
5	Adjust for risk and optimism to provide the Base Case.	Optimism bias adjustment recognises for the first time in public sector procurement the impact of heuristics.
6	Consider unvalued impacts using weighting and scoring techniques if appropriate.	Recognises the need to measure non-monetary benefits and costs, which points towards the use of MCDA.

Table 1: Appraisal Procedure. Source: HM Treasury Green Book (2003), comments by Author

Optimism Bias (%)			
Works Duration	Capital Costs	Operational costs	Benefits shortfall
17%	47%	41%	2%

Table 2: Average Optimism Bias, Construction Budget Estimates. Source: Mott MacDonald: Review of Large Public Procurement in the UK (2002)

- Risk is measured on many different scales, with each practitioner using his/her preferred variation on the theme, but with no relation to a universal norm. Whilst the descriptions are generally self explanatory, the measures could mean different things to different people.
- Fails to recognise the inter-relationships between risks.
- Often fails to address the biases outlined above.

A statistical based cost estimating approach recognises that all construction projects have inherent risk. Rather than single point estimates business plans and Capex approvals, such an approach recognises that project funding needs to be made for the following:

- Base cost (no contingencies, or risk allowance)
- Expected cost. This equates to the expected out-turn cost of the project, with appropriate allowance for risk and uncertainty
- An upper bound confidence level (often taken at the 95% confidence level). This equates to a near worst-case scenario.

Once established the risk adjusted costs can be pro-actively managed through the programme, converging at practical completion, as illustrated in Figure 1.

The statistical methodology with estimated monetary values offers the following :

- Make applications for Capex funding with an appropriate level of contingency;
- Provides a simple methodology of assigning dollar values to decision options;
- Enables modelling of both threats and opportunities;
- Enables tracking of the progress in risk reduction from concept, through design and tender to contract, as levels of uncertainty

reduced and risks were closed out;

- Allows interaction between different risks to be accounted for. Correlation can “discover” effects or outcomes that could potentially be missed by traditional techniques.

The key benefit is that risks are measured in monetary values, which enables true comparisons to be made between options. The risk adjusted estimate can also be developed into a whole of life net present value risk adjusted estimate, which provides a means to compare options on a like for like basis to determine best value.

However there is no panacea in project risk management. Much depends on the skills of the risk practitioner. Hence the challenge for the industry is to continue to develop and adopt transparent and robust methodologies for quantifying and managing risk, that address the limitations inherent in human decision making such as optimism bias. These limitations are discussed in more detail in a paper on the CAENZ web-site.



Garry is a Director of the Academy of Constructing Excellence.

The majority of his professional experience has been in advising public and private sector clients in the health, property, energy, transportation, telecommunications and water sectors. He has helped many clients deliver capital investment programmes in New Zealand, UK and Australia.

He is also a guest lecturer at the University of Auckland, and was previously a lecturer at Leeds Metropolitan University in the UK.

