ICCF

International Construction Clients' Forum

Sharing International Best Practice in Construction

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Client Best Practice - an International Perspective

A Discussion Paper

International Council for Research
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development through partnership

Construction Industry Development Board
South Africa

Summary

There is international consensus that client behaviours and practices have great influence on project outcomes, and that some approaches are more likely to lead to successful projects than others. These include:

- The fostering of trust and collaboration within the project team, supported by informal and formal dispute-resolution procedures
- Early appointment of principal members of the project team, in order that each may contribute from their experience and knowledge
- Selection of participants on the basis of a range of performance criteria, not just price
- Mutual agreement of project goals, with shared benefits for exceeding them
- Defining the project aims in terms of intended outcomes, rather than prescriptive requirements

The ICCF meeting in Port Elizabeth will consider the application in practice of these principles through presentations and discussion focussed on the themes of Client Leadership, Value-based Procurement and Partnering. This paper reviews evidence from around the world on how those themes are being put into practice and identifies issues arising from them. It concludes with a summary of the potential role of the Forum in developing client practices.

Overview

The client role

There is a need first to define the clients and their role. This paper adopts the view of Henrik Bang of the Danish Association of Construction[1] Clients, that the client is the interface between the user(s) and other stakeholders in the project, and the supply chain. Hence the role of the client role is twofold: (i) to identify the user's requirements and communicate these to potential suppliers, and (ii) to arrange for these requirements to be met through appropriate procurement actions. This approach usefully distinguishes the client role from those of the owner, user or financier, although in many cases the client organisation may also occupy any or all of the other roles. The actual client function within the organisation, though, is required to relate to these other functions as stakeholders in the project, and to seek to satisfy their requirements.

The Port Elizabeth meeting will focus on three themes: Client Leadership, Value-based Procurement and Partnering. Each represents an important dimension of good client practice. Running through them - and strongly affirmed by the evidence from projects over the past 20 to 25 years - is the principle that the fostering of collaboration and co-operation among the parties to a project is likely produce a more successful outcome than the separated and even antagonistic relationships that have unfortunately marked too many construction projects in the past.

Many of the practices developed in recent years are aimed at creating and reinforcing (through financial or other incentives) an environment in which there is a focus on the success of the project, where ideas which can improve the outcome and reduce project risks are welcomed and where success for the whole project is translated into success for all the participants.

The international context

In the past 10 to 15 years, the performance of the construction sector has come under scrutiny in many countries and the creation of the ICCF is one manifestation of a search for improved value from expenditure on construction projects that is now in progress in all continents. The drive to improve performance has stemmed from different causes: the desire to reduce costs, inappropriate behaviour by the construction interests, poor labour relations etc. Some countries have undertaken formal reviews of the industry and have initiated national reform or improvement programmes.[2]

A central conclusion of such reviews has been that successful projects are not just the result of good performance by the supply side; the policies, practices and behaviour of clients for construction projects have a very large influence on their ultimate outcome. The way that clients set out their requirements and procure their projects determines relationships and practices within the supply sector. The value that clients obtain from expenditures on construction is therefore directly related to their own ability to operate successfully as clients.

The realisation that client performance is critical to maximising the value obtained from construction expenditures has led in some countries (eg Denmark, Sweden, the Netherlands, UK) to the creation of client associations or groupings which seek to improve their members' capabilities as clients. Elsewhere (eg Hong Kong, Singapore, Australia), state-backed initiatives to improve construction performance have included client representatives in their management structures and have sought to influence client behaviours and practice as well as that of the supply side. The ICCF membership includes both types of body, and some individual clients.

It is noteworthy, however, that in some countries there appears to be no debate on construction performance. These include large economies such as France, Spain and Germany. Japan also appears not to have client pressure for change, although the industry has been under pressure to change for economic and political reasons. In all these countries, the structures of relationships in

[1] Presentation by Dr Henrik Bang to the first ICCF meeting, the Hague, September 2004

[2] See the presentations on reform initiatives at the first Revaluing Construction conference (Manchester, 2003) www.revaluing-construction.com and the second conference (Rotterdam, 2005) www.rc2005.org

construction differ from those of the UK or Scandinavia or in the countries which have derived their practices from the UK. Possibly, they operate more effectively from the clients' perspective. The Forum offers a means of exploring these different approaches.

Client best practice

From the many publications, presentations and project reports that have been produced since around 1990, a global consensus has emerged on client practices that lead to superior outcomes for at least the larger and more complex projects (ie those which in the past have often been delivered late and over budget). It is accepted that many smaller, straightforward projects may be successfully procured using traditional routes, but even these can benefit from new approaches to costing and different behaviours by clients.

A fundamental principle of client best practice, therefore, is the adoption of policies and practices that will engender and reward collaboration among all parties and a mutual commitment to the success of the project. However, as John Carlisle points out in his preparatory paper for the Port Elizabeth meeting[3], these are not sufficient; client commitment to collaboration must be demonstrated by appropriate behaviour. This has been summed up as 'walk the talk'.

