CIB Priority Theme – Revaluing Construction
AW065 'Organisation and Management of Construction' Perspective

CIB Publication 313 ISBN 978-90-6363-053-9 May 2007

CIB Priority Theme - Revaluing Construction: A W065 'Organisation and Management of Construction' Perspective

CIB Report: Publication 313

Editors:
Professor Martin Sexton
Dr Kalle Kähkönen
Dr Shu-Ling Lu

CIB Working Commission W065
Organisation and Management of Construction

Published by:
CIB General Secreteriat

ISBN: 978-90-6363-053-9

May 2007

Contents

Contributors

Paul S. Chinowsky is an Associate Professor in the Department of Civil, Environmental, and Architectural Engineering at the University of Colorado. Professor Chinowsky is currently conducting research in the area of leadership and management in the AEC industry. He is actively engaged in research on topics including innovation in the engineering industry, the development of learning organizations, and the role strategic management in organization success.

Ezekiel Chinyio is a Senior Lecturer of Construction Management and Co-Award Leader at the School of Engineering and the Built Environment, University of Wolverhampton, United Kingdom. He is an active member of CIB W065 – Organisation and Management in Construction. His current research endeavours pertain to corporate governance, construction clients, risk management and operational research.

Andrew Dainty is Professor of Construction Sociology in the Department of Civil and Building Engineering, Loughborough University, United Kingdom. His research interests focus on human social action within construction, and particularly the social rules and processes that affect people, both as individuals and as members of project teams, organizations and supply chains. He is co-editor of Construction Management and Economics.

Richard Fellows is Professor in the Department of Real Estate and Construction at the University of Hong Kong and Professor of Culture in Construction at Glasgow Caledonia University in the United Kingdom. He is Joint Co-ordinator of CIB W112 – Culture in Construction. Richard's research interests focus on research methods, culture, ethics, organisational behaviour, construction economics, and contracts and law in the construction industry.

Thomas Grisham is an active CIB member and his research interests are complex enterprises in multi-cultural environments, program and project Management, education and e-learning, mentoring and coaching, partnering, consortiums and alliances, conflict management and dispute resolution, construction management, engineering and commissioning

Kalle Kähkönen is chief research scientist at the VTT Technical Research Centre of Finland (http://www.vtt.fi). In addition to this he has docent position in Helsinki University of Technology. Kalle Kähkönen holds degrees from two universities: MSc (Civil Engineering) from the Helsinki University of Technology and Ph.D. from the University of Reading (UK). Kalle Kähkönen is co-coordinator of CIB W065.

Mohan Kumaraswamy is a Professor at the Department of Civil Engineering of the University of Hong Kong. He is the Executive Director of the Centre for Infrastructure and Construction Industry Development at this University. Current research interests range from procurement systems, including sub-themes such as in relational contracting, PPPs and team selection; to management support systems in risk management, technology transfers and knowledge exchange, dispute minimisation and asset management.

David Langford is a Professor of Construction Management at Glasgow Caledonian University in Glasgow, United Kingdom. His current research interests include managing people in the construction industry, strategic management and innovation. He has supervised many PhD students in the field of construction management.

Gonzalo Lizarralde is a specialist in management, implementation and evaluation of international projects of architecture and low cost housing. Dr. Lizarralde has taught at the University of Cape Town (South Africa); McGill University, Université de Montréal, and Universidad Javeriana (Colombia). He has done research for more than six years at the IF Research Group of Université de Montréal. He has a post doctorate from the University of Cape Town and a doctorate from the Université de Montréal.

Shu-Ling Lu is a Research Fellow within the School of the Built Environment at the University of Salford and has developed an interest in construction innovation, and the organisation and management of small construction firms and professional service firms. Her practitioner background, gained in Taiwan, is in construction management and quality engineering. Dr Lu is the Joint Co-ordinator of the CIB Task Group TG65 - Management of Small Construction Firms.

George Ofori Ph.D., D.Sc. is a Ghanaian. He is a Professor and Head of Department of Building at National University of Singapore. His research area is construction industry development, focusing on developing countries. He is Co-ordinator of CIB W107 - Construction in Developing Countries and consultant to international agencies and governments. He has authored more than 200 international journal and conference papers, books and reports.

Raufdeen Rameezdeen is Head of the Department of Building Economics, University of Moratuwa, Sri Lanka. He teaches for Quantity Surveying and Project Management programmes in the department. His main research interests are on construction image, construction safety and construction procurement.

Martin Sexton is Professor of Construction Management and Associate Head at the School of the Built Environment, University of Salford, United Kingdom. He is Joint Co-ordinator of CIB W065 – Organisation and Management in Construction. Current research themes focus on innovation in project-based organisations, innovation in the United Kingdom housing sector, and the management of small construction firms.

Peter Styles is a consultant, United Kingdom.

Akhmad Suraji is from the Department of Civil Engineering, University of Andalas, Indonesia.

John E. Taylor is Assistant Professor of Construction Engineering and Project Management and Director of the Project Network Dynamics Lab at the University of Texas at Austin in the United States. His current research focuses on boundary spanning innovation, simulating interorganizational learning, and organizational changes associated with global offshoring in project networks.

Wilco Tijhuis is Assistant Professor of Construction Management and Procurement at the Faculty of Engineering Technology, Department Construction Management and

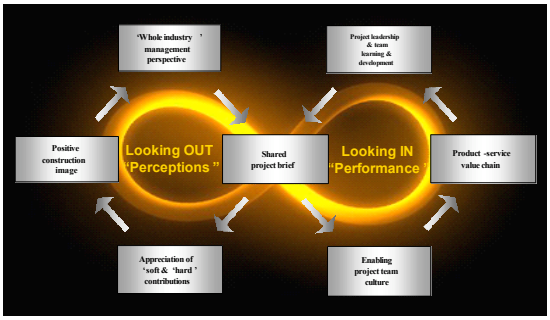
Engineering, University of Twente, The Netherlands (www.utwente.nl). He is also managing partner of the company WT/Beheer (www.wtbeheer.com). He is Joint Co-ordinator of CIB W112 – Culture in Construction. His current research themes focus on strategy, business-culture and processes in international construction and development.

INTRODUCTION

Martin Sexton
School of the Built Environment, University of Salford, United Kingdom.
E-mail: m.g.sexton@salford.ac.uk

Kalle Kähkönen
VTT Technical Research Centre of Finland, Finland.
E-mail: kalle.kahkonen@vtt.fi

Shu-Ling Lu
School of the Built Environment, University of Salford, United Kingdom.
E-mail: s.l.lu@salford.ac.uk



0.1. CIB Priority Theme – Revaluing Construction

The catalyst for this CIB W065 publication was the CIB Priority Theme of Revaluing Construction (RVC) (http://www.revaluingconstruction.scpm.salford.ac.uk/; Barrett, 2005). RVC is an agenda which exposes and promotes the need for integrated action across a number of fronts – both internal and external to the construction industry. The proposed actions are driven and connected by an aspiration to maximise the value jointly created by the stakeholders to construction and the equitable distribution of the resulting rewards. Seven enabling factors are articulated to achieve this aspiration (see Figure 0.1. below). The model is underpinned by its holistic / systemic dynamic – for sustained progress to be made all of the factors have to be addressed in concert.

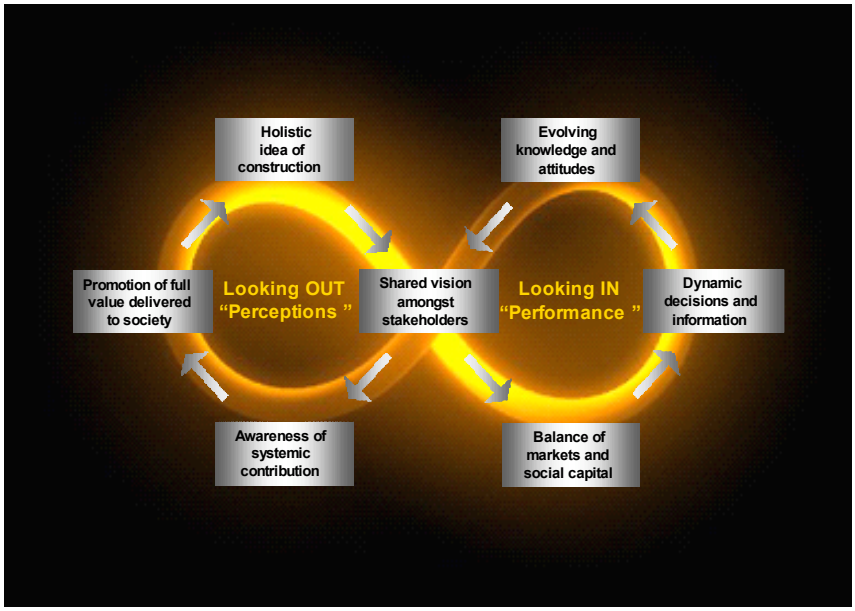


Figure 0.1. – Global agenda for Revaluing Construction

The agenda is summarised as follows (Barrett, 2005: 10-11). The *holistic idea of construction* rotates around a broad, holistic conception of construction – without this, the potential of the industry to maximise its contribution to buildings in use will be compromised. From this basis the creation of a *shared vision amongst stakeholders* can be addressed that emphasises maximising the value jointly created and equitably distributing the resulting awards. This political consensus creating process is primarily located at a national policy level involving major stakeholders. It is here that the vision for RVC is created, maintained and promulgated, including its practical implications. Within this conducive policy context, a key operational area where significant change is needed is in the balance of weighting between *market forces and social capital,* particularly in relation to procurement. When appropriately addressed, to provide a higher level of stability and trust there appears to be significantly willingness to handle *information and decisions* more coherently and dynamically throughout the whole building life cycle. This then has the potential to release considerable latent gains in value. Taken together these actions will mean that some clients and some projects will deliver much higher levels of value. However, to make the improvements take hold across the industry in the longer term it is essential that the knowledge and attitudes of those involved evolve strongly. This will then reinforce isolated good practice so that it becomes normal practice. The three boxes on the right-hand half of Figure 0.1., together with their interactive connection to the central vision, provide a clear focus on how the industry can move to improve its performance by *"looking in"* at the practices, relationships and techniques that it employs.

In itself this will deliver great benefits. However, it will be relatively fragile and in a sense will not seriously shift the limited and often negative perception of construction within society. For the role of construction to be significantly Revalued the industry needs to *"look outwards"* and work to raise *awareness of the systemic contribution that construction* makes. This is indicated in the bottom left-hand box in the figure and involves accounting for the multiple value streams running from construction, some for very many years beyond the building event itself. Given the generally negative standing of the industry, the final step is to actively *promote the full value delivered to society* by construction. Success on this front will then bring us back to the box that started this description, by reinforcing the *holistic idea of construction* making it more than a compelling theoretical idea, but a powerful policy and social conception as well.

The "infinity" model stresses the two complementary halves of the RVC agenda. The industry looking in at itself to perform better, but also looking out at how it is perceived within society. The seven action areas and their connections are proposed as a coherent set of priority areas that taken together provide a dynamic improvement process for the industry as a whole.

0.2. CIB W065 interpretation of the Revaluing Construction agenda

The CIB RVC Priority Theme stimulated a fruitful debate during the W065 commission meeting held at the Joint CIB W065/W055/W086 Symposium in Rome, October 2006. The discussion concluded in a decision to author a set of position papers which interpreted the RVC from a CIB W065 perspective and, in so doing, identify areas for future research. The starting point was to provide an overarching focus, which was drawn from the W065 remit, which states that its work "covers all aspects of the organisation and management of construction … in particular the following broad

themes will pervade many of its activities: projects, companies, policies and processes." Through this W065 prism RVC was understood to be:

> 'revaluing the aspirational context and operational dynamic for projects and companies to maximise the value jointly created by the stakeholders to construction and the equitable distribution of the resulting awards."

Adopting and adapting the RVC model, the seven action areas (and interactions), located very much at a project / company level, was identified (see Figure 0.2.). Each action area formed a brief for seven position papers. The progressive flow of the agenda is as follows:

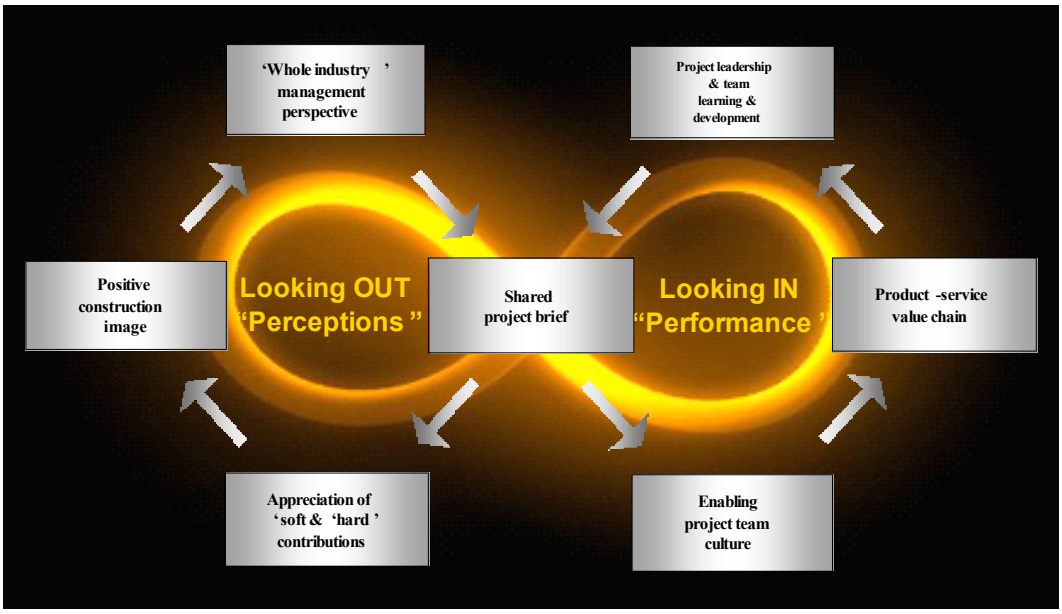


Figure 0.2. – CIB W065 Revaluing Construction agenda

1. **A shared project brief** (paper 1) requiring the context and processes to maximise value through revealing, articulating and communicating multiple client and project team requirements; this will require an ….

2. **… enabling project team culture** (paper 2) which stimulates and celebrates norms and values that promote positive collaborative project team behaviour and achievements; and which encourage a …

3. **… production / service value chain** (paper 3) information and decision-making framework which develops and integrates the augmented service and organisational memory dimension to design, production and operation through the building life; this will require ….

4. **… project leadership, team learning and development** (paper 4) which envisions and supports the ongoing development of appropriate human resource capacities and capabilities to improve ….

5. **… a shared project brief** (paper 1) which has an …

6. **… appreciation of 'soft' and 'hard' contributions** (paper 5) where the 'tangible' and 'intangible' value streams flowing from projects are captured, calibrated and communicated; this appreciation will build a ….

7. **… positive construction image** (paper 6) which will be valued by society, and will assist in the attraction and retention of the right quantity and quality of construction industry workforce; this holistic appreciation by society of the 'soft' and 'hard' contributions, and the resultant positive image of construction will require a ….

8. **… 'whole industry' perspective** (paper 7) from clients and construction companies which articulates and harnesses the holistic and systemic value from construction into …

9. **… a shared project brief** (paper 1) requiring the context and processes to maximise value through revealing, articulating and communicating multiple client and project team requirements; this will require an … (and so on, in an infinity loop).

0.3. Summary of position papers

The first four papers, inclusive of the interactive connection to the shared project brief, form the "looking in" performance half of the RVC dynamic. The 'shared project brief' paper by Ezekiel Chinyio adopts the stakeholder approach to crystallise and reaffirm the myriad challenges faced by diverse client and project team systems to produce project briefs built on mutually beneficial value propositions. Different stakeholders are seen to be motivated by different conceptualizations of value which are sometimes incommensurate. The paper concludes by prioritising further research in the areas of behaviour amongst stakeholders, leadership in stakeholder management, government involvement, benchmarking and the application of game theory.

Richard Fellows, Thomas Grisham and Wilco Tijhuis, in their paper on 'enabling project team culture', locate construction activity within a cultural context. The pivotal mediating role of culture in shaping the goal formation, value systems and norms of behaviour in temporary multi organizations is described. The central thesis advocated is that participants need to recognise the "…fluid, power-based, business coalition through which projects are realised promotes the perspective of projects as joint ventures to encourage teamwork." The authors stress the need for further case study work to investigate culturation in project-based settings, participants' hierarchies of values and organisational citizenship.

The 'achieving value through product-service integration' paper by Andrew Dainty surveys the many arguments in support of product-service integration as a fertile source of generating value through the life cycle of the building. Dainty, however, illuminates potential barriers in the form of fragmentation, cyclical demand and project-based operation which the industry needs to overcome if it is to realise the benefits of the product-service mantra through integrated solutions. The paper concludes with a call for new case study research to be undertaken to "reveal how organisations can position themselves for integrated solutions delivery in a way which redefines the value proposition for themselves and all industry stakeholders."

The 'project networks' paper by Paul S. Chinowsky and John E. Taylor bring our attention to the prerequisite dynamic capabilities of leadership, learning, and network

development required to produce successful innovation and enhanced team performance - with a focus on enhancing the equitably distribution of rewards for each network member. The need for contingent leadership styles to promote context-specific project network performance and learning is emphasised. Chinowsky and Taylor set out the need for future research to develop a detailed understanding of the complex relationships between leadership and learning within a variety of construction contexts.

The following three papers, in connection with the shared project brief, comprise the "looking out" perceptions part of the RVC model. David Langford, in the 'revaluing construction – hard and soft values' paper elucidates the dominant paradigm of 'hard' criteria for project success – time, cost and quality. Langford argues that this rational instrumentalism perspective on value limits the generation and delivery of composite value propositions which celebrate both tangible, objective and intangible, subjective dimensions. The paper concludes with a call for more research into intersubjective value propositions, and meta-analysis to investigate the impact of 'business case' drivers on actual project performance.