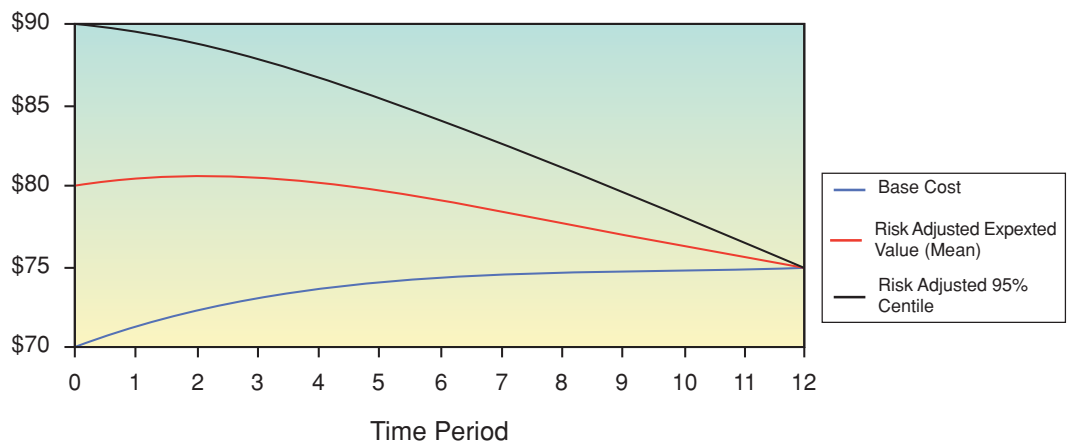


Figure 1: Risk reduction against time

A full copy of this paper is available at www.caenz.com/info/publications/newsletters/CNZ.html or follow the link under 'Current Newsletters' on the www.caenz.com home page.

Constructing NZ – Striving for Better Value

by Scott Caldwell, CAENZ

New Zealand is currently in a time of unprecedented private and public sector construction activity, which is expected to continue, at least for the infrastructure industry, for the next ten years. Applying best practice principles of procurement for construction works is absolutely essential if New Zealand is to get best value from these construction works.

Kevin Brady,
Controller and Auditor-General¹

New Zealand's built infrastructure underpins the country's economic activity and social well-being. However, the role of the construction industry in the maintenance, renewal and extension of built infrastructure is generally not well understood or appreciated.

Some construction industry facts:

- The capital value of New Zealand's existing built environment is approximately \$240 billion with the value of new building and civil construction variously estimated at around 4.2% of production, or 10% of annual expenditure within the measure of GDP².
 - Maintenance expenditure on buildings is estimated at \$4 billion p.a.; and the cost of essential services (electricity, water supply and waste disposal etc) in the built environment is estimated at \$4.5 billion p.a.
 - The sector's activities have significant economic effects on other industries. For every \$1.00 spent in residential building, \$1.63 is generated in other sectors. For other building activity this multiplier effect is \$1.21, and for all other construction output it is \$1.17.
 - The industry contributes 10% of our exports, e.g. in cement, steel, timber and manufacturing.
- The construction industry employs roughly 135,000 people directly, or about 7% of the workforce. It is estimated that at least the same number of people are employed in off-site work.
 - A BERL report prepared for Building Research suggests a 10% improvement in construction efficiency would achieve a 1% increase in GDP (approximately \$1.5 billion in GDP, together with savings of \$350 million in government procurement and \$1.5 billion for private clients). Such an increase would result in an improvement in the balance of trade from an additional 1.4% of exports, compared to an increase of 0.5% additional imports (approximately \$248m improvement), and lead to a 1.6% reduction in consumer prices.
 - Spending in research and development by the Construction Industry is estimated to be \$41.4 million p.a.; or approximately 0.228 % of the \$15 billion contribution to the economy (taking account of the multiplying factors).
 - On the basis of the value of construction levies (0.1% on new buildings valued over \$20,000), it is estimated that 60% of new construction is spent in housing, 25% on commercial and industrial building construction and 15% comes from Government construction procurement (not including civil engineering construction).

CAENZ research has demonstrated that under-performance in the sector impacts not only on the profitability of industry participants, but materially influences New Zealand's capability to meet its broader economic and social goals. However, the lack of sector-level research and published data reflects a perception of Construction as a service industry rather than a vital economic activity. There is also the broader perception of the industry as a price-taker rather than a value-creator.

Clearly, world-class delivery matters. CAENZ has engaged in wide consultation with the industry to look at the way businesses and organisations tender for and deliver infrastructure projects. The widely held view of the major players is that there

¹ As quoted in "Best Practice Construction Procurement in New Zealand", Construction Industry Council, January 2006.

² Note: GDP can be measured as value added or work put in place. The exact nature of the figure is not often clarified.

is significant scope for improvement within the sector and that the benefits of improved performance will flow to all in the supply chain. Our initial research suggests that achieving a year-on-year performance improvement in the sector, equivalent to the rates of improvement reported in overseas economies (just over 10% cost savings p.a.) can lead potentially to savings of the order of \$600 million per annum for the economy at large.