The integrated project team and early involvement

Key to the creation of such an environment, and a radical break from traditional practice, is the early appointment of a project team that includes all the principal parties. This is firmly stated in guidance from the Office of Government Commerce (OGC) in the UK: '*an integrated team should be appointed to carry out the project*[4]'. Integration may be a product of the contract strategy adopted (eg the use of design-build or another form of contract which has the effect of creating a single-point responsibility for project delivery) or may be promoted by the client following the appointment of the principal partners to the project. The use of integrated forms of contract is strongly advocated by OGC: *'traditional contract strategies, where the design and construction are provided separately, should only be used where it can be clearly demonstrated that this approach will provide better value for money than the preferred integrated procurement routes*'[5]. However, elsewhere integration may be encouraged within the context of conventional contract forms. In Denmark, contractors are appointed early in 'partnering' contracts on terms that cover their input to the project design[6]; then once the design and costs are settled, a contract for construction is agreed.

Whether integrated or conventional contract forms are employed, integration through the fostering of good relationships may be promoted through workshops (as advocated in Danish guidelines) and social events as used in the Göta Tunnel project (see box below).

The Göta Tunnel, Gothenburg - Sweden

The Göta Tunnel, currently under construction, will take 65000 vehicles a day under the centre of Gothenburg. The total contract cost is SKK 2.8 billion (310m Euros). Vägverket, the Swedish National Road Administration, have exercised high-profile client leadership through drawing up a 'Win-Win' partnering 'agreement' or charter which sets out the objectives of the project and the principles that govern its execution. These include targets such as 'no litigation'. The appointed designers and contractors are bound by this agreement and it is proving an effective basis for relationships. There is, though, no obligation on contractors to extend this form of agreement to their sub-contractors.

At the commencement the project, Vägverket demonstrated their commitment to creating an integrated project team through arranging a large gathering of managers and staff, with partners, in the Gothenburg Opera House. This was both an occasion for underlining the importance of the agreement, and a social event which helped to create harmonious relationships. More formally, Vägverket have held many seminars with managers from the contractors, to promote the principles behind the campaign and generally to generate collaborative attitudes. There are also financial incentives to encourage innovation to reduce costs, in that the contractors may retain a proportion of the savings achieved as a result of alternative procedures.

As part of the formal project management processes also, they have developed indicators of the quality of relationships which are regularly monitored and reported to contractors. And they have sought to apply the principles of the agreement to their consideration of claims, by approaching these objectively, rather than with a bias towards rejection.

The procurement strategy, with five main packages of work, was based (a) on the desire to have adequate competition (placing all the works in a single contract would have restricted the possible bidders) and (b) the need to secure technical inputs from contractors for the complex aspects of the project. Hence design-build contracts were let for four of the packages. The successful contractors were selected, following a pre-qualification process, through a second competition in which proposals were evaluated under seven headings: technical aspects, price, implementation plan, timescale, organisation, quality record, aesthetics. Scores under each heading were weighted, in that order, to achieve a final overall score.

(Discussion with Mr Carl-Gunnar Ryberg, Vägverket - February 2005)

[3] Client Leadership Best Practice Attitudes and Behaviours. ICCF Focus Issue 1 (2005)
[4] Procurement Guide 6 ' Procurement and contract strategies' Office of Government Commerce (2003)
[5] As reference 4
[6] Vejledning I partnering ('Guidelines for partnering') Agency for Enterprise and Housing (EBST) June 2004

ICCF themes

Client leadership

Client leadership is not to be confused with client dominance; this would breach the principle of collaboration. Client leadership is a fine balance between on the one hand exerting influence and taking decisions - recognising that the client has ultimate responsibility for the project - and on the other being open to ideas from all sources, including those that may question some key aspects of the project, in order to achieve the best outcome.

Client leadership starts at the inception of the project - or even before, when the client is formulating the principles which will underpin their actions as client. These principles will 'set the tone' for the project relationships. The general principles set out by the Highways Agency in the UK illustrate this (see below).

Highways Agency procurement principles - United Kingdom

The Highways Agency is responsible for the construction and maintenance of motorways and other trunk routes. The principles governing its procurement include:

- *Early creation of the delivery team, which 'allows more scope for innovation, improved risk management, better forward planning of resource requirements, shorter construction periods' and other benefits*
- *An integrated and incentivised supply chain, which benefits from the knowledge and experience of specialised contractors*
- *The maintenance of a competitive and sustainable supply chain, though making forecasts of future requirements and creating improvement targets within longer term relationships*
- *Clear points of responsibility, with no unnecessary layers of supervision*
- *Selection of suppliers on best value criteria*
- *Fair allocation of risks. Transferring risks to the contractor may improve certainty in final pricing but this may be at the expense of reducing overall value since the contractor will price for the unknown risks. Hence the Agency will accept risks where there is a partnership to manage and control them.*
- *A partnership approach based on long-term relationships, with performance measurement and continual improvement targets.(www.highways.gov.uk)*

At times, a client may underline their commitment to collaboration with a particular policy. For the construction of Terminal 5 at Heathrow, BAA plc were determined that there should be no barriers to collaboration so they stated at the outset that they would carry the risks associated with the project (see below).

The BAA Terminal 5 Agreement - United Kingdom

Terminal 5 is a 4Bn Euros project due for completion in 2008. For Terminal 5, BAA decided to take responsibility for the total risk of all contracts in the project. BAA has taken out a multi-million pound insurance policy to cover these. As a consequence, all suppliers are expected to operate as if they were part of one virtual company, focussed on the project. They can concentrate on finding innovative solutions to project issues rather than defending their individual positions. This has been demonstrated in, for example, the recovery of 14 weeks delay in the erection of the terminal roof caused by bad weather. In a further example of the collaboration produced through the Agreement, the M & E contractors have pooled their purchases and secured substantial savings on bought-in components, which they can retain.