Raufdeen Rameezdeen continues with the theme of "looking out" with his 'image of the construction industry' paper. Rameezdeen documents the reality and impact of the negative image of the industry which is perceived by society. The author argues that the key determinant to improve the image of the industry is how society perceives the final products it produces. An alternative 'virtuous circle' is offered: the more value which is delivered by the industry, the more the image of the industry will improved, and the more attractive the industry becomes for the attractive and retention of high calibre people. The paper articulates the need for further research on the mediating factors which influence image formation in different society groups.

The final 'industry-level perspective of revaluing construction' paper by Mohan Kumaraswamy, Gonzalo Lizarralde, George Ofori, Peter Styles and Akhmad Surji demands a whole industry view which encompasses and promotes sustainable development which meets the specific needs of different countries. The authors transpose the prevailing 'environmental' conceptualisation of sustainable development to emphasise the need for construction industries to deliver against the social, economic and social developmental needs of developing countries. Future research needs concentrate on explicitly interpreting and operationalising the RVC approach within developing country contexts.

0.4. Generic issues and future directions

The seven position papers have focused on different action areas of the CIB W065 RVC agenda. It is perhaps not surprising that the papers have thrown up a multitude of issues which render a precise interpretation and operationalisation of the 'revaluing construction' construct elusive. For example, the reader can come away from reading these papers with an understanding the RVC can be viewed in terms of political imperative (Kumaraswamy, et al.), vision expression (Chinyio), value change (Langford), social reorganisation (Fellows, et al; Chinowsky and Taylor; Rameezdeen) and economic reconfiguration (Dainty).

Recurring themes can be discerned, however, which can guide future research. The position papers confirm that the RVC requires a complex adaptive understanding of context, process and outcomes. RVC will be the product of continuous self-

organisation and co-evolution from the interaction between heterogeneous agents across multi-levels. The RVC agenda was found to be very much a discourse of order-creating – recursive patterns of activity which maximise value jointly created by construction industry stakeholders and the equitable distribution of the resulting awards.

It was further understood that the advocated RVC interaction between contexts, processes and outcomes may be negatively limiting as well as positively normative. The concept of 'value' – at the very core of the RVC agenda – was revealed to be a contestable and intersubjective construct. The underpinning sense making and sense giving activities through which construction stakeholders create and promote particular value propositions and expectations of appropriating the rewards from those propositions are shaped by (and shape) structural conditions and mediating agencies and processes.

There is strong consensus within the position papers that the appropriate mutual crafting of context, processes and outcomes is the way forward to procure value, seamlessly deliver value, and realise value in use. Isolated actions will whither if they are not embedded in a holistic and systemic context. In particular, the papers stressed the need for industry stakeholders to seek more creative and flexible means to create and share value. The positively normative logic for vertical dyadic relationships between project participants was advocated. This prescription is fuelled by the credible assumption that the different stakeholders play important roles for the performance of each other and, therefore, it is advantageous for these stakeholders to make mutual adaptations to facilitate the ongoing relationships, and to create the conditions to maximise intersubjective value creation and equitable distribution of rewards coming from multiple value streams. It was noted, however, that the incumbent conditions and agencies intrinsic to construction negatively limit progress. Revaluing construction, therefore, will require fundamental innovation within and across institutions, networks, companies and projects. The CIB Revaluing Construction agenda certainly offers an integrating way forward in this endeavour.

Finally, the position papers reinforce the dynamic nature of the revaluing construction agenda. The goal of revaluing construction is not a stable solution to achieve, but a developmental process to keep active.

0.5 Acknowledges

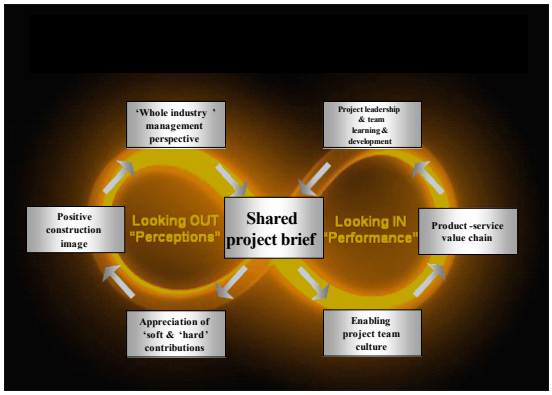
This publication is the product of an enjoyable, but hectic, journey which started in Rome, October 2006. Thank you to those people who made it a successful journey – in particular, the position paper authors, Dr Wim Bakens and the helpful, as always, CIB General Secretariat team.

References

Barrett, P., (2005), Revaluing Construction: A Global CIB Agenda: CIB Report 305, CIB: Rotterdam.
http://www.revaluingconstruction.scpm.salford.ac.uk/ accessed May 2007.

A SHARED PROJECT BRIEF

Ezekiel Chinyio
School of Engineering and the Built Environment, University of Wolverhampton, United Kingdom.
E-mail: e.chinyio@wlv.ac.uk



Abstract

Construction projects often take months to complete and pass through several phases. Also, different processes are used in construction and one of these is briefing. There are many individuals and organisations involved in the delivery of a construction project. These diverse stakeholders have their different interests, some of which are inherent. When their interests conflict with each other, the potential to undermine the project can be quite high. There is a need to manage the different stakes in a project on a continuous basis. In this paper, stakeholder theory is used to argue that value can be maximised through an optimised brief can be achieved if the views of the different stakeholders are coordinated systematically. Construction project delivery is currently performing under par in this respect, thus there is a need for raising the standards in procurement, briefing, stakeholder management, etc. Means of raising this standard include improved communication, facilitating a culture of cooperation and reviewing the mode of prequalification.

1.1. Introduction and context

Procurement is an essential element of construction. It is in fact the vehicle which facilitates the delivery of projects. It thus contributes to the eventual outcomes of projects. Those who are involved in modern procurement have a great role to play therein and obviously need a good delivery vehicle to enhance that. The aim is for procurement to be effective and efficient. They players may be capable and ready but could find themselves using an imperfect procurement vehicle. This can prevent them from reaching their desired destination. Conversely, a good procurement framework may be in place for a project, but the players may not be excellent. Either way, the ultimate outcome may be less than desirable. Therefore, a reflective review of procurement should concern both the system and the players. Along this line, procurement is used in this paper as a gateway and framework for improving the briefing function.

Part of the function of procurement and associated contracts is to assign responsibilities and risks to project players. In 'Design & Build' (D&B) for instance, the initial formulation of a brief is part of the client's responsibility while the final design and construction functions are allocated to a D&B contractor. Implicitly, this pigeon-hole approach connotes segregation and pulling apart and does not encourage cooperation. For if a participant can play their part very well in the current scheme then they will be judged to have been a success. That way, for instance, contractors can complete a

project, get the accolade, make a profit and wait for repeat business – probably oblivious of what is happening to other players. Meanwhile, project outcomes are not yielding total satisfaction to all, especially to clients (Green and Simister, 1999).

As clients yearn for more from their projects, the industry must look for ways to ensure their maximum satisfaction. Maslow (1987) suggested that satisfaction in one domain can expose dissatisfaction in another. So ways of maximising client satisfaction must be sought continually because an approach that satisfies a client today may not satisfy them tomorrow. However, apart from clients, other project players have their own needs too; so the quest to satisfy clients should not be a one-way traffic, but a tit-for-tat affair; that is, clients too, must continuously seek to satisfy their project delivery teams optimally. These two sides must seek to and ensure that they understand each other fully otherwise either or both will be left unsatisfied at the end of a project.

A construction project usually involves a client on the one hand and a project delivery team on the other. However, neither of these two sides is often unitary. So understanding each other becomes quite complex and at times very difficult. This paper discusses a modality for guiding the two sides towards a consensus brief that all participants will accede to, run and be happy with and ultimately obtain optimal satisfaction. This focus resonates with the CIB W065 position on revaluing construction that there is a need for a shared brief produced from appropriate contexts and processes to maximise the value jointly created by the stakeholders and to distribute the resulting awards equitably (see 'Introduction' paper). In this regard, stakeholder theory is used to engineer the formulation of a consensus brief.

The next two sections review stakeholder management and briefing respectively. Thereafter the two practices are pooled to illustrate the differing expectations of players in a project. The need to harmonise these disparate expectations and optimise the achievement of aspirations is then considered. Worthwhile strategies for enhancing cohesion in the aspirations of construction project players are then considered before wrapping up.

1.2. A view of construction projects through the lens of stakeholder management

A stake is any interest, share or claim that a group or individual has in the outcome of a corporation's policies, procedures or actions (Weiss, 2006). A stakeholder is someone or something with a stake. A stakeholder can be an individual, a company, or even an inanimate thing like the environment. The checklist of stakeholders in a construction project is often large and would include owners, users, the project manager, facilities manager, designers, shareholders, legal authorities, employees, subcontractors, suppliers, process and service providers, competitors, banks, insurance companies, community representatives, neighbours, general public, government establishments, visitors, customers, regional development agencies, the natural environment and the press (Newcombe, 2003; Smith and Love, 2004).

Stakes are often legitimate and can be demanded with power and urgency (Carroll and Buchholtz, 2006). In this regard, *saliency* is the level of claim, attention and priority attached to stakes (Mitchell *et al*., 1997; Gago and Antolìn, 2004). Relative to each organisation, some of the stakeholders will be (less) critical; internal or external (Calvert, 1995; Winch and Bonke, 2002); direct or indirect (Smith and Love, 2004);

primary or secondary; social or non-social; and core, strategic or environmental (Carroll and Buchholtz, 2006). Saliency and other factors inform these classifications.

Stakeholders are beneficial to one another but can equally pose a risk by virtue of their differing claims, rights and expectations. Their differing stakes can also exert tangential forces in different directions. In view of this, the presence of stakeholders in a project is a high risk factor that can scuttle a project in the extreme situation and with great consequences. There is thus a need to manage project stakeholders collectively in accordance with one given objective or set of objectives (Gibson, 2000).

Power differentials between stakeholders influence the strategies and tactics for dealing with each other (Frooman, 1999; Kolk and Pinkse, 2006). Managing multiple stakeholders involves a two-prong approach:

1. first, each stakeholder should be managed uniquely on the basis of their disposition. That way, the missions, strengths, weaknesses, strategies and behaviour of the different stakeholders are engaged circumspectly (Cleland, 2002) and the threats they pose to a project and corporate governance, processes and outcomes are avoided or at worst minimised (Freeman, 1984; Logsdon and Wood, 2000); and,

2. second, each project-based set of stakeholders must be managed as a cohort. This will coordinate their actions and pull them together as a unit so as to yield a desired outcome, i.e. project objective.

Today, a business needs to adopt a multiple perspective and to satisfy different groups of stakeholders. Figure 1.1. illustrates the expectations of the different stakeholders in a typical organisation. In situations where a firm focuses on one stakeholder alone, the interests of the other stakeholders are devalued (Doyle and Stern, 2006). A fundamental responsibility of a firm therefore is to reconcile the diverging and conflicting interests of all its stakeholders.

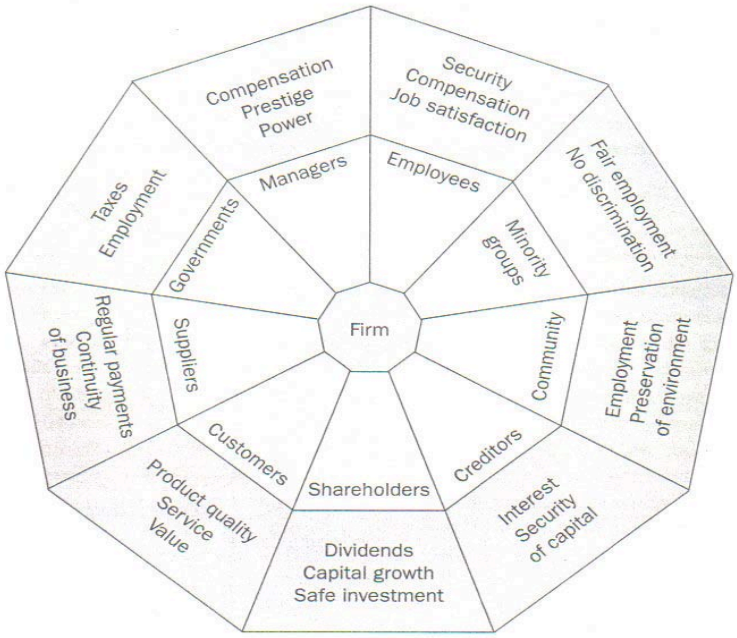


Figure 1.1. - Some stakeholders and their needs (Doyle and Stern, 2006)

Tactics for stakeholders' engagement include: consultation, dialogue, education, partnership, control, information giving and building of awareness (through, e.g., newsletters, emails, circulars, websites), site walks, conferences, workshops, exhibitions, corporate events, cascade briefings, non-verbal communication (posters, leaflets), etc. A two-fold matrix (e.g. Figure 1.2.) is often used to map stakeholders and strategic means of relating with them (Vogwell, 2002). While minimal effort is required to satisfy stakeholders with little interest in a given undertaking, greater effort is required in keeping those with high interest happy (Carter, 2006).

In projects involving multifaceted clients, large project teams and many other stakeholders, there is a dire need for effective coordination and general management of the different stakes on the part of clients. This function of the client is currently suboptimal (Latham, 1994; Egan, 1998, 2002 and Boyd and Chinyio, 2006). Unless the different stakes in a project are recognised, coordinated and managed the potential to leave one or more stakeholders dissatisfied at the end of a project is quite high; and experience has shown that someone is often dissatisfied. If clients can be more forthcoming in terms of project vision and their entire requirements, this will inadvertently influence stakeholder management and help steer all stakes towards one goal.

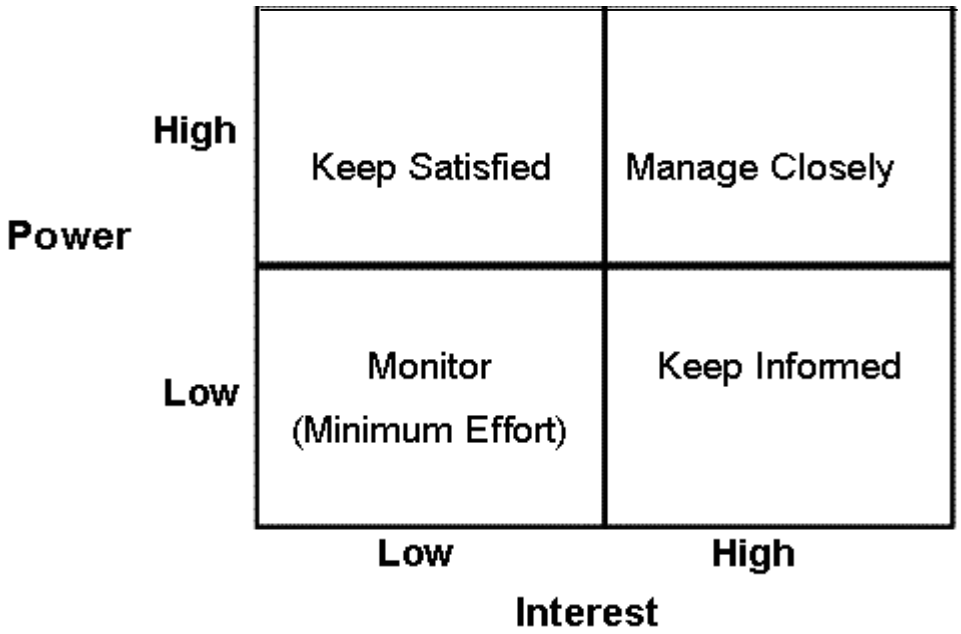


Figure 1.2. - Power-Interest Grid (adopted from Vogwell, 2002)

1.3. Briefing

Briefing involves a dialogue (Figure 1.3.) between a client and construction professionals, where the client's aspirations, desires and needs are expressed and presented in a written form called the 'brief' (BSI, 2002; Construction Industry Board, 1997). This dialogue normally starts between the client and the architect or designer (Gameson, 1991; Loe, 2000). As briefing is meant to express the clients' wishes, it is essential for the client to have a clear view of what their desired facilities should achieve and why they are necessary before initiating the dialogue. McGregor and Then (1999) reinforced the need for a more detailed awareness of the client's business; this

involving the determination of the position of buildings and how the client made use of space, etc.

Figure 1.3. - Briefing involves dialogue

Briefs have a very significant role in construction projects because they specify the goal which each project should achieve. So a brief provides a yardstick of assessment i.e. whether projects are a success or failure, whether aspirations have been met or dashed. In view of this significance, briefs should be clear and if possible, fixed early in the course of a project in order to enable the construction team to undertake its job (Kelly *et al*., 1992). However, this ideal is often unattainable. For instance, in bigger client organisations there are often many relevant voices (stakeholders) with different needs. Modern construction delivery is thus demanding a move away from traditional briefing to more elaborate approaches that will decipher the requirements of plural clients. Atkin and Flanagan (1995) suggested that modern-day briefing should include strategic analysis, client analysis, facilities analysis, statement of need, confirmation of need, functional brief, concept design and scheme design. In a sequel, Smith *et al*. (2001) emphasised the need for strategic clients' needs analysis.

Researches that support or have tried the foregoing suggestions abound. For instance, Green (1994) endeavoured to account for the conflicting and transient aspirations of the project stakeholders using value management. Green (1999) then trialed the viability of three soft operational research methodologies as enablers of strategic briefing, i.e. 'soft systems methodology' (Checkland, 1989), 'strategic choice' (Friend and Hickling, 1987) and 'strategic options development and analysis' (Eden, 1989). This proved extremely successful for clients in reaching a consensus brief. Green (1996) also sought a different approach to understanding clients' requirements by seeing them as social systems that can be mapped against or viewed through the lenses of Morgan's (1986) eight metaphors, i.e. goal seeking machine, biological organism, intelligence, culture, politics, psychic prison, 'flux and transformation' and domination. Depending on the culture in an organisation, one or more metaphors will be dominant and influential on the client's requirements and procedures.