Considering the industry's crucial importance, it is vital that construction-related activities are carried out efficiently, to high standards, and use the best available technologies, materials and techniques. If a structure is not built for purpose or is built to sub-standard levels, its inefficiencies are likely to create unnecessary costs to subsequent owners, to other stakeholders (neighbours, community etc) and the environment (excess use of energy, unhealthy living conditions, harmful materials, pollution of air and soils, etc).

Regarding the fitness for purpose of a building, the owner (or developer) at the time of construction may not be the owner a year or so later. This means that decisions are often based on initial cost, rather than lifetime cost which in turn may lead to problems of durability or performance of the parts or the whole building. This is just one of the many factors that affect the reputation of the industry – both positively and negatively – that we need to understand, together with their effects on the economy.

Government Attention

Compared with other industries, the construction industry has been somewhat neglected by government, with little attention during the past 15 years, until the recent higher level of direct intervention, as a result of the 'leaky building' issues and the consequential popular outcry.

It must be recognised that efforts to build capability and capacity to meet compliance pressures can at the same time inhibit innovation and R&D. Regulatory responses have resulted in pressures being applied on the industry with suggested licensing regimes and other external control measures. The risk is not just the immediate burden of the regulations, but also the total reliance upon external prescription and inspection (to achieve minimum prescribed requirements) potentially becoming a barrier to performance improvement, as opposed to an industry-motivated quality assurance approach within the industry.

In sum, to create a positive business environment that will foster innovation and a search for excellence, the industry needs to be recognised alongside other important contributors to the economy, and a more collaborative, supporting role together with a positive regulatory function should be explored by government.

The Workforce

Long-term competitive advantage depends largely upon the quality of the workforce. The sector

remains unattractive to young people making career choices. Apprentice numbers, while up significantly in the last decade, are still insufficient and engineers and other professionals are in short supply. The industry is addressing these issues by sourcing qualified labour from overseas markets, but is facing worldwide competition for this talent.

The Industry

The construction industry is a large, diverse and often fragmented collection of client communities, designers, suppliers, facilitators, support industries, knowledge providers and regulators. It is a complex entity in which relationships have traditionally been adversarial and reactive rather than cooperative and pro-active. These relationships are often shaped by competitive pressures within the industry and in the majority of construction projects. Collaborative or relational practices are generally only found in high-risk projects or projects for clients with steady over-year building programmes.

The disparate interests of the industry, comprised largely of small-to-medium size enterprises, are represented by 68 separate associations. These associations coalesce in one pan-industry organisation, the Construction Industry Council, but have yet to achieve the kind of voice or political impact seen in other sectors. (eg VegFed or Meat & Wool New Zealand). This reflects the difficulty in uniting a diverse and fragmented sector.

Sector Economic Environment

The industry is generally conservative (reflecting low margins and high risks) and has significant inbuilt inertia. It has a stop-start nature which works against the development of a strategic focus. As a result:

- Numbers of people in training rarely meet the demand for staff.
- Skilled staff leave the industry or move overseas in downturns.
- Companies struggle to meet demand in boom times, and are ill equipped to manage recession.

In a construction market downturn:

- Margins are squeezed and investment in the industry is constrained.
- Business risk is higher, leading to more company failures.



Downsizing occurs with subsequent loss of resources, and stagnant wage and salary levels make the sector less appealing to new entrants.

- Lack of training of personnel, due to lack of funding and low recruitment levels.
- The likelihood of sub-standard construction rises, as shortcuts are taken to create margins.

In a heated construction market:

- Construction sector inflation rapidly exceeds the normal inflation indices.
- Contracts frequently limit the capability of contractors to recover the increased costs (the resultant wage and salary increases and materials increases with increased demand), which leads to restrictions in reinvestment.
- Lack of skilled personnel, especially early in the boom.
- The workload outstrips resources, and over-commitment leads to management, supervision and trades people becoming stretched, leading to mistakes and health and safety issues.

The Clients

The way in which project owners buy their construction services means there is little room to fund innovation and R&D in the industry. Many private owners purchase services infrequently and have no interest in the long-term viability of the industry. They are mainly interested in their final costs, without fully understanding the interplay between cost, price and risk.