'Building' special supplement, 'A Template for the Future' (2004)

In other cases, relationships across a wide range of suppliers have been developed and maintained through intensive two-way communication, as in the West Rail project of the Kowloon-Canton Railway in Hong Kong (see below).

Kowloon-Canton Railway Corporation, Hong Kong SAR West Rail extension - China

This US$5.9 billion project involved building 88km of track, nine stations and 15 km of tunnels. It was accomplished through 68 major contract which in total employed 13,000 staff and site operatives. KCRC recognised that communication was the key to the successful running of the West Rail project.

In this vein, the Corporation invited all its contractors and consultants to come together once per quarter, on an informal basis, for information exchange at the Quarterly Review Meetings (QRMs) to resolve problems, raise and discuss concerns, and share experiences. Involving over 150 representatives from the civil and railway systems contractors, the design consultants, resident site staff and KCRC's own project team, the logistics for these quarterly review meetings were complex, but results proved highly positive in opening lines of communication and cutting through complicated issues to reach agreed solutions. Key short-term targets to be achieved in the subsequent quarter were also agreed at the meetings and monitored through to the next QRM.

The final cost of the project was around 30% below the estimates made when the first contracts were signed.

(Presentation by Ian Thoms, Director, West Rail, KCRC to the second Revaluing Construction conference, Rotterdam, March 2005)

Hong Kong Housing Department Performance Assessment Scoring Scheme (PASS) - China

HKHD maintains a "List of Building Contractors" which classifies contractors by their eligibility to tender for defined types of projects. Contractors' performance on projects is assessed and recorded through the PASS system and this can affect their classification.

PASS has been operational since 1991. There are currently two versions, for new building works and new building services. Each covers performance during both construction/installation and the obligatory one-year maintenance period. Two similar performance assessment systems (MASS) were recently introduced for the maintenance of buildings and building services.

PASS assessments are conducted through site inspections, desk-based assessments and record checks. They are carried out through a combination of project staff and independent inspection teams and encompass:

- *the quality of structural and building works, both during construction and on completion*
- *project management capabilities, including the assessment of: management input (management and organization of the work, use of resources, coordination and control of documentation, programme and progress)*
- *other management aspects, including environmental, and health and safety requirements*
- *performance during the one year maintenance period*

PASS is considered not only to be an effective project management tool, but a crucial means of raising standards within the construction sector in Hong Kong

(Presentation by Ada Fung, Deputy Director (Development and Construction) HKHD to second Revaluing Construction conference, Rotterdam, March 2005)

Client leadership and the use of public purchasing power has been a critical factor in restoring confidence in the integrity of construction as an industry. The Code of Practice issued in 1993 by the New South Wales government[7] set out the responsibilities both of government bodies as clients and of suppliers, and was enforced through a pre-qualification scheme and through monitoring in the course of the contract. It laid the foundation for the development of constructive relations between the government and industry.

Even in less contentious circumstances, client leadership requires the development of demanding targets and rigorous project monitoring procedures. Without them, the client's influence will be sharply diminished. This is also an important aspect of value-based procurement (see below).

There is a distinction between client leadership and responsibility for the project management. The client may undertake this role, or may appoint a specialist project manager to undertake the necessary co-ordination tasks. But the manner in which these are fulfilled will be consistent with the principles established by the client, and the client will continue to be fully involved in the progress of the project.

Client leadership is therefore characterised by:

- Clarity over the client's expectations both for their own staff and operations and for those of their partners in the project
- Active participation of the client throughout the project. The client is a member (and may be the formal leader) of the project team
- Consistency and rigour in the application of the principles that they have set out, with monitoring systems to ensure that expectations are met and appropriate mechanisms for handling any shortcomings in performance
- Open communications before and during the project, to agree objectives and targets

Value-based procurement

a. Value and buildings

The introduction of 'value' concepts into procurement processes potentially influences both what is procured and how it is procured. Considering the first aspect, it has been accepted for centuries that buildings are appreciated (or, in a general sense, have value) for reasons that are not connected to their ability to meet the needs of their users. The classical Vitruvian formulation of the aims of architectural design, 'commodity, firmness and delight', is an expression of the desired properties of utility, durability and aesthetics in the final building.

More recent discussions[8] of the 'value' of buildings have expressed the components of value in different terms, for example:

- Spatial quality - the way that the arrangements of space within the building support the functions within it and its impact on the surrounding urban area
- Indoor environmental quality - the building's impact on its users and its influence on their effectiveness
- Symbolism - the way the building conveys the values of its owners and users
- Financial value - how these other aspects are achieved in monetary terms

The impact of buildings on the activities taking place within them is a subject of growing interest, reflecting recognition that the economic cost of those activities over the lifetime of the building is likely to exceed its initial and operation costs by a large margin. And in the urban context, the impact of building on its surrounding area, because of both its functional and aesthetic characteristics, may result in considerable enhancement in business activity and property values. The effect of Guggenheim Museum on the port area of Bilbao, Spain, is the classic example. Hence value-based procurement, in relation to the actual building or works, involves assessment of the value provided to a large range of stakeholders, through both formal evaluations and more general consultation processes. This is discussed by George Ang in his preparatory paper for the ICCF meeting[9].