There is the noteworthy distinction between the ownership and occupation of buildings, which can disguise the identity of the client (Newcombe, 2003). The opinions and needs of users are important in briefing (Blackmore, 1990). Indeed, the brief should aim to capture the opinions of all stakeholders, negotiating compromises thereby. Therefore the engagement between client and industry to formulate the precise nature of a building and its uses should involve numerous processes. It has been likened to a journey from uncertainty to certainty and from aspiration to delight (Barrett and Stanley, 1999). As a result Barrett and Stanley conceived briefing as an interactive

process that runs concurrently with the construction project rather than a single rational event.

What can be surmised from the foregoing is that stakeholders must be effective at briefing. Barrett and Stanley (1999) believe that new techniques of visualisation will be at the centre of improving communications and of understanding what is really required in briefing. In any case, clients must be empowered to play their role in briefing while stakeholders must learn to work together. Industry must always remember that clients want to feel that they are in control of their projects and must be supported in this quest.

The effectiveness of briefing has however remained problematic (Shen *et al*., 2004). For instance, clients become more aware with time, realising or discovering some new needs as their projects proceed (Beijder, 1991). Clients' objectives thus change as they engage with designers and other consultants to determine their real and explicit needs (Powell, 1991). The irony is that clients can attach a high expectation to some of the needs that are discovered after the brief is supposedly fixed, and this brings pressure to bear on the delivery of the construction product.

Modern forms of procurement by their nature warrant longer briefings wherein personnel and stakeholders would change. This dynamism itself is a challenge to the brief as the different needs of the various stakeholders are fluid. More so, individual stakeholders may have two sets of needs: corporate and personal. So, once personnel are changed in a setting, the configuration of stakes changes almost automatically. There is thus a need for a framework that will maximize value through the management of dynamic stakes in construction procurement. This paper is a step in that direction.

Given the enormous effort needed for developing detailed briefs, especially in complex projects, the role of the briefing consultant has been suggested in the past (BSI, 2002; Hyams, 2001). This consultant is an independent adviser who would play a similar role to a financial adviser, and is there to help clients decide on their needs and how to achieve them (Myers, 2004). The briefing consultant should have an understanding of clients' businesses and construction and should be able to drive the brief formulation process alongside the project process. The adoption of this role is yet to gain full momentum.

1.4. Raising the standards

Contemporary construction practice is not yielding full satisfaction to some or all stakeholders. There is thus a need to raise the standard. In view of the many stakeholders involved in a project and their potential conflicts of interest, an approach that yields optimal satisfaction is ideal. Starting from what each stakeholder wants consideration should be given to pooling their stakes towards optimising their satisfaction and, in so doing, maximise value in an equitable fashion.

By default, key stakeholders in a project would have different expectations, e.g.:

> ***Clients*:** may want functional facilities, value for money and at times iconic facilities, etc.
>
> ***Designers*:** could want a design that imposes image while meeting requirements, etc.
>
> ***Users*:** are interested in space requirements that enable them to function

healthily and unhindered.
***Contractors*:** are keen to complete on time, efficiently and make a profit.
***Project managers*:** want projects to proceed as planned without hiccups.
Etc.

It is not unexpected for stakeholders to have different stakes. Their differing expectations are often endemic. On a one-to-one basis, these expectations are important and excellent to each stakeholder. When projected on a screen, these expectations become colourful as in Figure 1.4.

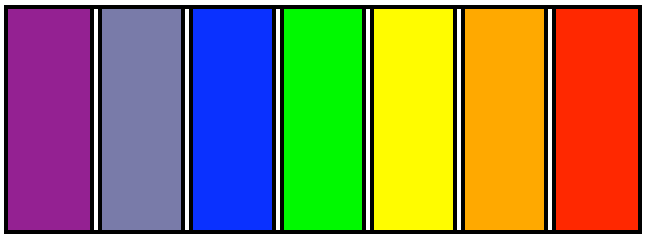


Figure 1.4. - A representation of some stakeholders' objectives

While there is an inherent overlap in some of the stakeholders' desires there is equally a potential for conflicts of interest to surface. Obviously, each stakeholder subscribes to the scheme but may find it hard to give up their inherent objectives. So when conflicts of interest manifest they exert tangential forces on the objectives of a scheme. In a worst case scenario a project could be pulled in different directions by some stakeholders. It is usually the stakeholders with high power or high interest or both that tend to exert the greater pull. If there are forces pulling the project apart and such differences are not resolved quickly, the project could be ruined.

Although most construction projects are delivered on time, within budget, etc; the conflicting aspirations of the stakeholders if present can act to impact on the project negatively. At least the briefing and procurement cycles are elongated while compromises are worked out. Thus while current construction practice may be effective there is room for improvement. The standards can be raised.

In procurement, the standard can be raised. In briefing the standard can be raised. In stakeholder management the standard can be raised. One step in this direction is to harmonise the aspirations of the different stakeholders. We want to translate Figures 1.4., despite its beauty into Figure 1.5. Project outcomes that are signified by Figure 5 are seamless and much more harmonious, optimal and satisfactory than those signified by Figure 1.4. Raising the standard thus warrants the blending of aspirations and expectations on the part of stakeholders.

Raising the standard is an objective that fits perfectly into the systemic CIB W065 RVC agenda which recommends a 'shared project brief' as a prime impetus for an 'enabling project team culture' and 'appreciation of 'soft' and 'hard' contributions'. The inputs to this shared project brief are 'a holistic industry' management perspective' and 'project leadership and team learning and development'; while the (expected optimal) outcomes are a better product-service value chain and positive image. This RVC agenda is meant to be continuous because feedback from the outcomes should continuously be used to improve subsequent project briefs. Thus, the means for

generating an optimised brief should be transient and circumspect. The next section reinforces this point and explores some strategies for doing so.

Figure 1.5. – Rainbow: Symbol of greater cohesion (Lynch and Livinston, 1995)

1.5. Revised context and approach to construction

If we consider the eventual project brief as a problem to be solved, then problem-solving tells us that the first major task is the accurate identification of the problem. If you cannot identify the problem, then you cannot work out its precise solution. Likewise, if a precise project brief can be firmed-up then a solution can be evolved to achieve it. In this case however, a project brief is not an easy problem as it often addresses multidimensional concerns. It warrants a harmonisation of objectives which is sometimes not an easy task. The brief is also often transient, which compounds its complexity. Since the outcomes of procurement and briefing have not yielded total satisfaction, there is a need to tweak these activities to enhance improvement and the following paragraphs explore some possibilities.

The quest for a shared project brief requires the context and processes to maximise value through revealing, articulating and communicating multiple client and project team requirements. This is not an attempt to provide an omniscient solution but a pointer to factors that can yield significant improvements. To harmonise the objectives of the stakeholders in a project, it is essential to understand and bear in mind the rationale for doing so. The prisoner's dilemma (Figure 1.6.) provides a tolerable basis for making stakeholders want to agree with each other. Games theory informs us that in a competitive scenario, an attitude of cooperation or confrontation faces the game participants (Peston and Coddington, 1967). Cooperation in this context means that joint decisions are made or that the decision of one party is communicated to the other and the activities of the game are coordinated to further the interests of all the participants (Shubik, 1975). Cooperative games allow for binding agreements to be reached, while non-cooperative games do not (Eichberger, 1993). It is however a matter of individual choice whether players will be cooperative or not (Bacharach, 1980).

		Prisoner No.2	
		Do not confess	**Confess**
Prisoner No.1	**Do not confess**	1 year each	10 years for No.1 and 3 months for No.2
	Confess	3 months for No.1 and 10 years for No.2	8 years each

Figure 1.6. - The prisoner's dilemma (adopted from Luce and Raiffa, 1957)

In terms of games theory, there are opportunities for all players to make a gain simultaneously, for example, when both players choose 'Do not confess' in Figure 1.6. This cooperative choice optimises their joint expectations. The lesson is that cooperation yields a better outcome overall. It is a principle that is workable in many situations, including construction. Although Figure 1.6. is a simplified example, its principle can be extended to situations with many players; albeit complexity therein acknowledged. It means that construction briefs can be optimised (quickly) if the stakeholders involved cooperate with each other. Against this context, the following strategies for maximising the gains from briefs are plausible.

Attitudes to change

The attitude of stakeholders in the construction domain is crucial. An attitude of collaboration is necessary. There is a need for all to behave from the perspective of altruism as opposed to opportunism. Although partnering and other forms of procurement that promote cooperation are in vogue, the uptake of altruism is not yet at its peak. Individuals within collaborative relationships may be tempted to be opportunistic whilst pretending to be trustworthy. In a survey of partnering relationships by Seed (2003), two-thirds of the respondents reported that they had experienced some form of opportunism and most respondents believed that this was to be expected - as the industry could not change overnight. In Seed's research a small-sized contracting firm commented on the large client thus:

> "A public sector client of ours continually expected 'extras' that were not written down in any agreement or contract. When we asked for 'extra' fees, the client would threaten sanction stating that such claims were not in 'the spirit of partnering'."

Likewise, a large contractor commented on a small client this way (Seed, 2003): "we have been opportunistic in the past due to our size and 'buyer power".

In the foregoing example, it is not the procurement machinery that is necessarily faulty but the attitudes of the players. According to the National Audit Office (2001) "….partnering offers good potential to improve the value for money of construction. To be successful however, all parties – departments and the whole supply chain – must be fully committed to making the relationship work."

Cooperation in the context of the present discussing entails making sacrifices occasionally. It may sometimes involve forfeiting a benefit or privilege in the short-term for the benefit of others. This can be painful and contrary to the objectives of an individual firm and explains why its full uptake is slow. In order to heighten the uptake of cooperation, a sustained campaign is worthwhile and this should involve industry, academia, professional institutions and the CIB. Industry should continue to push for cooperation while training institutions should emphasise this cultural aspects in their programmes. A culture shift is no mean task and warrants a great push.

A stakeholder perspective looks at the constituents and the whole and seeks to strike a balance that is optimal with respect to a set of criteria. This perspective can help bring about the change in mindset that is needed in construction project delivery. Hence, there is a strong need to develop stakeholder management as a key competence in construction procurement.

A full adoption of stakeholder management in construction by all and sundry will optimise altruistic behaviour. This full adoption will be facilitated when:

- stakeholder management becomes a key competence in construction;
- all stakeholders always see each other as contemporaries and not adversaries; and,
- all stakeholders learn to see the bigger and long term picture and not just their self interests alone.

Role of communication

Communication is very vital. Incomplete briefs are partly attributable to inadequate communication. The more there is information the more decision making is enhanced. The act of altruism warrants communication, i.e. players in a game need to divulge their intentions to their competitors. Without this openness and exchange of complete information, the search for the optimal solution is hampered. Stakeholders in construction need to communicate their intentions and be willing to trade-off when need be.

Procurement to drive the needed change

To move towards optimised bids, it must be recognised that all will not be easy. There will be barriers. As in the prisoner's dilemma, each individual or firm can evaluate and approach a project on the basis of their personal interest. After all, they are in it for a purpose. However, seeing the wider picture warrants some compromises or trade-offs. Such letting-go inadvertently yields long term benefits. It may be difficult to let-go your benefits in this present contract because you may not know when the next opportunity will come along. Stakeholders must be encouraged to look at the long-term picture as a basis for decision making. That way, they will be able to maximise value through revealing, articulating and communicating multiple client and project team requirements and seeking for the best option that optimises the gains vis-à-vis their various competing expectations (Jensen, 2002). Part of the means of smoothing the uptake of cooperation informs the following recommendations.

Guaranteeing jobs for all

If procurement can guarantee jobs for all stakeholders, then their propensity to opportunism will be minimised. If a contractor knows that future jobs are guaranteed, then they will be inclined to look at projects both in the now and in the hereafter. It

may be difficult to guarantee jobs to everybody however, if we want them to cooperate, then such incentivisation is worthwhile. Some clients that construct regularly are already operating this way through framework agreements wherein a pool of pre-qualified contractors and consultants is maintained and drawn upon when a project comes along. Through these framework arrangements, contractors and consultants get a continuous inflow of jobs. The need here is to seek to make this practice widespread.

Revise prequalification?
Prequalification is a means to an end aimed at ensuring the right firm for the job. It could be seen as a trust-barrier; i.e. once a company has been pre-qualified by a client, it should open up and engage the later in a frank relationship. What may thus be worthwhile in pre-qualifying contractors is to check their cooperative culture in addition to other attributes. When cooperation becomes a prerequisite for prequalification; and prequalification becomes an open door to securing projects continuously; then players will be much more forthcoming in terms of cooperation. It is an aspect that may be more difficult to implement, but its pursuit will definitely raise the standard and lead to more altruism in construction project procurement. After that, contractors can be selected with more rigour yet less problems; and briefings will ensue with minimal hold-ups. Again, the emphasis here is to acknowledge the existence of good practices and explore ways of improving. In this regard, relational forms of contracting are already benefiting from cooperation. What is thus worthwhile is the enhancement of cooperation between all stakeholders in all construction projects.

1.6. Future research agenda

To enhance and maximise cooperation in construction stakeholder management, some preparation is necessary. One way the academic community and the CIB can influence this preparation is through research and areas worth investigation, as discussed below, include: behaviour, leadership, government involvement, benchmarking and competition.

1. Behaviour amongst stakeholders
Construction projects often take months to complete and pass through several phases. When stakeholders interact therein, the dynamics are very complex because different sub-groups are dealing with other subgroups at different times. The compositions of these sub-groupings change with time as well. The way stakeholders behave under the different phases and conditions of a project is worth researching.

In terms of behaviour too, the impact of the different forms of procurement on stakeholder behaviour is another aspect that is worth researching. Different procurement approaches and their associated contract forms impose different environments on projects and these in turn inform behaviour. The cause and effect of these attributes can be researched fully.

2. Leadership in stakeholder management
There are usually many stakeholders in a modern construction project and their different stakes are often very fluid, subject to change at any time. There is a need to coordinate the many stakes in construction, hence the need for stakeholder leadership. This leadership can come from an individual or a group. Given that each set of stakeholders will be different, there is a need to strategise on how leadership should emerge when stakeholders interact with each other.

This call is for a type of leadership that should address the soft skills of vision, working together, motivation, and building trust among the players (Rubin *et al*., 2002) and not the autocratic type of leadership. Significantly also, this type of leaderships is in conformity with the CIB W065 RVC agenda.

3. Government incentives

To optimise briefs warrants a reformation. Meanwhile the construction industry operates within the limits of national control. Thus governments can contribute to making construction stakeholders more cooperative. An area worth research in this respect is incentivisation. It may be possible to reward cooperative behaviour that is exemplary with tax discounts or some other form of incentive. Likewise, a recognition scheme can be utilised in some way. This will help propel and accelerate the move towards consistent cooperation in construction undertakings. The feasibility and precise nature of the incentivisation can be established in a research.

4. Benchmarking

Each brief is meant to yield a certain project outcome and so no two briefs are expectedly identical. However, benchmarks can be developed to inform the generation of optimised briefs; and the yardsticks of these benchmarks should, in part, address cooperation. This thinking flows from the idea of prequalification, as discussed in the previous section. Meanwhile, the feasibility and specificity of benchmarking in briefing can be established through a research.

5. Application of games theory

In a game scenario, an attitude of conflict or cooperation faces the game participants (Bacharach, 1980). Co-operative games allow for binding agreements to be reached, while non-cooperative games do not (Eichberger, 1993). Bargaining, which is a type of game (Duffy, 2003) concerns economic situations where there are gains from trade, for example, selling a house at a particular location, enacting a contract to construct a building, etc. There is a limited scope to interpret certain construction scenarios as games (Akintoye *et al*., 2004), as such, games theory can be used to investigate the optimisation of outcomes. Research in this area will enable rigour to be applied in the evaluation of construction decisions.

1.7. Conclusion

This paper has argued that construction procurements and briefings are yielding less than maximum satisfaction to stakeholders, especially clients. There is a need to amplify the level of satisfaction derived from projects by addressing the underlying causes and revaluing the briefing process. One key cause examined was the potential self-interest of the project players, which can hamper the achievement of maximum value. In order to address this, the need for altruism was highlighted as well as seeing the wider and long-term picture as opposed to individual needs. Also, stakeholders in construction need to communicate their intentions and be willing to trade-off when need be. To foster these suggestions, a campaign was seen as worthwhile and this should involve industry, academia, professional institutions and the CIB. The paper argues further that procurement should aim to guarantee jobs for all and that prequalification should include the factor of cooperation in its assessment criteria. However, the quest for optimise briefs is still far fetched and one means of hastening its achievement is through research. Studies into stakeholder behaviour, leadership, competition,

benchmarking and the like will provide a better understanding of stakeholder dynamics and inform better practice and are thus recommended.

References

Akintoye, A.; Hardcastle, C. and Chinyio, E. (2004) Application of game theory in Public Private Partnerships. In Satyanarayana, K. and Koshy, V. (eds.). *Project Procurement for Infrastrutructure Construction*. Proceedings of the CIB W092 Procurement Systems Symposium, January 7-10, Chennai, India. New Delhi – India: Narosa Publishing House; pp. 3-14.

Atkin, B. and Flanagan, R. (1995) *Improving Value for Money in Construction*. London: Royal Institute of Chartered Surveyors.

Bacharach, M. (1980) *Economics and the Theory of Games*. London: Macmillan.

Barrett, P. and Stanley, C. (1999) *Better Construction Briefing*. London: Blackwell Science.

Beijder, E. (1991) From Client's Brief to End of Use: The pursuit of quality. In Barrett, P. and Males, R. (eds.) *Practice Management: New Perspectives for the Construction Professional*. London: Spon; pp. 125–136.