Thus, owners continue to apply pressure on construction providers to reduce costs. In such cases, the difference between worthwhile innovation and a "cheap and dirty" job is not always understood. Potential issues arise when durability problems become evident several years after completion, and the persons who made the critical procurement decision no longer have a financial interest in the building.

Similarly, project owners who purchase construction services regularly, often for speculative reasons, are only interested in encouraging innovation in the construction sector if it leads to lower initial building costs.

A major problem for projects are the hands-on clients, who insist on having a high level of direct involvement in their projects. These clients are rightly concerned about getting what they want, but are often unable to clearly define a specification to suit the results they seek.

The lack of a clear scope of work can be hugely destructive to the contractor, affecting its finances and operations, with high turnover of the staff assigned to these projects, tying up resources for the longer term, and leading to potential conflict and litigation.

Internal Expertise

The construction industry can at times work in an environment dominated by conflict rather than collaboration. With the traditional divide between design and construction, together with the hierarchy of sub-contractors and suppliers, knowledge about how to produce better products more efficiently is buried in the supply chain. There is a growing body of evidence, both internationally and within New Zealand, that significant improvements in industry performance are possible if these issues are addressed.

In sum...

- The industry is dominated by boom-and-bust cycles, creating an uncertain future for employees and impeding the development of the skills base that the industry is heavily reliant upon.
- Profitability is variable, competition is dominated by a lowest first cost, and problems are passed on to others wherever possible.
- Innovation is driven primarily by the need to meet minimum codes and standards.
- Local products are displaced by imports, with little thought of New Zealand requirements and quality, causing downstream problems
- Customers have little understanding of products, little information for optimal purchase decisions....
- ...to quote a few of the issues.

Therefore:

There is a lot to do to improve the overall performance of the New Zealand construction industry. CAENZ has taken a proactive stance seeking to address these issues, in line with the organisation's role as an independent knowledge broker and facilitator for Engineering in New Zealand.

We invite you to support this work by contributing your ideas, knowledge and expertise in articles for this newsletter and the various meetings, workshops and discussions to be staged through 2007-08.



Scott Caldwell is Project Coordinator for CAENZ and the Programme Manager for CAENZ's Best Practice in Construction Programme.

An electrical engineer by training and a manager by inclination with an MBA, he has 9 years of project management experience ranging from IT, electrical product development through to Fire alarm system design and installation.

He has a keen interest in improving New Zealand's utilisation of its technical resources.

Pathfinder Project Programme: Drawing from UK experience

by Amanda Warren

The Pathfinder Project was launched in March 2007, by the NZ Construction Clients' Group (CCG) in collaboration with CAENZ. The New Zealand project draws from UK experience, which I shall describe in this note.

In the UK, the Egan report¹ instigated the construction industry to try different approaches to improve its efficiency. It was also the instigator of the group 'Movement for Innovation'. This was not the Government or a client group saying "this is how you shall improve" but rather "How can we do it better? We do not know at this stage, please share your ideas".

This is the attitude we are following in the NZ Pathfinder Project, which will link into the Building Research conference in September—where the main theme will be "How can we make the industry 30% more efficient?"

Over time, through projects studied in the Demonstration Programme, it was found that in the UK partnering, alliances and relationship contracting were more efficient than traditional contracting approaches. However, the CCG could get sidetracked, if only 'procurement' is taken as the key issue: even the most traditionally procured project can go well if it is managed with innovation and relationships in mind.

We must take a step back and think about how the industry can become more efficient and effective by adopting the CCG Charter principles², regardless of the procurement route. Note that the NZ pathfinder projects are not oriented to towards taking the UK principles and applying them to NZ but rather, to consider "what from these UK experiences can we use or adopt to seek efficiency enhancement in NZ and what new ideas of our own can we develop?"