[7] The 1996 edition of the Code is available from www.construction.nsw.gov.au. The current code is on www.nsw.gov.au/business

[8] For example 'How Buildings Add Value for Clients' by NC Spencer and GM Winch, Thomas Telford (2002) and the report of the Be/nCRISP Value Task Group (2005) www.crisp.org.uk

[9] Improving Value for Clients, Suppliers and Society. ICCF Focus - Issue 1 (2005)

At the present state of knowledge, it may not be possible to express all these aspects of value in a common currency, but some current practices are steps towards that. In particular, the use of whole-life costs rather than merely initial costs in the assessment of the cost of the works ensures that operational (and, potentially, disposal) issues are taken into account and may be set against operational benefits. The OGC guidance referred to earlier is explicit on this point: *'procurement decisions on construction projects should always be taken on the basis of value for money over the life of the facility and not the initial capital cost'*. Formal systems for assessing building performance and whole-life costs are now developed sufficiently to be incorporated in national and international standards[10].

Further, the practice of stating client requirements in performance or outcome terms will promote the achievement of higher value. By not restricting suppliers to a pre-defined solution, different means of arriving at the desired goals will be encouraged, particularly when the commercial relationship between client and suppliers includes incentives for higher performance and reduced costs. The Netherlands has had good experience of performance-based procurement in the public sector (see George Ang's paper and the example of the Castricum school (see below). As understanding of the impact of buildings and facilities on the activities within them increases, the ability to express requirements in terms of outcomes (eg for health facilities, impacts on patients) will correspondingly increase.

Achieving added client value in a school project - Netherlands

The city of Castricum in the Netherlands wished to develop a new primary school, combined with after-school childcare. It had a strong desire to develop an environmentally friendly solution and the project had to be realised with the use of minimal public funding. This was achieved by bringing in a property developer/contractor at an early stage, stating the requirements in output terms, and allowing the contractor to use the possibilities of the site to generate the necessary funding. The contractor, ASVB, was able to produce a solution which exceeded the initial target requirements, with an additional 40% of floor space and the achievement of zero energy consumption. The extra client value achieved has been estimated at 700k Euros.

(Presentation by Richard Boons, Schutte Group to the second Revaluing Construction conference, Rotterdam, March 2005)

b. Value and suppliers

Turning to the use of 'value' concepts in the selection of suppliers (and particularly contractors), this again involves the use of a much broader range of criteria than merely the traditional 'lowest cost' approach. Typically, cost will be a significant factor in the decision, but a range of others will be taken into account, the final decision being informed by a weighted combination of evaluations against the different criteria: health and safety record, environmental performance, past delivery record, investment in training etc. Some of these additional factors relate to satisfying 'value' goals of the wider community. For instance, in South Africa socio-political factors have influenced the direction of policy to introduce measures to address the major imbalances of the past *(see below).*

Black economic empowerment and procurement - South Africa

After democracy in 1994 South Africa has used procurement, more than any other measure, as the tool to uplift the historically disadvantaged black people, viz indigenous Africans, and the so-called Indian and Coloured racial groups. The manner of implementation of the policy has become increasingly sophisticated.

During 2000 legislation[11] was enacted that granted a preference[12] of 10% to bidders for public sector work, fulfilling certain criteria. Initially applied to the black ownership of enterprises, the preference has now been refined[13] to include a broader range of elements in a balanced scorecard (BSC):

1. *Equity (black ownership)*
2. *Control (black representation on the board)*
3. *Employment Equity (black persons in the employ of the firm)*
4. *Skills Development (spend on training of black people)*
5. *Preferential Procurement (from other majority black owned firms)*
6. *Enterprise Development (of majority black owned enterprises)*
7. *Corporate Social Investment (in primarily black communities)*

All enterprises are rated on these elements (there are also sub-elements for black women and black people living with disabilities) and receive a score out of 100%, which is directly correlated to the preference.

After three decades of decline, the South African construction sector is characterised by low capacity and racial imbalance. At the same time, the sector is poised for a long upturn, offering opportunities for its sustained development. This presents a creative tension between the imperatives of black economic empowerment and the need for increasing capacity.

The balanced scorecard approach presents many procurement challenges and exciting possibilities. Elements 5 and 6 are outwardly focused from the rated enterprise. Unlike conventional partnering, this strategy encourages relationships between enterprises that can address the socio-economic imperatives while obtaining the many benefits of alliancing. It is in established firms' self-interest to support and promote the development of developing organisations because they can then procure from them, and receive points towards their own scorecard in the process.

It is too early to predict the results, but it is clear that the policy will encourage new formations and relationships. If clients have the courage to pursue an alliancing approach, the combination with enterprise alliancing stemming from the balanced scorecard requirements could see great efficiencies and improved value all round.

[10] Francoise Szigetti's presentation to the first ICCF meeting includes references to ISO and ASTM documents
[11] The Preferential Procurement Policy Framework Act
[12] on contracts above R500,000 (approx $75,000) the preference is 10%, for contracts below this the preference rises to 20%
[13] the Broad based black Economic Empowerment Act and the related codes of good practice issued by the Dept. of Trade and Industry

Another factor is risk management which is an indicator of the ability of the firm to achieve the required outputs successfully, thus reducing the risk of unsatisfactory performance (and consequent loss of value to the client). General guidance on the subject has been available for some years[14].