Blackmore, C. (1990) *The Client's Tale: The role of the client in building buildings*. London: Royal Institute of British Architects.

Boyd, D. and Chinyio, E. (2006) *Understanding the Construction Client*. London: Blackwell Science.

BSI (2002) *Performance Standards in Building: Checklist for briefing – Contents of brief for building design*. London: British Standards Institute.

Calvert, S. (1995) *Managing Stakeholders: The commercial project manager.* McGraw-Hill

Carroll, A.B. and Buchholtz, A.K. (2006) *Business and Society: Ethics and stakeholder management* (6th ed). Mason: Thomson South-Western.

Carter, S.M. (2006) The Interaction of Top Management Group, Stakeholder, and Situational Factors on Certain Corporate Reputation Management Activities. *Journal of Management Studies* 43(5), 1145 – 1176.

Checkland, P.B. (1989) Soft Systems Methodology. In Rosenhead, J. (ed), *Rational Analysis for a Problematic World: Problem Structuring Techniques for Complexity, Uncertainty and Conflict*. Chichester: Wiley; pp.71-100.

Cleland, D. I. (2002) *Project Management – Strategic design and implementation*, (4th ed). London: McGraw-Hill

CIB (Construction Industry Board) (1997) *Briefing the Team: A guide to better briefing for clients*. London: Thomas Telford.

Doyle, P. and Stern, P. (2006) *Marketing Management and Strategy* (4th ed). Harlow: Prentice Hall.

Duffy, J. (2003) On Bargaining Games. (http://www.pitt.edu/~jduffy/econ1200/LectNotesWk3_files/frame.htm - *Accessed on 27 June 2003*).

Eden, C. (1989) Using Cognitive Mapping for Strategic Options Development and Analysis (SODA). In Rosenhead, J. (ed), *Rational Analysis for a Problematic World: Problem Structuring Techniques for Complexity, Uncertainty and Conflict*. Chichester: Wiley; pp. 21- 42.

Egan, J. (1998) *Rethinking Construction*: The report of the Construction Task Force to the Deputy Prime Minister, John Prescott, on the scope for improving the quality and efficiency of UK construction. London: Department of the Environment, Transport and the Regions.

Egan, J. (2002) *Accelerating Change*: A report by the Strategic Forum for Construction, chaired by Sir John Egan. London: Rethinking Construction.

Eichberger, J. (1993) *Game Theory for Economists*. San Diego – USA: Academic Press Inc.

Freeman, R. (1984) *Strategic Management - A stakeholder approach*. Boston: Pittman Publishing Company.

Friend, J. and Hickling, A. (1987) *Planning Under Pressure: The strategic choice approach*. Oxford: Pergamon.

Frooman, J. (1999) Stakeholder Influence Strategies. *Academy of Management Review,* 24(2), 191–205.

Gago, R.F. and Antolìn, M.N. (2004) Stakeholder Salience in Corporate Environmental Strategy. *Corporate Governance*, 4(3), 65-76.

Gameson, R.N. (1991) Clients and Professionals: The interface. In Barrett, P. and Males, R. (eds.) *Practice Management: New perspectives for the construction professional*. London: Spon, pp. 165–174.

Gibson, K. (2000) The Moral Basis of Stakeholder Theory. *Journal of Business Ethics*, 26(3), 245 – 257.

Green, S. D. (1994) Beyond Value Engineering: SMART value management for building projects. *International Journal of Project Management*, 12(1), 49-56.

Green, S.D. (1996) A Metaphorical Analysis of Client Organizations and the Briefing Process. *Construction Management and Economics*, 14(2), 155–164.

Green, S.D. (1999) A Participative Research Strategy for Propagating Soft Methodologies in Value Management Practice. *Construction Management and Economics*, 17(3), 329 – 340.

Hyams, D. (2001) *Construction Companion to Briefing*. London: Royal Institute of British Architects.

Jensen, M.C. (2002) Value Maximization, Stakeholder Theory, and the Corporate Objective Function. *Business Ethics Quarterly*, 12(2), p235-256.

Kelly, J., McPherson, S. and Male, S. (1992) *The Briefing Process: A review and critique*. London: Royal Institution of Chartered Surveyors.

Kolk, A. and Pinkse, J. (2006) Stakeholder Mismanagement and Corporate Social Responsibility Crises. *European Management Journal*, 24(1), 59 - 72.

Latham, M. (1994) *Constructing the Team: Final report of the government/industry review of procurement and contractual arrangements in the UK construction industry*. London: HMSO.

Loe, E. (2000) *The Value of Architecture: Context and current thinking*. London: RIBA Future Studies.

Logsdon, J.M. and Wood, D.J. (2000) Introduction. In Logsdon, J.M.; Wood, D.J. and Benson, L. E. (eds) *Research in Stakeholder Theory, 1997-1998: The Sloan Foundation Minigrant Project*. Totonto: Clarkson Centre for Business Ethics; pp. 1-4.

Luce, R.D. and Raiffa, H. (1957) *Games and Decisions: An introduction and critical survey*. New York: John Wiley and Sons, Ltd.

Lynch, D.K. and Livinston, W. (1995) *Color and Light in Nature*. Cambridge: Cambridge University Press.

Maslow, A. H. (1987) Motivation and personality (3rd ed.; revised by Robert Frager *et al*.). London: Harper and Row.

McGregor, W. and Then, S.S. (1999) *Facilities Management and the Business of Space*. London: Arnold.

Mitchell, R. K.; Agle, B. R. and Wood, D. J. (1997) Toward a Theory of Stakeholder

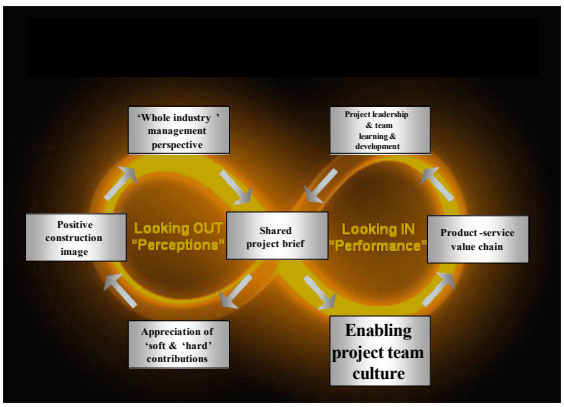
Identification and Salience: Defining the principle of who and what really counts. *Academy of Management Review* 22(4), 853–886.
Morgan, G. (1986) *Images of Organization*. London: Sage.
Myers, D. (2004) *Construction Economics: A new approach*. New York: Spon.
National Audit Office (2001) *Modernising Construction* - (Report by the Comptroller and Auditor General to Parliament; HC 87 Session 2000-2001: 11 January). London: The Stationery Office.
Newcombe, R. (2003) From client to project stakeholders: a stakeholder mapping approach. *Construction Management and Economics*, 21, 841–848.
Peston, M. and Coddington, A. (1967) The elementary ideas of game theory. London: H.M.S.O.
Powell, J.A. (1991) Clients, designers and contractors: the harmony of able design teams. In Barrett, P. and Males R. (eds). *Practice Management: New Perspectives for the Construction Professional*. London: Spon; pp. 137–148.
Rubin, D. K.; Powers, M. B.; Tulacz, G.; Winston, S. and Krizan, W. G. (2002) Leaders Come in All Shapes and Sizes, but the Great Ones Focus on People. *Engineering News-Record*, 249(23), 34–36.
Seed (2003) Project Partnering. *A presentation delivered to the Construction Best Practice Club; West Midlands, UK.* UCE Birmingham.
Shen, Q., Li, H., Chung, J. and Hui, P.-Y. (2004) A framework for identification and representation of client requirements in the briefing process. *Construction Management Economics*, 22(2), 213–221.
Shubik, M. (1975) *The Uses and Methods of Gaming*. Oxford: Elsevier.
Smith, J., Love, P.E.D. and Wyatt, R. (2001) To build or not to build? Assessing the strategic needs of construction industry clients and their stakeholders. *Structural Survey*, 19(2), 121–132.
Smith, J. and Love, P.E.D. (2004) Stakeholder Management During Project Inception: Strategic needs analysis. *Journal of Architectural Engineering*, 10(1), 22-33.
Vogwell, D. (2002) How Risky are your Stakeholders? *Davis Langdon Everest* (http://www.eurolog.co.uk/apmrisksig/meetings/stakeholders.pdf - Accessed on 20 June, 2006)
Weiss, J.W. (2006) *Business Ethics – A stakeholder and issues management approach* (4th ed). Mason: Thomson Higher Education.
Winch, G. and Bonke, S. (2002) Project Stakeholder Mapping: Analysing the Interests of Project Stakeholders (Chapter 23) In *The Frontiers of Project Management Research*. Pennsylvania: Project Management Institute (PMI), pp. 385-403.

ENABLING PROJECT TEAM CULTURE

Richard Fellows
Department of Real Estate and Construction, University of Hong Kong, Hong Kong and Glasgow Caledonia University, United Kingdom.
E-mail: fellows@hkucc.hku.hk

Thomas Grisham
E-mail: tgrisham@tampabay.rr.com

Wilco Tijhuis
Faculty of Engineering Technology, Department of Construction Management & Engineering, University of Twente, Enschede, The Netherlands.
E-mail: w.tijhuis@utwente.nl



Abstract

This paper examines the cultural context in which projects are realised; how the organisational culture of projects may be influenced and, in turn, what effects organisational culture has on performance. National cultures constitute primary contexts which are mediated through the organisations, and their representative individuals, comprising the participants in project temporary multi organisations. The values of participants underpin the brief for the project which expresses performance goals and targets and so, is fundamental in determining commitment to the project and the motivations of participants, hence, values are examined within the context of business operational requirements. Recognition of interdependence of participants in the fluid, power-based, business coalition through which projects are realised promotes the perspective of projects as joint ventures to encourage teamwork. Thus, the ideal of team formation and teamwork is discussed against the construct of temporary multi organisations and their inherent, well-known issues. Drawing on a breadth of culture-related research, including business alliancing, the paper concludes with a summary of how attention to cultural issues may foster teamwork and, hence, synergetic performance benefits with the increased wealth generated by the output equitably distributed amongst participants.

2.1. Introduction – Identification of issues

The rhetoric of teams and teamwork on construction projects has been commonplace for many years and has acted to perpetuate the perspective that teams arise naturally in project execution. Unfortunately, the reality is significantly different such that teams are a rarity, rather than a norm, leading to exacerbation of the widely-recognised problems for project management performance which tend to be grounded in lack of cooperation and integration.

A particular issue relating to construction, indeed to any project-based industry, is that projects are realised (designed and constructed) through temporary multi organisations (TMOs) which extends the issues of debate within transaction cost economics concerning firms, markets, and hierarchies – in particular, where the boundaries of firms lie. Thus, Macmillan and Farmer (1979) note that "…Cyert and March…suggested that for a managerially complex organization to be viable, there must be some kind of 'organisational coalition' across different sub-functions". Further, Jarillo (1988) notes that "firms act in a complex environment, where no firm can really be understood without reference to its relationship with many others" and so, suggests that networks provide an appropriate perspective in which to examine the supply side. Eccles (1981) uses the concept of a quasi-firm in respect of construction TMOs, "…an organizational form with characteristics of both markets and hierarchies".

Thus, the notion of teams and teamwork should be applied at the inter- as well as the intra-organisational (firm) level. At the intra-organisational level, team building may occur relating to individuals, divisions, etc.; a particular concern for M-form structured organisations. Inter-organisational team building is regarded as significant in Western (individualistic) societies in which the organisations (post-holders) are the foci of relationships (unlike Eastern societies in which the individual person occasions the relationship, independent of the organisation). Such issues reflect the (Western-dominated) management literature in which debate concerns whether organisations can behave – and so, have relationships – beyond the individuals representing/constituting them; the current consensus indicates that organisational identity and behaviour can be independent of the organisation's members, which also raises issues of trust and corporate social responsibility (CSR). Those two concepts are of increasing importance and merit serious attention because construction is a people-business. It is quite difficult to address trust and CSR if organizations do not have appropriate procedures. Vos, et al., (2002) produced such findings from governance investigations of a recent case of fraud in the Dutch infrastructure-industry.

The concept of 'enabling', especially in respect of human relationships and the consequences of them, should not be assumed to indicate a 'toolkit for implementation and control' but rather to foster understanding of the human conditions and processes which impact on relationships and consequent behaviour. The OED provides various definitions of 'enable', including "to authorize, sanction, empower; to give legal power or license to; to make possible or easy; also to give effectiveness to (an action)." Thus, here, we are concerned with examination of ways in which a 'team approach' amongst project participants may be brought about; naturally, a motivational assumption is that both project and project management performance will be enhanced by a 'team approach'.

The next vital aspect concerns the concept of a team. Restricting the context to the human domain, a team must comprise at least two persons and, although the maximum number of members is unlimited in theory, pragmatic concerns have prompted considerable research to determine optimal and maximum sizes of teams (see, e.g., Belbin, 1981). The essential constituent for a team to be possible is a common goal – goal congruence – amongst the participants, in respect of which any and all other, perhaps individual, goals are subjugated to become insignificant in influencing behaviour. Erez and Zidon (1984) found that goals should be challenging but not enormously so such that performance improved as goals became reasonably challenging

and commitment to them increased; however, further increases in goal difficulty resulted in declining commitment and performance. Usually, team members are significantly different from each other in physical, mental, and behavioural attributes; indeed, the presence of sufficient attributes and their distribution amongst team members is commonly held to be of major importance in determining (relative) performance of teams (Belbin, 1981). Differences, in such contexts, imply specialisations and, hence, diversity but, for teams, that must not result in independence and, thereby, destroy the collective – so, integration is vital but, often, the most difficult aspect to achieve (see, e.g. Lawrence and Lorsch, 1967).

In addition to the well-known issues of leadership and followership in team development and operation, aspects of trust as well as power sources and structuring between participants must be addressed along with the vital component of commitment. Those considerations must be viewed interactively in endeavouring to foster performance in achieving the project (product) and project management (process – realisation) goals. The goals may include the way of collaborating between the parties. When parties work together, there is often still a need for balancing between trust and control, as in practices regarding procurement-procedures Tijhuis (2004).

The third aspect is culture, for which Hofstede's (1994a) definition is employed widely – 'the collective programming of the mind which distinguishes one category of people from another' and, commonly, is applied at two levels – national and organisational. Projects present particular concerns for examination of culture in that they operate as TMOs (Cherns and Bryant, 1984) and so, present mixes of cultures of constituent organisations and, increasingly, nations as well. That yields complexities of combinations of underpinning values, manifestations of behaviour, language etc. and practices. Thus, culture provides both contexts in which projects are realised and used (as products) together with shaping the (organisations and) processes employed.

So, what do we mean by a 'project team culture'? If, for a moment, we can regard culture as 'how we do things around here' (Schneider, 2000), then, that organisational perspective prompts the notion of integration of participants on a project through invoking goal congruence (regarding the task/project), common practices, and coordinated, collaborative processes and procedures. Unfortunately, that still begs the question of establishment of the goal(s), despite recognising the imperatives of communication and acceptance of that goal(s). A common expression of the over-riding goal of project participants is to 'satisfy the client' but that still raises two difficult questions:

> who is the client? and,
> what is needed to satisfy the client?

On today's, especially major, international, projects, both questions are mammoth.

To focus on satisfying only one project participant (or group of participants) is dangerously myopic. For a project to enjoy a true team culture, the 'technical' and business performance requirements of all participants must be accommodated and accepted. Hence, the team concept must include not only the members of the participants (organisations) constituting the project TMO but the total array of stakeholders – including future owners, users, and others affected by the realisation and

presence of the project (e.g. the general populace – due to impacts of the project on the environment (see, for example, Fellows, 2006). That is epitomised in the development of a 'shared project brief' – a primary input to enable a real project team to be assembled.

Usually, the value (worth) of a product or process is judged by measuring performance and comparing such measurement(s) with criteria (variables) and/or targets (forecasts of desired – hopefully, feasible – performance). Although, in construction and other project-based industries, product and process performances are interdependent, the focus tends to be on the process of project realisation irrespective that the product is commonly in use for a long period; the rationale for the process focus in this context is that construction is a major component of project realisation. Thus, the outputs from project teams/TMOs are both the process value chain for project realisation and the user-wealth embodied in the project as product-in-use.

2.2. Culture

National

Usually, national cultures are regarded as the most generic level for examination – which, most often, employ the four dimensions identified by Hofstede (1980), subsequently extended to five (The Chinese Culture Connection, 1987; Hofstede, 1994b):

Power Distance – *"the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally"* (Hofstede, 1994b: 28)

Individualism/Collectivism – *"Individualism pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family. Collectivism as its opposite pertains to societies in which people from birth onwards are integrated into strong, cohesive in groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty."* (ibid: 51)

Masculinity/Femininity – *"masculinity pertains to societies in which gender roles are clearly distinct (i.e., men are supposed to be assertive, tough, and focussed on material success whereas women are supposed to be more modest, tender, and concerned with the quality of life); femininity pertains to those societies in which social gender roles overlap (i.e., both men and women are supposed to be modest, tender, and concerned with the quality of life)."* (ibid: 82-83)

Uncertainty Avoidance – *"the extent to which the members of a culture feel threatened by uncertain or unknown situations."* (ibid: 113)

Long-Termism – *"the fostering of virtues orientated towards future rewards, in particular perseverance and thrift."* (ibid: 261) / Short-Termism – *"the fostering of virtues related to the past and present, in particular respect for tradition, preservation of 'face', and fulfilling social obligations."* (ibid: 262-263).