The experience in the UK and other countries suggests that the way a project team is put together has the strongest impact on the outcome of the project, regardless of the procurement approach. Just setting up an alliance does not necessarily guarantee a greatly efficient project. It is necessary

1 "Rethinking Construction": Sir John Egan and the Construction Task Force, 1998.
2 The Charter can be found at www.constructing.co.nz

The 'master/slave' traditional procurement method has been used for centuries but its not until recently that other methods of contracting have been tried and we now realise the master/slave concept has not worked 'that well'.

to develop work relationships, influencing the attitude of people towards achieving success within a collaborative work environment. Pathfinder will examine projects under way that use the traditional forms of contract and are successful: obviously, they must be doing something differently – what is that difference? We will look to those responsible for the Pathfinder projects to contribute their knowledge and innovations for the benefit of the Industry.

One objective of the demonstration projects in the UK was to define measurability, to make possible a comparison with other projects within the industry. The initial demonstration projects were a figurative 'line in the sand'. In NZ we will not know that we are improving until we analyse and measure our performance against benchmarks to be established.



The measurability concept in the UK showed that the industry was indeed improving; the participants were improving their performance. The improvement results were disseminated industry-wide and contractors were able to compare the demonstration projects with the rest of industry. The results demonstrated that where the team is focused on an innovation to make the project more efficient, they gained a better outcome. The UK demonstration projects improved across the board, including aspects of design, constructability, innovation, sustainability etc (see Figure 1).

However, it was not always expected that the demonstration projects would be better across all its measures, only in the area that was actually introducing innovation. Innovations were also singled out if they proved to be more costly or take more time and resources. If we look at a Pathfinder project as an opportunity to try something new under careful control, the innovation may still fall below the line. This should not be considered as a failure, but should be embraced as a learning opportunity.

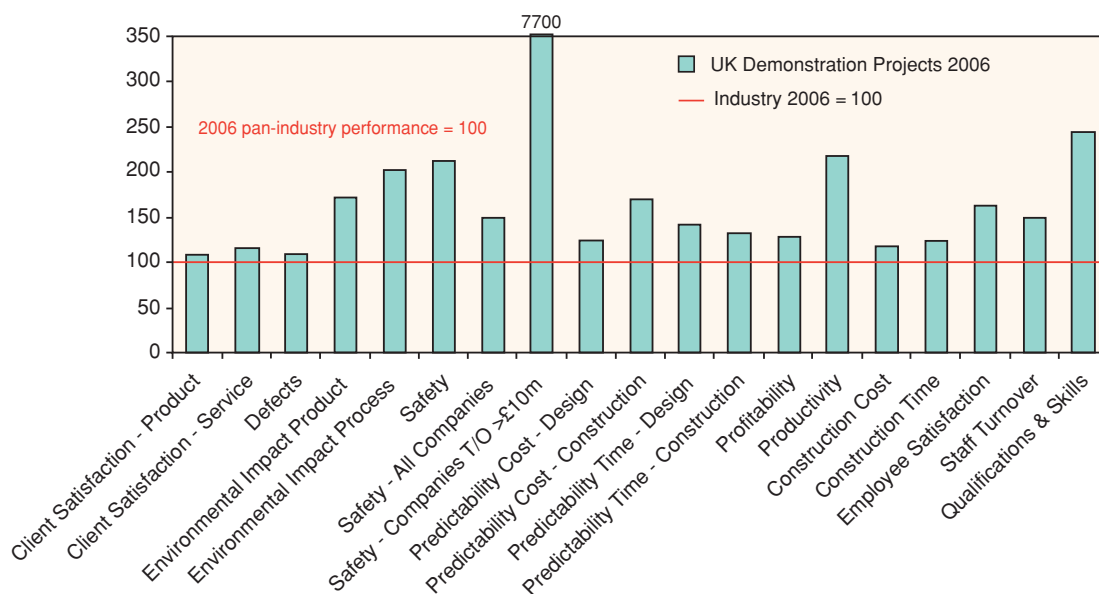


Figure 1: Improvements in UK demonstration projects 2006

Conversely, when we find something new that works well, it can be adopted as standard practice for the Industry.

In the UK they gathered the design and construction team with the client to discuss the particular innovation to be introduced in the project. Thus, the client's expectations from the project were explained and understood by the whole team and could be managed from the beginning, in the context of the proposed innovation.