An alternative to the use of criteria tailored to the individual projects is the use of a pre-qualification scheme. This has the effect of introducing non-price factors into the selection process, by requiring prospective suppliers to satisfy a range of criteria. The final choice, from a tender list of pre-qualified suppliers, may then be more influenced by price. Such schemes have been used for many years, particularly to ensure that firms have appropriate technical and financial capability for the works involved. However, with increasing emphasis on the ability of project participants to work together in harmony, some schemes are now seeking to assess the firm's attitudes to collaboration and their abilities - for example that of the Queensland government (s*ee below).*

Pre-qualification of contractors in Queensland - Australia

The Queensland Government Department of Public Works uses the PQC System to pre-qualifying contractors for building works. This has several components, including a conventional examination of financial soundness, but an important component of the initial evaluation takes the form of a self-assessment by contractors of their performance against management criteria set by the government. The responses are converted into a rating on a four-point scale from 1 (effective work practices) through to 4 (world-leading practice).

Contractors wishing to be pre-qualified complete a questionnaire which has 80 questions, covering: performance (eg speed of rectifying defects); experience (eg number of years experience of workforce); qualifications; use of technology; innovation; planning; management processes; quality management; environmental management; skills development; performance appraisal; training; health and safety; interactions with society; relations with clients, suppliers and sub-contractors; communications and industrial relations. The inclusion of the latter sets of questions reflects the government's aim of stimulate awareness and competence in collaborative behaviour.

A complementary scheme, PQC-PM, monitors performance on projects, to confirm or amend the ratings resulting from the PGC scheme.
(Source: www.build.qld.gov.au/industry)

The appointment of integrated project teams also requires an assessment of the ability of the team to work effectively together. This has formed part of the formal selection process in the 'Samspill' or partnering initiative of the Norwegian Government Building Agency, Statsbygg. Teams were invited to bid for pilot projects, with 'collaboration' accounting for 30-40% of the selection marking. However, Stattsbygg admitted that they found it hard to make the judgements required[15].

In summary, therefore, the principal elements in value-based procurement are:

- Taking into account the impact and benefits of the project to a wide range of stakeholders, and endeavouring to optimise the overall benefit-cost relationship
- Using whole-life costs rather than initial costs
- Stating requirements in terms of desired performance and outcomes, rather than prescribing the form of solution
- Selecting the supply side team by reference to a range of indicators of performance and capabilities, either weighted according to the requirements of the individual project or through a pre-qualification process.

Partnering

Some interpretations of 'partnering' essentially focus on the creation and maintenance of co-operative relationships. In Denmark, for example, partnering is defined as '*a form of collaboration which is based on dialogue, openness, confidence and with early involvement of client and companies*'[16]. Elsewhere (eg in the UK), partnering is considered a step beyond collaborative behaviour, with measures such as a non-contractual partnering 'charter' or agreement, or even a special form of contract, introduced into the relationships to reinforce collaboration. A yet stronger form of partnering is 'alliancing', where participants in the project, including the client, form a jointly owned company to carry it out. This form of relationship has been particularly employed in Australia, where it was used for the high-profile National Museum of Australia[17] and the Port of Brisbane Motorway *(see below).* The Terminal 5 agreement established by BAA plc at Heathrow has the effect of creating a 'virtual' alliance through the removal of the project risks from individual suppliers.

[14] For example, 'Selecting Constructors by Value' Construction Industry Research and Information Association (1996) www.ciria.org.uk
[15] Country report on Norway in 'Inventory of International Reforms in Building and Construction' PSIBouw The Netherlands (2004) www.psib.nl
[16] Presentation by Ib Steen Olsen, EBST to the first ICCF meeting, The Hague, September 2004
[17] Case Study of the Acton Peninsula Development CSIRO (2001)

Port of Brisbane Motorway - Australia

Queensland Main Roads (QMR) chose an Alliance approach for the construction of 5km four-lane motorway, with 12 major bridges, following previous good experience with smaller alliance projects. The partners in the alliance were QMR, Leightons (contractors), Parsons Brinckerhoff (engineers and project managers) and Coffey Geosciences. Together, they formed Queensland Motorways Ltd to carry out the works. Under the partnership, the parties took collective responsibility for the risks and shared the benefits of the project.

To promote the alliance approach, an in-house Culture Manager was appointed, who operated in part through providing coaching and support services. Personnel worked in integrated teams and joint activities such as value management workshops were used to create optimum designs and processes. The alliance coped successfully with both technical and operational issues, for example creating environmental improvements in an environmentally sensitive area with expenditure of $Aus250k rather than the $Aus11m initially thought to be required.

The outcome was:

- *A 10% saving against the original estimated cost, half of which was used to deliver additional project benefits*
- *A 30% saving in construction time, with the motorway being delivered 6 months earlier than originally forecast*
- *40% improvement in injury rates compared with the average for the contractor's civil engineering projects*
- *30% saving in bridge construction costs compared with industry averages*
- *No residual contractual issues or risk of litigation*

(Innovation Case Study No 3. BRITE Project. Co-operative Research Centre for Construction Innovation, Brisbane www.constructioninnovation.info)

An early influential UK report[18] described partnering as 'a structured management approach to facilitate teamworking across contractual boundaries. Its fundamental components are formalised mutual objectives, agreed problem resolution methods and an active search for continuous measurable improvement'.

The key points in this formulation are that

- there is a formal framework within which the partnering takes place
- the parties can be individually contracted but are all bound by the framework
- procedures for resolution of disputes should be established within the framework (ie not though external litigation)
- measurable performance targets, and associated monitoring systems, are an integral part of the arrangement
- partners should expect these targets to become tougher in the course of the project

Perhaps the principal missing component is the central element of partnering - trust. This must exist among all partners. Each must be confident that other partners have the success of the project as their chief aim and will behave appropriately. This is the foundation for their relationship.