Chen, Meindl and Hunt (1997) discuss the division of the cultural construct of

collectivism into vertical and horizontal components. They juxtapose those components to Hofstede's (1980) dimension of individualism, as, "…individualism (low concern for collectivity and low concern for in-group others) at one end of the spectrum with vertical collectivism (high concern for the collectivity) and horizontal collectivity (high concern for in-group others) at the other end". They find that, "because the vertical scale items refer to work situations and the horizontal scale items primarily refer to non-work situations, one may speculate that the Chinese are becoming 'organizational individualists' even though they are still cultural collectivists in other domains…". Hofstede (1983) notes the correlation between wealth and individualism in various countries and continues that "…collectivist countries always show large Power Distances but Individualist countries do not always show small Power Distance". Gomez, et al., (2000) explain that people in collectivist cultures favour in-group members but discriminate against out-group members.

Organisational

The combination of cultural manifestations, especially language and behaviour, have a major impact on whether a deal is struck, with whom, within what formal and informal frameworks, how it is executed and with what consequences (see, e.g., Trompenaars and Hampden-Turner, 1997). Thus, to carry out business successfully, particularly international business, it is important to be appreciative of and sensitive to differences between participants and their reasons and consequences. Many of the difficulties which are common in construction projects seem attributable to two primary causes – conflicts of business objectives (manifestations of values of the participants), and lack of sensitivity and accommodation of differences between participants – hence, the need for awareness of organisational cultures.

Hofstede (1994b) proposes six dimensions for analysis of organisational cultures:

- Process – Results Orientation (technical and bureaucratic routines {can be diverse} – outcomes {tend to be homogeneous})
- Job – Employee Orientation (derives from societal culture as well as influences of founders, managers)
- Professional – Parochial (educated personnel identify with profession(s) – people identify with employing organisation)
- Open – Closed System (ease of admitting new people, styles of internal and external communications)
- Tight – Loose Control (degrees of formality, punctuality etc., may depend on technology and rate of change)
- Pragmatic – Normative (how to relate to the environment, n. b. customers; pragmatism encourages flexibility).

Usually, organisational cultures derive from the founders of the organisation and others who have had major impact on the organisation's development (e.g. Henry Ford, John Harvey-Jones). Such people, through influence over employment of staff, shape the values and behaviour of members of the organisation to develop the organisation's identity – both internally and externally. Thus, organisational cultures (and climates) are self-perpetuating – persons who 'fit' are hired and they 'fit' because they are hired; errors of 'fit' are subject to resignation or dismissal. Further, organisational cultures develop through the necessity of maintaining effective and efficient working relationships amongst stakeholders (both permanent and temporary) and so, do evolve

in response to internal and external dynamics. Pressure for cultural change commonly arises from external parties, particularly in situations of environmental turbulence and attempts to enter new markets.

Cameron and Quinn (1999) employ a 'competing values' model in which 'flexibility and discretion' is juxtaposed to 'stability and control' on one dimension; the other dimension juxtaposes 'internal focus and integration' and 'external focus and differentiation'. The resultant model yields four quadrants, each denoting a type of organisational culture – Clan, Adhocracy, Market, Hierarchy:

Clan – *"Some basic assumptions in a clan culture are that the environment can be best managed through teamwork and employee development, customers are best thought of as partners, the organization is in the business of developing a humane work environment, and the major task of management is to empower employees and facilitate their participation, commitment, and loyalty"* (ibid: 37)

Adhocracy – *"A major goal of an adhocracy is to foster adaptability, flexibility, and creativity where uncertainty, ambiguity and/or information-overload are typical. Effective leadership is visionary, innovative and risk-orientated. The emphasis is on being at the leading edge of new knowledge, products, and/or services. Readiness for change and meeting new challenges are important"* (ibid: 38-9)

Market – *"The major focus of markets is to conduct transactions with other constituencies to create competitive advantage. Profitability, bottom line results, strength in market niches, stretch targets, and secure customer bases are primary objectives for the organization. Not surprisingly, the core values that dominate market type organizations are competitiveness and productivity"* (ibid: 35)

Hierarchy – *"The organizational culture compatible with this form is characterised by a formalized and structured place to work. Procedures govern what people do. Effective leaders are good coordinators and organizers. Maintaining a smooth-running organization is important. The long-term concerns of the organization are stability, predictability, and efficiency. Formal rules and policy hold the organization together"* (ibid: 34).

Schein (1984) suggests two primary types of organisational culture: 'free flowing' – an unbounded, egalitarian organisation without (much) formal structure, thereby encouraging debate and (some) internal competition; and 'structured' – a bounded, rigid organisation with clear rules and requirements. (Such categorisation is analogous to the organic-mechanistic analysis of Burns and Stalker (1961).) That perspective is strong in the discussion of the operation of construction projects – formal systems are in place (organisation charts, contractual procedures, etc.) but those systems are used 'only in the last resort' – when things go wrong. Projects operate through networks of informal relationships which emphasise 'doing the pragmatic' to achieve progress. The belief is that through strict adherence to the formal system, the project would quickly 'grind to a halt' due to many bottlenecks (as in the contract procedures regarding oral variations). However, the risks involved must be understood (which suggests that a low level of risk aversion / uncertainty avoidance is common).

Handy (1985) identifies four primary forms of organisational culture. Power, is configured as a web with the primary power at the centre; emphasis is on control over

both subordinates and external factors (suppliers etc. and nature). Role, involves functions/professions which provide support of the over-arching top management; emphasis is on rules, hierarchy and status through legality, legitimacy and responsibility (as in contractual rights, duties and recourse). Task, in which jobs or projects are a primary focus, yields an organisational net (as in a matrix organisation); structures, functions, and activities are evaluated in terms of contribution to the organisation's objectives. Person, in which people interact and cluster relatively freely; emphasis is on serving the needs of members of the organisation through consensus. Handy suggests that the main factors which influence organisational culture are: history and ownership, size, technology, goals and objectives, environment and people.

Examination of the various, alternative sets of dimensions used to analyse national cultures and organisational cultures indicates considerable conceptual commonality. Further, dimensions of organisational culture generally align with the human relations – task schools of management thought (see, for example, Herzberg, et al., 1967 – theory X and theory Y).

2.3. Values and business

Values and beliefs lie at the heart of culture. Rokeach (1972) regards values as signifying enduring beliefs in particular ways of behaving or preferences for states in the future. An important part of a belief system is the morals component which leads to the notion of ethics. Morals concern judgements of what is right and what is wrong, what behaviour is good and what is bad, and so on. Hinman (1997) distinguishes morals and ethics by regarding morals as first order beliefs, and practices about what is good and what is bad which guide behaviour and ethics as second order, reflective consideration of moral beliefs and practices. Not only should ethics refer to values but, in order to secure operation, reference must be made to principles and standards regarding behaviour. That necessity immediately raises questions of whose values are to be employed in determining the standards and related issues requiring people to exercise judgement. In developing project briefs, it is important to determine whose values are used as they not only shape the content of the brief and, thus, the performance required but also impact on the acceptability of the brief to other project participants.

The essence of modern, capitalist market-based business transactions is summarised by Cox (1999), who asserts that, "essentially, business is about appropriating value for oneself…only by having the ability to appropriate value from relationships with others…can business be sustained….must…be conflicts of interest between vertical participants in supply chains, just as there are between those competing horizontally…In Western (as opposed to Japanese) culture most suppliers are basically opportunistic rather than deferential". Most clients[1], consultants, and constructors are businesses and so, must operate subject to business performance requirements whilst, at the same time, subject to regulatory necessities and, often, the need to behave professionally – which means on a moral/ethical basis and with regard to perceived social good, not just in accordance with the requirements of the 'paymaster'.

The value which businesses endeavour to appropriate is financial and is manifested in turnover and profit. Baumol (1959) concludes that the objective of any business is to

[1] The behaviour applies increasingly to client organizations in the public sector which are being required to operate as 'quasi-businesses'.

maximise turnover subject to a minimum profit constraint – because business if operated by managers (who seek turnover maximisation) but with its financial performance scrutinised by owners (who seek profitability as return on investment). Further, Hutton (2002) notes the importance of the active investors – fund managers of banks, insurance companies etc. who operate in the global financial markets – who require businesses to provide non-decreasing dividends.

Such business-derived pressures on participants encourage self-interest orientations over joint perspective in both developing project briefs and realisation processes. As collaboration is usually employed to achieve good solutions to technical problems, so collaboration over business aspects, notably regarding distributions of (financial) benefits from the outcomes, is a desirable input to secure harmonious team working and synergetic outputs.

The moral and ethical practices of Corporate Social Responsibility (CSR) give rise to further aspects of value which are entering the frame of business performance assessment – including environmental protection, support of education and training, and community assistance programmes. Internally, Organisational Citizenship Behaviour (OCB) relates to the ethics of the way employees treat the business, rather as moral-based motivation to perform beyond the requirements of the contract of employment (and general norms) (see, e.g., Organ, 1988). Clearly, CSR may yield financial benefits through building a favourable reputation without advertising whilst apparent OCB may be brought about by threats to the workforce; thus, some scepticism regarding business motives and practices is justified, especially when the force and extent of opportunism (Williamson, 1975) is acknowledged (such as in construction work allocation practices and claims etc.).

2.4. Teams and team culture

Given that a team must comprise two or more persons who are endeavouring to achieve a common goal, team culture constitutes the variables / constructs (dimensions) which are important for team formation, operation and continuance. Several authors have addressed team formation and performance (e.g., Belbin, 1981; Tuckman and Jensen, 1977). Thamain (2004) found a hierarchy of drivers for team performance:

effective communications;
trust, respect, and credibility;
overall team performance; and,
interesting, stimulating work.

Westby and Ford (1993) propose four functions of team culture:

sharing patterns of interpretation and perception;
sharing patters of feelings and values;
defining who is a member; and,
prescribing behaviour.

Thus, teams, in common with other culture-groupings, create their own language, jargon, and stories which are used to describe and demonstrate the values, beliefs, and perspective of the team.

Thus, a team culture may be identified through the dimensions of a team – goal congruence, leadership and followership, commitment, motivation, trust, and power – all operating within the 'technical' context of goal realisation. In the context of construction, ideally, the members of the team are all the participants on a project – in practice, they are the representatives of the major participants once determined, hence the fluid and evolving membership of a project TMO. However, for many projects, some participants may be unknown (although their likely nature may be identified – such as tenants of shops in a major development, or occupiers of housing) requiring the interests of such participants to be safeguarded through trust and 'professionalism' (and their ethical/moral underpinnings).

Grisham (2006) determined that there are characteristics of leadership which are effective, irrespective of the cultures of project participants – including the ability to inspire followers who, then, pursue the values espoused by the leader (as in charismatic leadership). That requires the leader to demonstrate cross-cultural leadership intelligence (sensitivity and accommodation of cultural differences etc.) and, then, nurtures the growth of a team culture using clear, open, and responsive communication, including articulation of the goals and 'storytelling' to foster team development. Storytelling may operate not only to articulate the team culture as developed but also to encourage further development of the culture as desired (by the leader).

Commitment is an affect – a psychological, positive feeling of association with and desire to achieve/enhance some future state (performance of a project realisation; well-being of a person). "Commitment …refers to one's attachment to or determination to reach a goal, regardless of the goal's origin….acceptance…refers…to commitment to a goal which is assigned" (Locke, et al., 1988). Thus, commitment acts as an internal motivator under the influence of which the person strives for enhanced performance in respect of the subject of the commitment; non-commitment to organisational goals can lead to 'soldiering' or restriction of effort and output. The reward may be only intrinsic – the individual's satisfaction felt with the performance achieved (and subject to valence, as in Vroom's (1964) theory of motivation). Dainty, et al., (2005) assert that project affinity, emotional attachments to the project (objectives/purpose) outcome, enhances how people work, especially their organisational citizenship behaviour, thereby fostering performance.

Rothschild (1993) categorises strategic leadership as a set of four 'faces', which he profiles as 'risktaker', 'caretaker', 'surgeon' and 'undertaker'. This indicates that, although strategic leadership should help organizations to survive in the long run, it does not mean that decisions will not have negative consequences on (some part(s) of) an organisation in the short – medium term. Decisions must address the (perceived) reality, focussing on clear goals and within a (motivated) strategy.

Motivation, more generally, under most of the theoretical perspectives, operates on the basis of anticipation of extrinsic and/or intrinsic rewards to performance (usually in excess of some pre-determined, target level) occasioned through greater effort on the part of the motivated person – such as the productivity bonus schemes so common in construction. Indeed, in construction, there has been widespread us of money (extrinsic reward) as a motivator for both operative and managerial employees – following the generic concept of economic rationality which operates for investors through return on investment (non-decreasing stream of dividends and capital growth; Hutton, 1996). It

does appear that many motivators (performance incentives originating outside the subject person) have only a temporary effort – performance enhancing effect as they can become a generally-accepted component of the 'basic' employment conditions. Thus, it seems that the intrinsic motivators may be more effective and enduring.

Trust is a fundamental in teams. Yamagishi and Yamagishi (1994) assert that true trust occurs when the 'trustor' believes that the 'trustee' has an incentive to cheat but refrains from doing so. The (perceived) reasons for the trustee's restraint give rise to several categories of trust, of varying strengths. Bachmann (2001) employs categories of system, personal, and institutional as the bases of trust; whilst an alternative categorisation is dispositional or deterrent-based trust. Zucker (1986) proposes three modes of trust production – characteristic (relating to dispositional trust), process (based on experiences of the trustee's having met expectations), and institutional (relating to established guidelines of behaviour and sanctions for transgressors who are discovered). Clearly, in instances of no previous relationships, dispositional trust governs the initiation of the relationship but within the institutional (deterrent-related) social and business context; thereafter, experience of actions and responses can supplement the basis of relational behaviour (see, e.g., Buckley and Casson, 1995). An important aspect of trust as a promoter of teamwork is its role in fostering the sharing of knowledge as an aid to performance, especially regarding tacit knowledge (see, e.g., Polanyi, 1958).

Power is the ability to influence of control the behaviour of other(s) whether through own behaviour (active power) or perceptions by the other(s) (potential power, as activated by the subject(s)). Power may be regarded as control over resources (physical, intellectual, emotional) (Scott, 1992). French and Raven (1959) identify five main sources of a leader's power: legitimate power, reward power, coercive power, expert power, and referent power. The first two sources concern the leader's position within the organisation's formal structure; coercive power follows closely but is modified by the personalities of the leader and the followers; expert power relates to differential knowledge (expertise and experience) of the leader relative to the followers; referent power is, largely, socially determined from differences between the leader and followers and how the followers access the leader's superior, differential attributes to assist them in their own activities (via expectancy, valence and instrumentality – Vroom, 1964). Further sources of power have been identified as personal power (support and trust by followers), and connection power (access to persons and information; alternatively, 'political power') (Finlay, 2000).

Perhaps a further facet for teams and teamwork is empowerment – the delegation of authority, and appropriate responsibility, for making and implementing decisions. Possible and suitable empowerment depends on the culture and organisational climate, the personalities and abilities of the people involved, trust, and regulations. Commonly, empowerment is regarded as positive, and a performance motivator, but that may not apply in all cultures (notably, those with large power distances and high uncertainty avoidance). However, empowerment does seem necessary for members of teams to maximise their contributions, if only through removing fears. It may well be that significant empowerment necessitates decision making by consensus.

Teams may operate best through command and control in contexts/situations (such as emergencies) in which chains of command and immediate compliance are most

effective. Elsewhere, a leader's exercising an 'outside view', based on which instructions are issued (such as the coach/manager of a sports team) can be effective. However, in the vast majority of situations, control is, largely, illusory – persons have much less control/influence over future events than they believe.

2.5. Discussion: Project TMOs and teams

If we consider organisational development as a logical progression, the generic sequence involves goals (aims and objectives; vision and mission), strategy (targets and means for achievement), structure, resourcing, and performance. Apart from such horizontal analysis, a vertical layering of tactics and operations is involved for organisational functioning. As, by definition, an organisation must involve a minimum of two persons, the importance of relationships in organisational development and success is obvious.

The structuring of an organisation may be viewed as an enabling decision, given the perspectives that 'structure follows strategy' (Chandler, 1962) and that structure impacts performance – the underpinning premises of much research in construction procurement. Naturally, as organisations continue, the interaction between strategy and structure forms an iterative, interactive cycle (commonly as a 'rolling programme); as applies to all the components of the generic sequence of organisational development, above. Thus, if the project goals are determined collaboratively and take account of the interests of all the participants, then the ensuing strategy and structuring of the TMO and realisation procedures will tend to be conducive to greater collaboration.

A 'forty hour workshop' with only representatives of the most powerful participants, is virtually certain to be ineffective in changing the (traditional) fragmented and self-interested opportunistic project climate to one of integrated cooperation.

Irrespective of the procurement arrangements (fragmented/integrated; 'traditional' design-tender-build, management oriented, design and construct, concession arrangements) all but the smallest of projects are realised through a TMO. The wider the boundaries of the TMO are considered to be (i.e., the greater the inclusion of participants in the TMO), the more numerous and diverse are the organisations and so, the complexity seems to increase geometrically. That situation is enhanced by the transience of membership for many participants (e.g. specialist subcontractors) and that the identity of many is unlikely to be known significantly before the times when their inputs are required.

Popular rhetoric discusses 'project teams' whether considering the TMO or a grouping within an individual firm. Literature tends to separate such considerations into issues of teams and teambuilding (for performance enhancement) within an organisation, including TMOs, and alliancing between organisations (such as formal joint ventures). Partnering workshops, for instance, constitute a blending of the two levels in that the alliance relationships between the participating firms are developed and enhanced through their representatives at the workshop and on the project. Given that organisational representation is involved, good communications are vital which, given the history of the construction industry, is likely to be a problem (see, e.g., Higgin and Jessop, 1963; Latham, 1994; Construction Industry Review Committee, 2001).

Thus, particularly in the context of project TMOs, team formation, continuation and

extension requires flexibility throughout the realisation phases and, because relationships between both individuals and organisations are involved, the concepts of bridging and bonding, as major elements of social, capital are germane. Edelman, et al., (2004) note that "bridging social capital examines the external linkages of individuals and groups that help to define their relationships…bonding social capital focuses on the internal relationships of a focal actor and specifically examines the linkages and corresponding relationships among individuals and groups within a focal group or organization".