The industry also discovered that having identified the project as a demonstration project people started behaving differently. The project team members considered themselves special, they were being measured and the learning process began to be shared and this created a shift in culture.

The New Zealand Pathfinder Projects

Moving forward and onto the New Zealand pathfinder projects we must question "how do we evolve a culture change here in New Zealand?"

We must bear in mind we do not have government support. We could sit down and wait for government backing but I feel that the CCG has its own power to initiate change. With this in mind, the following are the suggested objectives for NZ Pathfinder Projects:

- 1 Capture Learning
- 2 Share Knowledge
- 3 Encourage Innovation
- 4 Create Networks
- 5 Change Culture

With the following process:

- 1 Submit Project
- 2 Communicate Project Charter
- 3 Develop Innovation ideas

Knowledge is not power, how you use that knowledge creates power.

- 4 Measure baseline KPIs
- 5 Reports to CCG:
 - a During Project
 - b End of Project Outcomes
- 6 Submit KPIs
- 7 Contribute to a written Case Study

The Pathfinder projects will be measured against New Zealand Industry figures. CAENZ has already collected two years of information, which is available for Pathfinder.

Once you have decided on your Pathfinder Project, you will need to gather your team for a meeting to develop your innovation ideas, following the approach of Constructing Excellence (as discussed at the facilitated brainstorming workshop of February 2007).

The project will be expected to be innovating in just one of the Charter criteria (application of more than one is optional). The Charter criteria are:

- communicating a CLEAR VISION of the client's requirements & drivers
- operating in a manner to foster a culture of OPENNESS, HONESTY & TRUST
- developing & operating BEST PRACTICE STRUCTURE, SYSTEMS & PROCEDURES to demonstrate:
 - understanding & management of risk
 - development of beneficial relationships
 - effective communication
 - mitigation of Conflict
 - understanding of client strengths &

- opportunities to improve
- engaging & developing APPROPRIATELY SKILLED people WITH a competent UNDERSTANDING OF THE CONSTRUCTION PROCESS
- creating a COOPERATIVE ENVIRONMENT supported by a ‘NO BLAME CULTURE’
- ensuring the ability to Practice TIMELY DECISION MAKING
- delivering a CONSISTENCY of management, systems & personnel
- promoting SAFETY CULTURE
- fostering commitment to SUSTAINABILITY
- exploring, promoting & implementing RELATIONSHIP CONTRACTING where appropriate
- Inviting the supply chain to MEASURE CLIENT PERFORMANCE in line with these principles
- offering FEEDBACK TO SUPPLIERS on their performance
- measuring the project performance using the NATIONAL CONSTRUCTION INDUSTRY KPIS – THIS CRITERIA IS MANDATORY FOR PATHFINDER PROJECTS

A Pathfinder project does not need to engage the process at the beginning of the project, it can join part of the way through construction, or even if it has been completed and has an innovation aspect for sharing.

The form for submitting a pathfinder Project can be found on the CCG website along with information on the 121 pathfinder projects from the UK: www.clientsuccess.org.nz.

4th International i-Rec Conference 2008

This important Conference being organized by the International Group for Research and Information on Post-Disaster Reconstruction (i-REC) will take place in Christchurch, New Zealand, between 30 April and 2 May 2008.

The cornerstone sponsors are EQC (the Earthquake Commission), Building Research NZ, and AMI Insurance.

The main subjects to be addressed are,

- Project management and stakeholder participation in reconstruction
- Legal and policy frameworks for reconstruction
- Finance and resources for reconstruction
- Urban planning and design for post-disaster reconstruction
- Education and training for reconstruction.

i-Rec encourages all intending participants to contribute papers along the above subjects. The deadline for abstracts is 30 August 2007, and the extended deadline for the full papers (or extended abstract submissions) is 31 January 2008.

Further information can be obtained from:

The Conference Office, University of Canterbury, Private Bag 4800, Christchurch, New Zealand
Telephone +64 3 3642645, Fax +64 3 364 2324, email i-rec2008@uco.canterbury.ac.nz.

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