Several of the projects cited earlier, such as the Göta Tunnel and the West Rail Extension, may be considered 'partnering' projects in that the participants were undoubtedly bound by a commitment to common objectives (formally, in the case of the tunnel) and there were mechanisms to stimulate and reward proposals for improvement. Both these contracts employed conventional forms of contract, and these have been used in most partnering projects to date. There is some experience, however, in the use of a special 'partnering' contract forms as in extensions to a school in the south of the UK (see below).

Extensions to School Buildings, Brighton - United Kingdom

A novel form of partnering contract was used by Brighton and Hove District Council wished to extend two schools through constructing new accommodation above existing classrooms, with the schools continuing to function while the works were in progress. The complexity of the technical and programming aspects of the project led to the choice of a partnering approach, with early involvement of the contractor.

The PPC2000 form of contract, developed for partnering contracts by the legal firm Trowers and Hamlins, was used. It covers all parties including the client, the contractor, the consulting engineer and the quantity supervisor. It sets up a Core Group to oversee the partnership and to resolve issues. A Partnering Adviser guides the client in the creation of the project team. The contract operates by reference to an Agreed Maximum Price (AMP), with parties sharing any differences between the final price and the AMP. The works were completed for the project AMP, despite there being only a small (1.5%) contingency provision and the team encountering some ground-related problems once construction had begun.

(Constructing Excellence Case Study No 252 March 2004 www.constructingexcellence.org.uk)

[18] Partnering in the Team. Report of a Construction Industry Board Working Group. Thomas Telford (1997)

Partnering has been demonstrated to bring a range of benefits, including:

- savings, and greater predictability, in time and cost
- higher construction quality
- greater ability to overcome on-site problems
- less effort devoted to resolving disputes and no litigation
- earlier financial completion
- greater job satisfaction
- higher safety standards
- overall, higher client satisfaction

These projects, and others, have been reported in Case Studies published in the UK (by Construction Excellence and its predecessor bodies), Denmark (by EBST) and Australia (by the BRITE programme) and in individual projects reported to conferences etc. A formal review in Denmark carried out in 2005[19] found that partnering produced superior outcomes in 16 important areas of project performance.

However, partnering requires greater input on the part of the client, and the resources required for establishing common objectives and protocols may not produce significant return if the project is relatively small and straightforward. Danish guidelines offer pointers to the type of project where partnering will be most advantageous (see below). Other public authorities have produced similar guidance; that from Queensland Main Roads[20] covers a comprehensive range of project forms, including alliancing.

Guidelines for selection of projects for partnering Denmark

The Danish guidelines on partnering include the following table to guide clients in whether a partnering approach is likely to be beneficial.

Price *Is there consider able uncertainty in the final cost of the project? Alternatively, is there a need for the final cost to be determined at the tender stage?*	*If yes, partnering may be a suitable way forward. But early partnering may not be an option if the cost has to be settled through competition*
Quality, and type of project *Is the project complex, for example in its technical aspects or because it needs to cover a wide range of functions?*	*If yes, partnering may be suitable, to bring in all interests when planning the project.*
Is it ambitious architecturally?	*If yes, it may be appropriate to have an architectural competition first, prior to use of partnering. The winner of the competition would then be selected for the project.*
Is it a single – or a repeat – project where the outcome is largely determined?	*If yes, a conventional tender may be more suitable*
Project size *Is it a smaller project?*	*If yes, the overheads of partnering, with a Steering Group, workshops, etc may not be justified*
Timescale *Is there a requirement for a short construction Period?*	*If yes, partnering can be suitable since solutions that favour a shorter construction period may be selected at the design stage.*
User involvement *Is there a requirement for a high degree of user involvement?*	*If yes, partnering and the use of workshops would be suitable, to enable everyone to influence the cost and quality of the final outcome.*

In addition, they remind the client that partnering will require them to have expertise to be able to make a suitable input to the project, and will make a higher call on the client's staff resources than conventional procurement.

(Vejledning I partnering ('Guidelines for partnering') Agency for Enterprise and Housing (EBST) June 2004)

Most partnering arrangements have focussed on a single project but some clients are moving towards 'strategic partnering' where there is an understanding, which may be formalised in a 'framework contract', that the client will work with a selected group of suppliers for a defined period that will cover a number of projects. Some of these may not defined

[19] Reported by Ib Steen Olsen in 'Partnering an approach under development'. ICCF Focus Issue No 1 (2005)
[20] Major Roads Project Delivery Options. Volume 1 Selection of Delivery Options. Queensland Department of Main Roads (2003) www.mainroads.qld.gov.au

at the time the arrangement is made. Such arrangements have been used in the past for maintenance works but are now being employed for new construction also. A similar approach, for example, is being followed by Anglo Platinum in South Africa with one of its major suppliers (see below).

Anglo Platinum Corporation and Sandvik Mining and Construction - South Africa

This is a developing collaborative partnership between the largest platinum producer in the world and an international supplier of mechanized (trackless) mining equipment.

About two years ago Anglo Platinum, in reviewing the way it executed its projects, decided to select a small number of preferred suppliers in the field of mechanized mining equipment with whom it would develop what was called a "value-managed relationship". One of these was Sandvik Mining and Construction, one of Anglo Platinum's largest suppliers of trackless mining equipment.