The notions of bridging and bonding may be examined in relation to the cultural dimension of individualism – collectivism. Collectivists tend to construct less permeable boundaries around the in-group and act with greater tolerance and favour towards in-group members. Individualists tend to have looser ties and have a wider network of social contacts. Thus, for collectivists, bonding is strong but bridging is more difficult, and *vice-versa* for individualists. An additional facet is that relationships in collectivist societies are between persons primarily (organisations, which persons represent are, very much, a secondary consideration), whilst in individualists societies, business relationships tend to focus on the organisations (which the persons involved represent, potentially only temporarily).

Understanding and appreciation of underlying cultures, as manifested in preferred/normal behaviour, is essential for team development and performance as there is a very strong tendency for people to preserve and return to the *status quo* in response to (attempted) imposed change. Whilst culture and its manifestations are dynamic and constantly evolving, change initiatives, which seek to hasten or alter the change vector are likely to have significant, unpredictable consequences (see, e.g., Harris and Ogbonna, 2002) and be transient in effects; it is only if the changes are imposed for considerable time and (become) accepted by the subjects that they can endure 'naturally'. Thus, the perspective of (organisational) culture as a 'tool' which managers can employ to effect change to enhance performance is, at best, fraught with problems!

Nicolini (2002), following an extensive analysis of the literature on organisational climate, notes that "…in order for teams to obtain an high level of trust and cohesiveness appropriate action needs to be taken so that the design, group selection and formation processes, management style and practices, reward and recognition principles, communication mechanisms and systems are all aligned". That calls for extensive awareness and great sensitivity in organisational design of the TMO which, must fall to the 'project champion' – the overall project manager (and leader). Thus, the appointment of the appropriate person is critical; but who appoints and on what basis and using whose criteria? The obvious answer is the 'commissioning client' – which then raises difficulties of that client's expertise regarding construction projects, awareness of performance criteria, and dominance of those criteria for all other participants – for project management and for the project, all within the context of project realisation processes.

Given that construction projects are realised through TMOs, that TMOs have short life-spans, and that their membership is transient and highly variable between projects, a combination of dispositional trust and experiential trust applies initially. A significant problem is the lack of time and contact for (further) trust to be established. Thus,

Myerson, et al., (1996) have developed the concept of 'swift trust'. That is of particular importance because early decisions have the most far-reaching consequences; contextually, the application is most germane for international projects and those using 'virtual' methods.

Erez (1997) suggests a model of work behaviour which is grounded in culture and motivation. The Cultural Values interact with Motivational approaches to determine the effectiveness of the Self Derived Motives to yield Work Behaviour (which leads to performance). Thus, for example, individualist cultures favour equity rewards, collectivist cultures favour equality rewards, but people in 'developing countries' tend to favour needs-based rewards. The matching of motivational approaches to cultural values is critical to achieving good performance.

Given that projects are executed by TMOs comprising disparate organisations (fragmented) and that adequate coordination and cooperation is essential for 'success', it seems that the dividing pressures (specialisation etc.) operate as natural forces of economics and organisation such that it indicates that the integrational requirements should be the focus of attention. Thus, it is appropriate to investigate the TMOs as joint ventures/business alliances, albeit that most are informal JVs.

The literature on joint ventures and strategic alliances is replete with studies noting the extent and reasons for failure – about 60% fail (Anderson Consulting, 1999), half due to poor management and half due to poor strategy (Alliance Management International Ltd., 1999). Further, Das and Teng (1999) note that "because of incompatible organizational routines and cultures, partner firms often do not work together efficiently". Clearly, transformation is necessary if the project participants (members of the TMO) are to feel comfortable with adapting their own, existing procedures to blend with those of the other participants; much 'give and take' is likely to be required so that the most suitable procedures for the project are adopted. That perspective is in notable contrast to the usual result of organisational mergers which, relatively rapidly, emerge as a take over by the (economically/financially) most powerful (Furnham, 1997).

Sheth and Parvatiyar (1992) employ a two dimensional analysis – purpose (strategic / operational) and parties (competitors / non-competitors) – to examine forms, properties and characteristics of business alliances, as shown in figure 2.1. They determine that uncertainty and trust are the two primary (independent) constructs which affect (formal) alliance relationships and their institutional arrangements. Bachmann (2001) views trust and power as means for social control within business relationships. Those concerns are commonly manifested in the criteria for selection of partners and the establishment of safeguards against opportunistic behaviour by (other) alliance members; thereby increasing *ex ante* costs in the business (relationship) venture (Williamson, 1985).

Given the importance of relationships and behaviour to the operation and (success) performance of joint ventures, together with their objectives, it seems clear that culture is of fundamental impact, especially when considering compatibilities amongst participants to convert a TMO into a (high-performing) team.

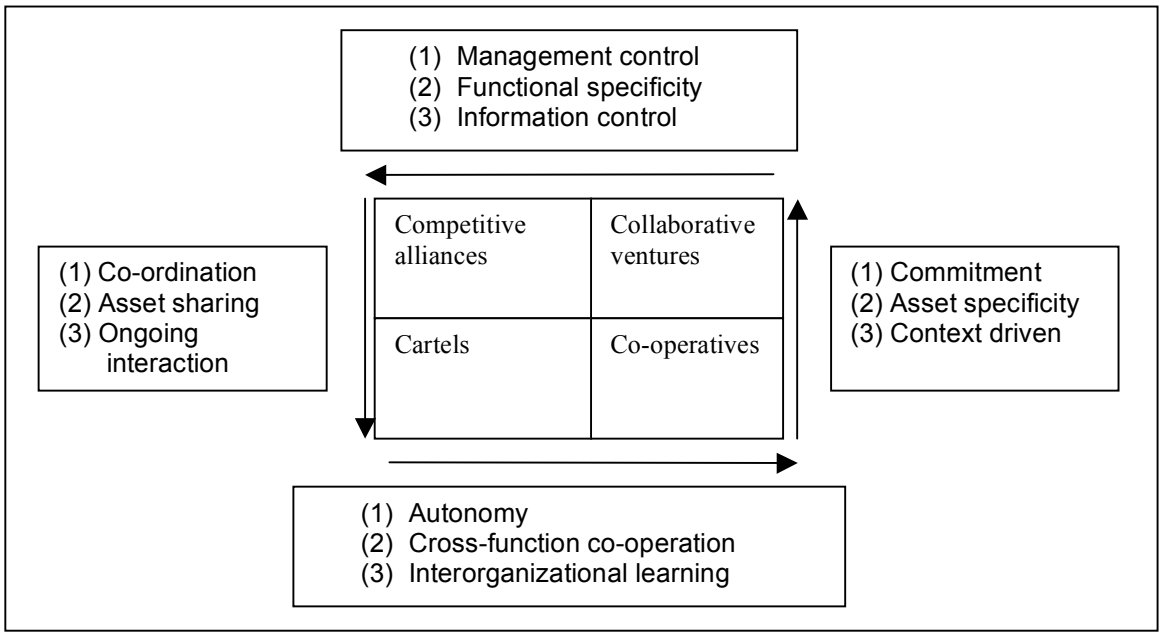


Figure 2.1. - Properties of Alliances (Source: Sheth and Parvatiyar, 1992)

2.6. Future research agenda

Culture is an all-pervading human phenomenon and, analogous to the structuration of social institutions, is dynamic. Thus, it seems helpful for studies to address culturation as a dynamic construct in which trends, perturbations and their causes are examined. In tandem with such research, further studies could develop means of identifying and addressing 'cultural distance' beyond the index-oriented approach which is popular currently. Those studies would inform more detailed, project-based research into selection of participants (organisational and individual) for compatibility in the business context of project realisation to augment the traditional technical foci (extending the research of Baiden, et al., 2006).

Further research into participants' hierarchies of values would be useful to inform how incompatibilities and business objective generated conflicts may be reconciled to yield project briefs containing more complete statements of realisable and accepted performance targets. Such goal congruence should serve to motivate performance improvement and help avoid dissonance regarding the performance achieved.

Further studies concerning organisational citizenship in respect of both organisational citizenship behaviour by employees and fulfilment of corporate social responsibilities, both inwards and outwards, by organisations should lead to greater ethical behaviour and so enhance trust. A transaction cost approach could be adopted to assist in measuring consequences from a business performance, as well as a social perspective.

2.7. Conclusion

It is not possible to create a team culture by fiat (it seems more likely that a Lexus, if not a Mercedes or Rolls Royce, is required). Unless a team culture is generated, and generated at the conception/inception, and sustained thereafter, performance is likely to fall short of its potential.

A particular fundamental is to determine what performance is required and is appropriate – the criteria, levels, and to ensure that all participants both are aware of the requirements and accept them, preferably commit to them, and so, are motivated to their achievement. That necessitates good communication, sensitivity to and coordination of the participants, and leadership. Trust plays a fundamental role here.

The interaction between goal determination, selection of participants, TMO structure, and TMO procedures are fundamentally important for achieving good project management performance and project performance. Goal congruence (setting, communication and acceptance) underpins teamwork.

Selection of appropriate participants, to secure the requisite combination of 'technical' expertise and teamworking contributions must occur with due regard to the personalities and cultural manifestations of the array of possible participants to ensure compatibility and complimentarity. Those aspects must be examined in the context of the broader culture and the institutional environment for trust and cooperative working to be fostered.

The structure of the TMO provides the (formal) framework for the project realisation processes and, although likely to be amended to actually operate through an evolving informal structure, is a strong indicator of the commissioning client's and 'lead consultant's' perspectives on power, trust and control – thereby constituting a fundamental indicator of the intended working of that TMO, particularly communications and collaboration. Does the structure promote integration (and, hence teamwork) or fragmentation (and, hence, individualistic opportunism)?

The formal procedures of the TMO are related to its structure and, similarly, are likely to be subject to significant modification in 'normal' operation – to yield the informal system of everyday functioning. However, the influences of the formal procedures supplement those of the formal structure for fostering or hampering teamwork.

It is apparent that the entire gamut of research results and advice relating to achieving teams and teamwork concerns recognition of interdependence amongst participants and behaviour accordingly. Inevitably, differences exist and so, coordination and integration must be pursued but that must occur within an overt process of ensuring rewards. Whilst extrinsic rewards are important, it is the intrinsic rewards which are fundamental and underpin enduring teamwork and performance. Thus, it is essential to determine intrinsic rewards which are appropriate to all the participants with regard to their cultural underpinnings of moral values concerning equality, equity and needs.

References

Alliance Management International Limited (1999) *Creating Strong Alliances*, http://www.amiltd.com/NewCreating accessed 14 April, 2000.

Anderson Consulting (1999), *Outlook Magazine*, http://www.auburn.edu/~boultwr/Hill_Alliances.htm accessed 21 March 2006.

Bachmann, R. (2001) Trust, power, and control in trans-organizational relations, *Organization Studies*, 22 (2), 337-367.

Baiden, B. K., Price, A. D. F., Dainty, A. R. J. (2006) The Extent of Team Integration within Construction Projects, *International Journal of Project Management*, 24 (1),

13-23.
Baumol, W. J. (1959) *Business Behaviour, Value and Growth*, New York: Macmillan.
Belbin, R. M. (1981) *Management Teams: Why they Succeed or Fail*, Oxford: Butterworth-Heinemann
Buckley, P. J., Casson, M. (1995) A Theory of Cooperation in International Business, In Ghauri, P. N., Prasad, S. B. (Eds.) *International Management: A Reader*, London: Dryden Press.
Burns, T. and Stalker, G.M. (1961) *The Management of Innovation*, Tavistock, 2nd ed., 1968.
Cameron, K. S., Quinn, R. E. (1999) *Diagnosing and Changing Organizational Culture*, Massachusetts: Addison-Wesley Longman.
Chandler. A. Jr. (1962) *Strategy and Structure: Chapters in the History of the Industrial Enterprise*, Cambridge MA.: MIT Press.
Chen, C. C., Meindl, J. R., Hunt, R. G. (1997) Testing the effects of vertical and horizontal collectivism: a study of allocation preferences in China, *Journal of Cross-Cultural Psychology*, 28 (1), 44-70.
Cherns, A., Bryant, D. T. (1984) Studying the client's role in construction management, *Construction Management and Economics*, 2, 177-184.
Construction Industry Review Committee (2001), *Construct for Excellence* (The Tang Report), Hong Kong: The Government of the Hong Kong Special Administrative Region.
Cox, A. (1999) Power, Value and Supply Chain Management, *Supply Chain Management*, 4 (4), 167-175.
Dainty, A.R.J., Bryman, A., Price, A.D.F., Greasley, K., Soetanto, R., King, N. (2005) Project affinity: the role of emotional attachments in construction projects, *Construction Management and Economics*, 23 (3), 241-244.
Das T. K., Teng, B.-S. (1999) Managing risks in strategic alliances, *The Academy of Management Executive*, 13 (4), 50-62.
Eccles, R. G. (1981) The Quasifirm in the Construction Industry, *Journal of Economic Behavior and Organization*, 2(4), 335-357.
Edelman, L., Bresnen, M., Newell, S., Scarborough, H., Swan, J. (2004) The Benefits and Pitfalls of Social Capital: Empirical Evidence from Two Organizations in the United Kingdom, *British Journal of Management*, 15(51), 59-69.
Erez. M. (1997) A Cultural Based Model of Work Motivation, In Earley, P. C., Erez, M. (Eds.) *New Perspectives on International Industrial/Organizational Psychology*, San Francisco: New Lexington Press.
Erez. M., Zidon, I.(1984) Effect of goal acceptance on the relationship of goal difficulty to performance, *Journal of Applied Psychology* , 69(1), 69-78.
Fellows, R. F. (2006) Sustainability: a matter of energy?, *Property Management*, 24 (2), 116-131.
Finlay, P. (2000) *Strategic Management: An introduction to business and corporate strategy*, Harlow: Prentice Hall.
French, J. R. P., Raven, B. (1959) The Bases of Social Power, In Cartwright, D. (Ed,), *Studies in Social Power*, Ann Arbour: Institute for Social Research, University of Michigan.
Furnham, A. (1997) *The psychology of behaviour at work: the individual in the organization*, Hove: Psychology Press.
Gomez, C., Kirkman, B. L., Shapiro, D. L. (2000) The impact of collectivism and in-group / out-group membership on the generosity of team members, *Academy of Management Journal*, 43 (6), 1097-1100.

Grisham, T. (2006) Cross-Cultural Leadership, PhD Thesis (unpublished), Royal Melbourne Institute of Technology.
Handy, C. B. (1985) *Understanding Organisations*, 3rd ed., Harmondsworth, Penguin.
Harris, L. C., Ogbonna, E. (2002) The Unintended Consequences of Cultural Interventions: A Study of Unexpected Outcomes, *British Journal of Management*, 13(1), 31-49.
Herzberg, F., Mausner, B. and Bloch Snyderman, B. (1967) *The motivation to work (2 edn.)*, New York: Wiley.
Higgin, G., Jessop, W. N. (1963) *Communications in the Building Industry*, London: Tavistock Publications.
Hinman, L. M. (1997) *Ethics: A Pluralistic Approach to Moral Theory*, Orlando: Harcourt Brace Jovanovich.
Hofstede, G (1994a) The business of international business is culture, *International Business Review*, 3 (1), 1-14.
Hofstede, G. (1983) The cultural relativity of organizational practices and theories, *Journal of International Business Studies*, 14 (Fall), 75-89.
Hofstede, G. (1994b) *Cultures and organizations: software of the mind*, London: Harper Collins.
Hutton, W. (1996) *The State We're In*, 2nd Edn. London: Vintage.
Hutton, W. (2002) *The World We're In*, London: Little, Brown.
Jarillo, C. J. (1988) On Strategic Networks, *Strategic Management Journal*, 9(1), 31-41.
Latham Sir M. (1994) *Constructing the Team*, London: HMSO.
Lawrence, P. R. and Lorsch, J. W. (1967) *Organization and environment: managing differentiation and integration*, Boston: Division of Research, Graduate School of Business Administration, Harvard University.
Locke, E. A., Latham, G. P., Erez, M. (1988) Determinants of Goal Commitment, *The Academy of Management Review*, 13(1), 23-39.
Macmillan, K., Farmer, D. (1979) Redefining the Boundaries of the Firm, *The Journal of Industrial Economics*, 27(3), 277-285.
Myerson, D., Weick, K. E., Kramer, R. M. (1996) Swift Trust and Temporary Groups, In
Kramer, R. M., Tyler, T. R. (Eds.) *Trust in Organizations: Frontiers of Theory and Research*, Thousand Oaks, CA.: Sage, 166-195.
OED http://dictionary.oed.com/cgi/ accessed 5 December 2006
Organ, D. W. (1988) *Organizational citizenship behavior: The good soldier syndrome*, Lexington MA: Lexington Books.
Polanyi, M. (1958) *Personal knowledge: towards a post-critical philosophy*, London: Routledge and Kegan Paul.
Rokeach, M. (1972) *Beliefs, attitudes and values: a theory of organization and change,* San Francisco: Josey Bass.
Rothschild W.E. (1993) *Risktaker, Caretaker, Surgeon, Undertaker – The Four Faces of Strategic Leadership*, New York: John Wiley and Sons, Inc.
Schein, E. H. (1984) Coming to an awareness of organisational culture, *Sloan Management Review*, 25 (2), 3-16.
Schneider, W. E. (2000) Why good management ideas fail: the neglected power of organizational culture, *Strategy and Leadership*, 28 (1), 24-29.
Scott W.R. (1992) *Organisations: rational, natural and open systems.* Englewood Cliffs. NJ: Prentice Hall.
Sheth, J. N., Parvatiyar, A. (1992) Towards a theory of Business Alliance Formation, *Scandinavian International Business Review*, 1 (3), 71-87.