The intention was to move the relationship to a new level of interaction that released greater innovation and value for both parties than the traditional contractual arrangement. The end goal envisaged is a commercial agreement that reflects a collaborative, win-win relationship in which both parties are achieving their goals - reduced cost per ton mined (Anglo Platinum) and a greater profit from its involvement (SMC).

The process started with the facilitated workshopping of the mutual goals of this relationship and what each party expected of the other. The first outcome of this was the formulation of a Statement of Strategic Intent, outlining the purpose, intent and collaborative principles to which each of the parties was committing itself. This was signed by the Executive Director: Mining of Anglo Platinum and the President of SMC. A Steering Committee was appointed, representing both parties, to guide the process and to workshop a full Charter (elaborating on the Statement of Intent) and to then move towards a commercial agreement.

At this stage (October 2005), both parties are developing the framework of an agreement that will be debated within the Steering Committee before being taken back into each of the two organizations for support.

As another example, Defence Estates, responsible for all non-operational defence facilities in the UK, has now let seven regional contracts for maintenance and smaller construction works to consortia of consultants and contractors. Each will run for a period of seven years, extendable to ten years. BAA plc is now in its second generation of framework contracts. The aim is to capture and exploit the learning and development of mutual trust and understanding that occurs on the early projects, for the benefit of future projects.

Partnering is therefore a proven approach to securing higher performance from project teams. It has several interpretations but normally encompasses:

- Explicit commitment by all parties to both 'hard' and 'soft' project objectives, with mutual understanding and trust promoted at the outset through workshops and other forms of interaction
- Mechanisms for incentivising partners to achieve high performance and to reduce costs.
- Dispute resolution procedures which operate quickly and locally, with clear routes to higher levels in the organisation
- Setting and monitoring of performance targets, with clear procedures for addressing shortfalls
- Overall, a commitment to collaboration and mutual success

Partnering may complement conventional forms of contract, or may involve the use of a special contract form. It may also, with 'strategic partnering', continue for more than one project (see below).

Johannesburg Stock Exchange - South Africa

The Stock Exchange complex consists of the JSE itself and two banks - ABN Amro and Deutsche Bank. The three-tower complex was completed September 2000 as the first major move of Johannesburg's financial centre out of the central business district to a new financial hub in the northern suburbs. The contract was negotiated, using the Joint Building Contracts Committee contract.

Prior to this contract, Group 5 Building, the main contractor, had never tackled a project this large or of such a high profile. They decided to use a partnering approach as a result of the positive impact it had been having in the UK construction industry. This meant a commitment to growing cross-organisational competencies in partnering behaviours through joint workshopping.

Group 5 Project Manager, Keith Batchelor: "We knew the key was to get full and early involvement from the design team (architect, consultants, quantity surveyors) and the client." A personal relationship between the CEO of Group 5 Building and the developer helped to get the full team around the table in a partnering workshop before the real construction work began.

This initial workshop, and others held during the 18-month project, followed a process used widely in UK partnering initiatives - gaining buy-in across the whole team to clear partnering models and project goals, development of a Charter and establishment of a Partnering Steering Committee, representing all the parties on the project, as the guardians of the vision, values and behaviours agreed to during the workshops.

"The clear commitment to partnering by the contractor and design team - and this did take time to achieve - meant that I was allowed to go places with the design team that we had not gone before," he added. "The outcome was solid trust in each other, clear roles and a determination not to let each other down." Not a single contractual letter was submitted for this project: all issues and conflicts were resolved between parties or through the Partnering Steering Committee.

A significant outflow from the success of this project has been long-term relationships between developer, contractor, sub-contractors and the design team that has resulted in very significant ongoing work since 2000 for this group.

Filling the gaps - issues for discussion at the ICCF

While the overall experience of clients who have adopted new approaches is positive, there is room for improvement, and some significant gaps in knowledge remain to be filled.

Client leadership

a. Stimulating and maintaining change

The changes required if clients are to demonstrate leadership, while at the same time promoting collaboration, must extend throughout the client organisation. Traditional attitudes and behaviours have to be addressed, and new approaches may seem to expose staff to more risks and to impose new responsibilities on them. Top-level commitment to change is essential, but not sufficient. Training and 'change' programmes are required, with recognition and reward systems amended to be consistent with new corporate aims. Despite the effort put in to change cultures over the past decade, recent reviews of client-supplier relationships in the Uk[21] have shown that both sides are dissatisfied with progress; delivery does not match the top-level policies.

- Which change strategies are most effective in developing client leadership behaviours and capabilities?
- What are the most relevant metrics for assessing progress?
- How can the impetus for change be maintained?
- Is there a difference between the public and private sectors, in the ability to adopt client leadership?

b. Defining responsibilities

When clients adopt a new, leadership role, there are implications not only for them but for other project participants, notably for architects who have traditionally acted on behalf of the client. The Danish Association for Construction Clients[22] has, for example, advised that there is a risk that clients, perhaps unwittingly, will take on responsibilities that have previously fallen to the supply side.

- What guidelines exist to assist clients in finding the balance between exerting a proper leadership role and taking on too great a share of the project risks?
- How should the relationships between the client and their professional advisers be structured to be consistent with client leadership?

Value-based procurement

a. Creating the value proposition

The use of 'value' as the basis for procurement decisions implies that the value associated with different options can be compared. In relation to the actual facility to be constructed, some elements of the value equation (such as initial cost) are capable of estimation with reasonable accuracy; others (eg cost of future maintenance) are open to more uncertainty and some (such as the way alternative designs may impact on the activities being carried out, or on the attractiveness of the local neighbourhood) will be assessable only in very crude terms. The principal issues in the use of value for judging what will be procured are therefore the current lack of understanding of some main elements in the overall value proposition, and the inadequate methodology for bringing different dimensions of value together in a common metric. These are subjects for future research, which could be stimulated and guided by the Forum

- Is there experience of using wider concepts of value in determining project designs?

b. Finding the right selection formula

When considering value as a basis for selecting the project team, or individual members of the team, the key task is again the combination and balancing of the price and non-price factors that will influence the decision. As before, though, some important factors (eg the capacity for collaborative behaviour) may be difficult to assess. Thus issues include:

- Are there general combinations of price and non-price factors that have been found to work over a range of project types?
- What does experience teach about the effectiveness of selection processes? For example, can pre-qualification adequately cover the non-price factors or is it always necessary to include project-specific factors in the selection process?
- How can the 'soft' issues such as management style and attitudes be judged in the absence of direct experience of working with a firm?
- What particular issues arise when a project team is selected early in the project, and how are these best resolved?

c. Satisfying public accountability requirements

Value-based procurement, whether applied to the product or the suppliers, may result in a project with a higher initial cost than traditional processes would produce. Many of the largest construction clients are accountable to public audit bodies and operate against a long tradition of highly competitive, 'lowest price' procurement. It is understandable that processes that may appear to lead to higher initial costs, or to encourage collaboration between clients and suppliers, may be viewed with some scepticism. As illustrated earlier in this note, some administrations have now modified their policies; others (particularly, perhaps, at the local government level) may remain to

[21] 'Equal Partners customer and supplier alignment in public sector construction' and 'Equal Partners customer and supplier alignment in private sector construction'. Business Vantage (2004) www.businessvantage.co.uk

[22] As reference 1

be convinced. Within the EU, new Procurement Directives permit a move from lowest price to 'most economically advantageous' as a basis for selection. But authorities may not be taking advantage of this.

Hence, a strategy for demonstrating the advantages of value-based procurement, for example, though enabling trials of new arrangements to take place, is required.

- Which approaches are most effective in promoting the use of value-based procurement in the public sector?

Partnering

a. Mechanisms and incentives

There is a developing body of experience with partnering frameworks of different kinds, both contractual and non-contractual, and understanding of the processes required during the project to reinforce collaboration and to stimulate high performance.

- Which types of activity and process are most effective in developing mutual understanding and trust (a) at the outset and (b) in the course of the project?
- What indicators of the level of trust and co-operation can be monitored?
- Is there evidence that the existence of a formal partnering agreement is beneficial to the project, as compared with an informal understanding that the participants will adopt a partnering approach?
- What role do financial incentives play in reinforcing innovation and information exchange in partnering? Are they essential?

b. The supply chain

Formal partnering often covers only the principal participants in the project. To effect radical change in the culture of construction, collaborative relationships need to extend throughout the supply chain, from principal partners to sub-contractors and product/material suppliers. It is inconsistent for there to be one set of behaviours at one level of a project, while wholly different behaviours prevail at other levels.

- How can the client promote and monitor the development of collaboration within the supply chain?
- In particular, how can small firms, who often play an important role in construction, benefit from new attitudes and behaviours? Can new frameworks assist them to develop capability and to grow?

c. Strategic partnering

Strategic partnering in principle facilitates mutual learning and strengthens the commercial incentives for sustained high performance. But it reduces the level of competition and risks the development of 'cosy' relationships.

- Is there evidence that strategic partnering produces superior outcomes to project-based partnering for individual projects?
- Which are the key criteria in the selection of partners for strategic partnering?
- Is performance monitoring an effective tool for enhancing performance in a long-term framework? What financial measures need to be in place?
- How is the case for strategic partnering in the public sector best developed and presented?
- Is there a difference between the abilities of high-capacity, well-established construction economies and developing economies - and could the demands of partnering be a step too far for the latter?

These issues provide starting points for the development of a research agenda in support of client interests. One such agenda has already been prepared and is now influencing the funding of projects in Sweden[23].

Roles for the Forum

The ICCF brings together individual clients, associations of clients, and bodies established to bring about change and improvement in construction. The Forum exists to assist its members fulfil their responsibilities more effectively. It is in the first place a means of facilitating the exchange of information and experience amongst its members, through the presentations and discussions at its meetings, and through its newsletter and Web pages.

However, the Forum is potentially able to serve its members in other ways, including through being:

- A means of exploring issues and producing conclusions and recommendations, through small Task Groups (which may meet or which could operate through electronic communications)
- A source of 'best practice' guidance for clients, reflecting the combined experience of its members
- A point of interaction between practitioners and the research community concerned with procurement and project performance, with the Forum helping to establish research agendas that will inform and improve the activities of its members
- A means of establishing structured comparisons of project performance, to guide members and others on the effectiveness of different client practices and the aspects of project performance where they can particularly learn from others through benchmarking themselves against their peers
- A focus for establishing a consensus view on issues (eg concerning global trading frameworks) that affect construction clients, and communicating this view to the bodies responsible for such frameworks (eg WTO)

Discussion of the issues identified earlier in this paper, and others raised in the Port Elizabeth meeting, will inform the Forum's future agenda.

[23] The construction client as agent of change. Swedish Association of Construction Clients (2003)