Thamain, H. J. (2004) Linkages of project environment to performance: lessons for team leadership, *International Journal of Project Management*, 22(7), 533-544.

The Chinese Culture Connection (a team of 24 researchers) (1987) Chinese values and the search for culture-free dimensions of culture, *Journal of Cross-Cultural Psychology*, 18 (2), 143-164.

Tijhuis W. (2004) *Trust and Control in Procurement: Balancing with Two Dimensions in a Collaborative Environment*, Proceedings CIB W092 Symposium Project Procurement for Infrastructure Construction, In Kalidindi, S. N., Varghese, K. (Eds.), CIB Rotterdam and Indian Institute of Technology Madras, Chennai (India); New Delhi: Narosa Publishing House, 191-200.

Trompenaars, F. and Hampden-Turner, C. (1997) *Riding the Waves of Culture: understanding cultural diversity in business (2 edn.)*, London: Nicholas Brealey Publishing.

Tuckman, B. W., Jensen, M. A. (1977) Stages of Small Group Development Revisited, *Group and Organizational Studies*, 2, 419-427.

Vos M., ten Hoopen, J., de Wit, J/ M. A. M., Duivestein, A. T.,.van der Staaij, C. G.,.Smulders, H. J. C., van Beek, W. I. I., Pe, M. (2002) De bouw uit de Schaduw – Parlementaire enquête Bouwnijverheid – Eindrapport, *Final Investigation Report*, Den Haag: SdU-Uitgevers.

Vroom, V. (1964) *Work and Motivation*, New York: Ridley.

Westby, C. E., Ford, V. (1993) The Role of Team Culture in Assessment and Intervention, *Journal of Educational and Psychological Consultation*, 4(4), 319-342.

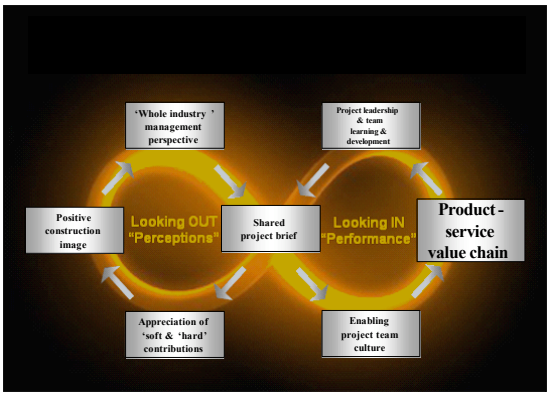
Williamson, O. E. (1975) *Markets and hierarchies, analysis and antitrust implications: a study in the economics of internal organization*, New York: Free Press.

Williamson, O. E. (1985) *The Economic Institutions of Capitalism*, New York: The Free Press.

Yamagishi, T., Yamagishi, M. (1994) Trust and commitment in the United States and Japan, *Motivation and Emotion*, 18 (2), 129-166.

ACHIEVING VALUE THROUGH PRODUCT-SERVICE INTEGRATION: CONTEXTS AND CHALLENGES

Andrew Dainty
Department of Civil and Building Engineering, Loughborough University, United Kingdom.
E-mail: a.r.j.dainty@lboro.ac.uk



Abstract

The management literature is replete with calls for manufacturing and construction firms to integrate services into their core product offering. This, it is argued, provides competitive advantages for the supplier and better value for the customer. In this position paper it is argued that in extending the traditional life-cycle to encompass a potential 'cradle-to-cradle' service, integrated solutions offer the potential to create considerable added value for both suppliers and their customers. Thus, furthering the paradigmatic shift towards product-service integration could provide a potential route for achieving many of the espoused goals of *Revaluing Construction*. However, although theoretically attractive, in construction 'integrated solutions' is currently applied to only a small sector of the market (PFI/PPP) and even then often represents a compromise which falls well-short of what could be achieved through improved integration. This paper problematises the notion of applying integrated solutions to construction as a route to value enhancement. It is argued that the fragmented structure for which the industry is renowned could act as a fundamental barrier to the realisation of product-service integration, and that significant research challenges lie ahead if integrated solutions is to contribute significantly to the *Revaluing Construction* agenda. Fresh case studies are essential for revealing how organisations can position themselves for integrated solutions delivery in a way which redefines the value proposition for themselves and all industry stakeholders.

3.1. Introduction

The remit for this position paper was to examine the product/service value chain, and specifically the information and decision-making framework which develops and integrates the augmented service of design, production and operation through a building's life. In pursuit of this aim, the approach adopted has been to examine the value dimension of construction products *and* services holistically, and in a through-life context. This is timely as many organizations across a number of industry sectors are changing their offering from the supply of physical goods to the delivery of product-service systems. Adopting a through-life perspective on *Revaluing Construction* provides the broadest lens through which to examine ways in which the industry can seek to maximise its value-enhancing activities. However, aspirations to support both physical goods and associated services through-life, and in an integrated manner,

presents a number of fundamental challenges for the industry. The extent to which the industry is positioned to maximise value through the integration of its offerings is questionable, especially given its structural fragmentation and tendencies towards specialisation and product-service differentiation.

This position paper views the potential role of 'integrated solutions' in contributing to the *Revaluing Construction* agenda (Barratt 2005 - hereinafter referred to as *Revaluing Construction*). It juxtaposes the aspirational intent of moving towards through-life product-service integration with the operational realities of the industry as it exists today. It reveals some of the challenges inherent in bundling product-service offerings as a route to delivering better stakeholder value, and contrasts the desire to *move coherently* (sic) on the seven linked aspects alluded to in the *Revaluing Construction* report with the problematic landscape of the construction sector. Many of the ideas which form the basis for the position espoused within this paper have emerged through the author's collaboration in the EPSRC-funded Knowledge and Information Management (KIM) Grand Challenge project. This major interdisciplinary research project is seeking to establish better ways of supporting organisations seeking to operate and thrive within the product-service paradigm. To this end, a diverse collection of academics and a cross-sectoral group of industrial collaborators are working to examine the contexts within which product-service is enacted, the difficulties and tensions which emerge, and the technical and organisational solutions to overcoming the multiple complexities inherent in delivering through-life solutions. The learning that has accrued through research and practice perspectives on product-service has been instrumental in shaping the ideas presented in this position paper and the suggestions for future research.

3.2. Revaluing construction through product-service integration

The shift from product delivery towards through-life service support pervades many sectors and contexts (see Foote *et al* 2001; Davies *et al* 2003; Olivia and Kallenberg 2003). In essence, through-life perspectives view a product's life from its conceptualization through to its retirement or decommissioning, and possibly even into the development of the next generation of the product and associated service. Organizations seeking to transition towards becoming 'solutions providers' must develop capabilities in delivering products and associated services in an integrated manner by passing through three main stages (Van looy *et al* 1998: 34). Initially, the company must possess the capability to manufacture or supply goods. Next, it begins to offer additional services which compliment its product portfolio. Finally, the company practices 'servitization' by marketing different product/service combinations. It is at this stage where opportunities for competitive advantage and added value are likely to emerge as the offering becomes more strategically aligned with customer need.

All industries provide services to some degree, although some have greater service components than others (see Johne and Storey 1998). However, the true integration of product and services within a single offering represents more than a 'bolting-on' of services to represent a blurring of the division between products and services. Customers are beginning to demand the bundling together of the tangible object with an array of intangible services to create 'service-enhanced' products (Lester, 1998: 15). In response, leading providers are shifting away from offering a product or service to becoming customer centric (Brady *et al* 2005a). The primary objective is to serve the customer's needs efficiently and effectively, and to make customer service an integral part of what the customer buys (Levitt, 1972). Within such a paradigm, through-life

value is the key criterion in measuring success and hence, the term 'solutions' has been coined to represent the total product-service offering provided. A key criterion for becoming solutions focused is that the creation of value must be understood through the eyes of the customer (Brady *et al* 2005a). This reverses the traditional view of value creation, which tends to be product-forward in its orientation (Slywotsky and Morrison 1998).

According to Oliva and Kallenberg (2003) the management literature is almost unanimous in advocating that product manufacturers integrate services into their core products. Their review of the literature reveals three key advantages from the perspective of the solutions-focused firm:

- *Financial* – substantial revenues can be generated from an installed asset base with a long life. As well as providing a more stable revenue stream (as they are more resistant to the economic cycles that affect major capital expenditure), services also tend to have higher margins than products.

- *Customer demand* – pressure to downsize and to specialise, coupled to increasing technological complexity, is leading organizations wish to outsource non-core services (such as facilities management). Responding to customer demand means that integrated solutions organizations must develop capabilities in the areas that such companies wish to offload.

- *Competitive advantage* – services are less visible, more intangible and more labour dependent. As such, the are more difficult to imitate which provides significant competitive advantage for solutions providers.

Thus, from a commercial perspective, integrated solutions offers considerable benefits for providers in finding new 'market space' for exploiting their capabilities. However, the customer-centric nature of integrated solutions also offers considerable scope for enhanced value generation. Bundles of products and services can be configured to meet the specific needs of customers by complementing their internal capabilities. As such, the product-service offering can be tailored to customer needs in a way which maximises value for both parties. Through this process, product-service organisations are finding that untapped value is often hidden within complementary products and services, and by defining the total solutions that buyers seek this becomes more apparent and easier to exploit (Kim and Maauborgne, 1999).

The shift towards integrated solutions is well established in sectors such as civil aerospace and defence procurement where 'power by the hour' as a service has challenged traditional engine suppliers to rethink their technology offering (IfM, 2003, Deloitte, 1999). Such approaches have redefined incentivisation structures which now reward relational performance through collaborative working as well as traditional product/service delivery. Thus, companies offering integrated solutions now compete on knowledge rather than cost. To a limited extent, similar trends are also becoming apparent in construction. The emergence of integrated solutions in construction can be traced back to the 1980s and the emergence of Build-Operate-Transfer (BOT) infrastructure projects (Brady *et al* 2005a). More recently however, a prime driver for this change within the UK has been changing procurement policies in the public sector

(HM Treasury, 2000). The emergence of the Private Finance Initiative (PFI) and Public Private partnerships (PPP) has had a substantial effect on the procurement of hospitals, prisons, schools and defence training establishments (cf. HM Treasury 2003, NAO, 2003).

From the preceding discourse it can be seen that product-service literature paints a positive picture of its value adding capabilities. The *Revaluing Construction* report has as one its central pillars the need to view construction in an holistic manner (Barrett 2005: 16). Adopting a whole life-cycle view, it is argued, encompasses multiple supply chain perspectives and covers the full gamut of sub-sectors which make up the industry's operation. Moving from a fragmented multiple stakeholder view towards a shared vision amongst stakeholders is conceptualised through a focus on maximising value-adding (and minimising non-value-adding) activities:

> "A revalued industry will maximise the initial creation of *potential* value in a particular building / project through pre-design and design activities, its *delivery* through construction, *realisation* in use and *synergies* with other developments at the urban level." (Barrett, 2005: 18-19 emphasis as in original).

If it is accepted that the systemic linkages between the stakeholders determine the performance against the 5 Es criteria (Efficacy, Efficiency, Effectiveness, Ethicality and Elegance), then ensuring the best possible integration of activities should ensure the best possible value for all concerned. Thus, maximising the value jointly created by the stakeholders to construction demands the integration of products and services through-life. This is the essence of the integrated solutions business applied to high value capital assets. On the face if it, therefore, integrated solutions looks like a panacea for delivering the core intention of the *Revaluing Construction* agenda – to maximize the value created and its distribution amongst stakeholders. The next section examines subjects this hypothesis to critical analysis by examining how well positioned the construction sector is for exploiting the benefits of this new business model.

3.3. The transition to integrated solutions in construction

Despite its attractiveness as a panacea to product-service, the ultimate realisation of integrated solutions will be determined by the ability of the industry and its organizations to transform their capabilities, structures, cultures, mindsets and positions in the value stream (Brady *et al* 2005b). The transition to integrated product-service delivery through life is not necessarily an easy one. It can take many years to reconfigure and develop the dynamic capabilities necessary to offer products and services in a way which aligns with their customers' diverse and evolving requirements.

Oliva and Kallenberg (2003) suggest that the transition from products to services is predicated on two distinct transformations. Firstly, there needs to be a shift in the nature of interactions with the customer from transaction- to relationship-based. This demands changes in the way that a service is priced to a fixed price covering all services over the term of the agreement. This represents a considerable shift in the allocation of risk in the customer-provider relationship. The second transition concerns the shift in focus of the value proposition from product 'efficacy' (whether the product works) to product 'effectiveness' and 'efficiency' within the end user's process. In the conceptualisation presented within the *Revaluing Construction* report (Figure 3.5, P.16), the locus of interest within the construction coalition shifts to the relationships between

the owner and their contractor and designer. This means that the product (e.g. built asset) becomes only a part of the value proposition. It is incumbent upon the integrated solutions provider to develop their service offering in a way which continually improves the utilisation and effectiveness of the asset. This demands, in turn, that the provider replicates the knowledge management and human resource requirements for the service network. As Oliva and Kallenberg (*ibid*) point out, these transitional requirements represent orthogonal developments with few capabilities synergies. This places considerable demands on any organization wishing to develop in-house capabilities to offer 'solutions' to their customers.

Understanding the extent of the transition required in construction, and the extent to which a shift to integrated solutions might hold the key to maximising the value jointly created for all stakeholders, demands an understanding of the structural and cultural characteristics of the sector which provide the context within which it will be enacted. Although these facets of the industry are well rehearsed, this in no way diminishes their importance to shaping the transition to integrated solutions. The key constraints (as explored by Dainty *et al* 2007), can be summarised thus:

- *Fragmentation* - Whereas most capital goods sectors have consolidated with a few major suppliers and customers and high interdependency, the construction sector remains highly fragmented, dominated by small firms and clients with a low level of interdependency (Brady *et al* 2005b). According to the Small Business Service (DTI, 2005b) small firms in the UK collectively account for over 66% of private sector turnover and almost 83% of the workforce. Clichés about fragmentation hardly do justice to the myriad of small firms operating in virtually every project, which renders the delivery of integrated solutions problematic to say the least. Couple to this structural fragmentation the low trust nature of the sector (Green *et al* 2004) and the low skills equilibrium from which the industry currently suffers (Dainty, 2006) and the socio-economic terrain within which integrated solutions would need to play out looks decidedly problematic.

- *Cyclical demand and structural flexibility of the sector* - Given the sensitivity of non-transportable, durable goods, the construction industry is highly cyclical in its output (Hillebrandt, 2000). The industry is often used as an economic 'pressure valve' to regulate capital investment in relation to the prevailing economic conditions. In response, construction firms continue to place a premium on structural flexibility by outsourcing the majority of their productive capability and retaining a few core managers (see Loosemore, 2003). Although the Government incentivisation of self-employment during the period 1980-95 undoubtedly played on important part in shaping the employment patterns of today (Harvey, 2003), this ingrained mode of operation now pervades the sector, particularly for the larger organizations with the potential capability to move towards integrated solutions.

- *Project-based nature* - The temporary multiple organisation which is formed for virtually every project (see Cherns and Bryant 1984) develops a temporary set of inter-organisational relationships which characterise project-defined interactions stymie the long-term development of social capital or the collective learning which underpins integrated solutions business models in other capital goods

sectors. For most of the workforce, any commitment to the 'customer' is mediated by their total disconnection from the organization procuring the work and a sense of uncertainty regarding which project they will be working on next. Projectification also makes it difficult to achieve the degree of repetition and routinisation achieved in other industries (Bresnen and Marshall, 2001).

This contextual backcloth suggests a problematic context for transitioning to, and then enacting, integrated through-life solutions. Change in this context will be difficult to engender and the process of becoming customer-centric is likely to be lengthy and painful (Davies *et al* 2003). This is not to infer that the structure of the industry is immutable, but attempts to impose change usually result in resistance (see Bresnen and Marshal, 1998). It would appear, given this context, that construction is some way off being able to exploit the espoused advantages of integrated solutions in a way which delivers mutual benefits and enhanced value for industry participants and its customers.

3.4. Towards the realisation of integrated solutions as a route to higher value

The preceding discourse has presented the attractive 'square peg' concept of integrated solutions, with its capabilities to add value through systems integration, and has juxtaposed this against the 'round hole' of the construction sector with its structural fragmentation and ingrained culture which act as barriers to process interoperability. The questions remains, therefore, as to how construction firms can reposition themselves in the value chain by integrating their product-service offering and meeting their customers requirements? The limited literature on the early attempts at developing integrated solutions within the sector do not show a high rate of success. For example, the first wave PFI projects have been largely ineffective in realising the espoused benefits in terms of risk management, appropriate pricing and quality services (Akintoye *et al* 2003). Organizations have been shown to struggle with the issue of whether to preserve or forsake their traditional strengths in product or service provision as they transition to become an advanced integrated solutions provider (Brady *et al* 2005a). Many contractors in the PFI market merely sell on their concessions or outsource most of their through-life capabilities.

If, as has been argued in the paper, achieving better value is predicated on the integration of products and services, then the industry must accelerate its transition toward product-service integration to focus on the configuration of bundles of practices to meet the specific needs of the customer. Any company seeking to thrive in this new marketplace must develop the capacity to learn and evolve continually as customer needs, and conceptualisations of value, change. According to Davies (2004) and Brady *et al* (2005a), the new capabilities required coalesce around four areas, namely: Systems integration (the capability to integrate internally and/or externally developed components into a functioning system); operational service capabilities (maintaining and operating products through-life), business consulting capabilities (advising customers on how to build and maintain a system) and financing capabilities (to advise customers on how they can purchase and manage their installed asset base of high-cost capital assets). A core challenge here, as Brady *et al* recognize, is how organizations maintain their traditional strengths whilst developing new ones. Organizations face a continual challenge in attempting to reconcile the need to develop new capabilities with the need to retain a focus on their existing core business. For the industry as a whole, the challenge would seem to be how it maintains a focus on delivering value through its

traditional practices, whilst simultaneously transitioning to a new paradigm of operation. In order to address this challenge construction organizations must focus on both halves of the Revaluing Construction agenda. They must look in to establish how they can deliver solutions more effectively, and look out at how this value is perceived by external stakeholders.

3.5. Conclusions and research implications

This position paper has argued that construction needs to consider the cumulative value-adding dimension that the integrated product-service model provides if it is to deliver on the *Revaluing Construction* agenda. In principle, a shift towards product-service delivery (e.g. through PPP and PFI) enables a tailored, value-enhanced solution to be provided which has the potential to benefit all stakeholders. The potential for the capture and re-embedding of knowledge also offers the potential for better through-life value to the customer. However, although theoretically attractive, it has been argued that the fragmented structure for which the industry is renowned could act as a fundamental barrier to the realisation of product-service integration. The industry remains at a very early stage of its development of integrated solutions (Brady *et al* 2005b) and significant research challenges lie ahead if integrated solutions is to contribute significantly to the *Revaluing Construction* agenda.

At the centre of any future strategy to move towards integrated solutions as a route to higher value must be a commitment from the research community to engage with and contribute to the debate on strategies for achieving this transition. In this respect, the research priorities articulated within the *Revaluing Construction* report are fundamental to furthering understanding of how the industry can transition to a product-service mode of operation. Future research should develop information and decision-making frameworks which develop and integrate the augmented product-service offering through the built asset's life. The development of such frameworks should be predicated on the co-production of knowledge between researchers and practitioners if they are to have purchase within the industry for which they are designed. These would need to enable an assessment to be made of the extent to which the industry is positioned to maximise value through the integration of its product and service offerings. The research agenda presented in Revaluing Construction (2005: 67) provides an appropriate framework in this regard. Case studies will be crucial for revealing how organisations can position themselves for integrated solutions delivery. It is essential that these focus on the delivery of product-service through the lens of the customer (looking out at perceptions) as well as 'looking in' at their own performance.

Acknowledgements

As was mentioned above, the inspiration for many of the opinions expressed within this paper has been the author's involvement with the EPSRC-funded KIM Grand Challenge research project. This project is seeking to establish the requirements of new inter-organisational governance structures for through-life performance-based procurement approaches, the mechanisms necessary for propagating high commitment management and effective organisational learning in support of product-service modes of working; and the decision-support requirements for in improving the quality of delivery throughout the product life cycle. These represent key challenges barriers which confront all industries seeking to profit from the product-service shift. I would like to

express my gratitude to the academic team involved in this project, and particularly those involved in Work Package 3.

References

Akintoye, A., Hardcastle, C., Beck, M., Chinyo, E. and Assenova, D. (2003) Achieving best value in private finance initiative project procurement. *Construction Management and Economics*, Vol.21, 461-470.

Barrett, P. (2005) *Revaluing Construction: A Global CIB Agenda*. International Council for Research and Innovation in Building. Rotterdam, The Netherlands.

Brady, T.. Davies, A. and Gann, D.M. (2005a) Creating value by delivering integrated solutions. *International Journal of Project Management*. Vol. 23, 360-365.

Brady, T., Davies, A. and Gann, D.M. (2005b) Can integrated solutions business models work in construction? *Building Research and Information*. Vol.33(6), 571-579.

Bresnen, M. and Marshall, N. (1998). 'Partnering strategies and organisational cultures in the construction industry', in W. Hughes (ed.), *Proceedings*, ARCOM 14th Annual Conference, University of Reading, 9-11 September 1998, Volume 2, pp. 465-76.

Bresnen, M. and Marshall, N. (2001) Understanding the diffusion and application of new management ideas in construction, *Engineering, Construction and Architectural Management*, Vol.8(5/6) 335-345.

Bresnen, M.J., Goussevskaia, A. and Swan, J. (2004) Embedding New Management Knowledge in Project-Based Organizations. *Organization Studies*, Vol.25(9), 1535-1555.

Cherns, A. B. and Bryant, D .T. (1984) Studying the client's role in construction, *Construction Management and Economics*, Vol.2, 177-84.

Dainty, A.R.J. (2006) Construction Labour Markets Guest Editorial, *Construction Information Quarterly*. Vol.8, Issue 3, pp118, CIOB.

Dainty, ARJ, Green, SD and Bagilhole, BM (2007) People and Culture in Construction: Contexts and Challenges. In *People and Culture in Construction: A Reader* (Dainty, ARJ, Green, SD and Bagilhole, BM Ed.s). Taylor and Francis, Oxon: 3-25.

Davies, A. (2004) Moving base into high value integrated solutions: a value stream approach. *Industrial and Corporate Change*, Vol.13(5), 727-756.

Davies, A., Brady, T. and Tang, P. (2003). *Delivering Integrated Solutions*. SPRU-CENTRIM, Brighton.

DTI (2005b) *Small and Medium-sized Enterprise (SME) Statistics for the UK*, Department of Trade and Industry, London.

Foote, N.W., Galbraith, J., Hope, Q. and Miller, D. (2001) *Making Solutions the Answer*. McKinsey Quarterly, Vol.3, 84-93.

Green, S.D., Newcombe, R., Fernie, S. and Weller, S. (2004) *Learning Across Business Sectors: Knowledge Sharing Between Aerospace and Construction*, University of Reading, Reading.

Harvey, M. (2003) Privatization, fragmentation and inflexible flexibilization in the UK construction industry, in *Building Chaos: An International Comparison of Deregulation in the Construction Industry* (Eds. G. Bosch and P. Philips), Routledge, London, pp188-209.

Hillebrandt, P.M. (2000) *Economic Theory and the Construction Industry*, 3rd edn.,

Macmillan, London.

HM Treasury. (2000) *Public Private Partnerships: The Governments Approach*. The Stationery Office, Crown Copyright 2000, London.

HM Treasury. (2003) *PFI: meeting the investment challenge*. The Stationery Office, Crown Copyright 2003, London.

IfM (2003) *Living without production, if we can*. Cambridge Manufacturing Review, Summer, Institute for Manufacturing, University of Cambridge.

Johne, A., and Storey, C. (1988) New Service Development: A Review of the Literature and Annotated Bibliography. *European Journal of Marketing*, 32(3/4): p. 184-251.

Kim, W.C and Mauborgne, R. (1999) Strategy, Value Innovation, and the Knowledge Economy, Sloan Management Review.

Lester, R. (1998) The Productive Edge – How US Industries are Pointing the Way to a New Era of Economic Growth. New York: Norton.

Levitt, T. (1972) Production-line approach to service - Harvard Business Review. NAO (2003) *New IT systems for Magistrates' Courts: the Libra project*, HC 327 Session 2002-03. The Stationary Office, London.

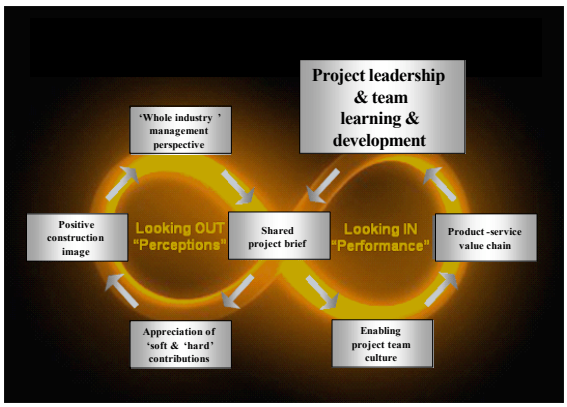
Loosemore, M, Dainty ARJ and Lingard, H (2003) *HRM in Construction Projects: Strategic and Operational Approaches* . Spon Press, London.

Oliva, R. and Kallenberg, R. (2003) Managing the transition from products to services. *International Journal of Service Industry Management*, 14(2), 160-172.

Slywotsky, A. and Morrison, D.J. (1998) *The profit zone: how strategic business design will lead you to tomorrow's profits*. Wiley, Chichester.

van Looy, B.,Van Dierdonck, R. and Gemmel, P. (1998) *Services management: an integrated approach*, Pitman, London.

PROJECT NETWORKS: LEADERSHIP, LEARNING, AND DEVELOPMENT



Paul S. Chinowsky
Department of Civil, Environmental and Architectural Engineering, University of Colorado at Boulder, United States of America.
E-mail:paul.chinowsky@colorado.edu

John E. Taylor
Department of Civil, Architectural and Environmental Engineering, University of Texas at Austin, United States of America.
E-mail: jetaylor@mail.utexas.edu

Abstract
The delivery of construction projects requires a coalition of individuals and organizations that each brings a set of skills and knowledge to the network with the intent to develop solutions that provide value for the client. These coalitions of individuals and organizations are dependent on each member of the team sharing a vision that the success of the team is the top priority during the execution of the project. However, rapidly changing internal and external forces are continually challenging construction networks as they attempt to develop innovative client solutions. Although a singular response to these emerging challenges does not exist, the foundation for these networks to succeed is built on capable leadership that motivates teams to innovate, adapt, and learn on a continuous basis. This paper presents an overview of how leadership, learning, and network development can lead to greater innovation and enhanced team performance with a focus on enhancing the rewards for each network member. The connection between leadership and innovation is presented in a context that revalues construction based on building human capacity to address the drivers that will lead to enhanced performance through shared vision and enhanced knowledge and attitudes.

4.1. Introduction
Maximizing the value created by stakeholders and the equitable distribution of the resulting rewards needs to be a fundamental interest of all parties involved in a construction effort. However, this holistic view of construction can often get overshadowed by daily project requirements and schedules. Retaining a holistic perspective requires the individuals and organizations working together on the project to recognize a common goal and to coalesce into a coalition that emphasizes the project as the central focus to maximize value and rewards (Barrett 2005). This coalition must place these common goals above individual needs to obtain a benefit that although it may not be a maximum benefit for each member of the network, remains a positive conclusion for the maximum number of network members. This is the essence of a team-based endeavor. Each member of the team receives a benefit in return for placing

the needs of the team above individual concerns. For construction projects, this concept of tradeoffs in return for overall return is a fundamental basis of project success. Specifically, each member of the team must understand that project stakeholders will not succeed without a shared vision of the potential for collective success of the network. Achieving this understanding is the essential component of meeting the Revaluing Construction intent of evolving knowledge and attitudes.

The challenge to evolve knowledge and attitudes in the construction industry is one that can lose focus due to conflicting demands. As documented in this paper and others, concerns regarding safety, training, and technology often overshadow the need to emphasize the collective need to enhance the overall construction process. It is often perceived that enhancing value in the construction process is related to the ability of a firm to adopt "best practices" (Gratton and Ghoshal 2005). This perspective emphasizes the thought that localized optimums will eventually combine to form an overall increase in the firm. Unfortunately, this perspective fails to acknowledge the need for individuals to understand and recognize the value of the overall project network to the overall success and value of the project. The challenge to the construction industry is how to advance both the need for individual organizations to increase their perceived value to the owner and the need for organizations adopt a learning approach that emphasizes the value of a holistic approach to construction.

Successfully responding to the changes in team dynamics requires a greater understanding of team management both in terms of inter- and intra-organizational teams. Team leadership, learning and development are affected by stakeholders and drivers that feed into the project process from throughout the product-service value chain. The ability of leaders to address conflicting drivers within the context of the project coalition will result, or feed out, into the shared project belief that is the foundation of project success. In terms of inter-organizational coalitions, an understanding of how the complementary skills and perspectives that individuals from different organizations bring to a project can be leveraged into enhanced production and novel solutions is essential to focusing on project network collaboration rather than network conflict. In terms of intra-organization teams, an understanding of how the concept of an organization is changing due to globalization, mergers, and employee turnover, is essential to understanding how leadership underlies the successful motivation of the project network to adopt a shared vision.

This paper addresses these changes in project network dynamics within the context of the need to move the industry toward a greater focus on value, mutual reward, and holistic perspectives. We begin by examining the previous research and recent developments in project networks as related to leadership, innovation and learning. We then discuss the need for leadership in organizations and across project networks to encourage and support learning. Finally we discuss perspectives on leadership development in construction as a basis for enhancing the development of new attitudes and innovations.

4.2. Background

The topic of teams and networks is an established field of research within many domains. In this paper, the role of teams is placed in the context of responding to the need for a new perspective in the construction industry that values coalitions over individual objectives. This context focuses on three key components of team

development; organizational learning, learning in project networks, and leadership.

Learning in organizations

The fundamental basis for investigating the benefits of learning within inter-organizational teams is the requirement to continually enhance organizational learning to remain competitive within a rapidly changing construction industry. Research within this domain divides learning into two distinct categories. Essentially, learning is categorized based on when and why it takes place and the effect that it has on those who are learning. The first type of learning can be thought of as incremental learning in which knowledge is gained in a piecewise manner as it becomes a necessity while the second is a dynamic process of continual learning in which knowledge is proactively sought out before it becomes a necessity.

A frequently cited categorization of learning is the division of learning into two separate categories: adaptive and generative (Senge 1990). Adaptive learning is a company's method of reacting to a dynamic work environment so that a company making use of only adaptive learning remains stagnant in its knowledge until it is forced by some new experience to adjust. Contrastingly, generative learning *enhances our ability to create* (Senge 1990). In this sense, generative learning is inspired by the possibility of change in the future while adaptive learning is imposed by actual change in the present. Clearly, the challenge to revalue construction and significantly alter global attitudes concerning construction is going to require a generative approach to learning that emphasizes constant adaptation by both construction personnel and organization leaders.

Learning in project networks

Firms are increasingly adopting network forms of organization both within (Powell, et al. 2005) and across (Pekar and Allio 1994) industries. Over the last two decades, a stream of research has emerged to explore the nature of these network forms of organization. In inter-organizational project networks, groups of two or more firms work together in the interdependent production of goods or services (Powell 1990). These networks were first identified by Eccles (1981) where he observed relations between different specialist firms as being stable and continuous over fairly long periods of time in the Massachusetts homebuilding industry.

Difficulties in inter-organizational learning are compounded in the construction industry due to the conflicting forces driving both efficiency and novelty learning. This conflict is illustrated through a scenario where two organizations combine for the first time within a project network. In the scenario, Company A has worked with the owner and several of the primary subcontractors on four previous occasions. Company B is new to the network and this is the first time they have worked for this owner. Traditionally, this scenario would have strongly emphasized efficiency learning where Company B is pressured to learn the practices of Company A on the premise that repetition of processes will result in higher efficiency and lower costs. However, this assumption may not be valid in the changing construction environment. Specifically, the new forces acting upon projects and business require Company A to take a strong look at Company B to determine if a non-repetitive, or novel, approach may be better suited for the network at this time. The ability to analyze this decision and alter the traditional perspective of efficiency versus novelty learning is a principal requirement in developing a new value perspective rather than retaining the current perspective on

efficiency and individual task completion.

Leadership

The ideas and theories surrounding leadership have evolved throughout pivotal time periods in history. Through this evolution, many theories of leadership have evolved and many components describing leadership have been put forth. The authors have previously put forth their focus on leadership by focusing on the building of leaders through incremental steps of increased responsibility. Rather than initially placing an almost exclusive focus on technical responsibilities, it is important to start preparing future organization leaders from the early stages of their careers through exposure to organization concerns and responsibilities. In this focus, the concept of leadership focuses on leaders taking responsibility for understanding and implementing components of the strategic plan to achieve strategic management success. Through this strategic focus, leaders will build an appreciation of the positive and negative periods that every organization endures during standard operating processes (Chinowsky and Meredith, 2000).

The trend toward a rapid change from project management roles to leadership responsibilities continues in the construction industry. However, this focus on rapid career change at senior positions brings to focus the question of how the next generation of construction leaders can simultaneously learn the demands of leadership while guiding the organization toward a position of perceived increase in value.

4.3. Developments in learning in a construction context

The core of team dynamics is the interaction of the individuals in the team or coalition. Whether the individuals are in a project team or in an organization team, the ability of the individuals to integrate their specialties into a high-performing team is a primary objective of the revaluing construction agenda. A fundamental step required to achieve this performance is the ability of the team to learn both from sources throughout the project coalition. The following two sections highlight the underlying factors that are essential for making this change from a best-practice focus to a coalition and value focus; 1) the relationship between team learning and innovation, and 2) the development of a learning organization culture within construction organizations.

Inter-organizational teams and innovation

Learning is a key organizational and inter-organizational competence. In addition to productivity gains associated with learning, the ability of an organization or coalition to learn is directly reflected in its ability to innovate. Given the need to develop innovative methods to address the drivers for revaluing construction, the competitive advantage of firms and networks in today's construction environments rests to a large extent on their ability to learn and innovate. The ability to identify, adopt, and implement innovations in a coalition environment will be a key differentiator for inter-organizational teams and a key component toward achieving mutual rewards.

Researchers of the network form of organization have studied the economic (Eccles, 1981; Williamson, 1975, 1985) and sociological (Granovetter, 1985; Powell, 1990; Uzzi, 1997) foundations of this form of organization. Though there is general agreement among researchers that organizing into networks or coalitions leads to improved performance (Gulati, 1995; Hamel, 1991; Powell et al., 1996), only a handful of studies discuss the implications of the networked organizational form for innovation.

Gann and Salter (2000), in a study of building construction, identify broken learning and feedback loops that slow the ability of inter-organizational teams to adopt innovations. Taylor and Levitt (2004) also identify issues with learning in inter-organizational teams and find that the instability of team composition from project to project greatly inhibits learning and, hence, adaptability to innovations. The authors expanded this in later research to highlight a key factor in understanding why inter-organizational teams may be more adaptable to some innovations than others.

Innovations that span organizational boundaries (Taylor, 2006; Taylor and Levitt 2005) face a set of moderating implementation factors that make innovation adaptation efforts difficult. Innovations that do not span organizational boundaries diffuse rapidly according to well understood organizational innovation factors. However, those innovations that span boundaries can create a learning disability in inter-organizational teams due to changing team composition, inflexibility when work must necessarily be redistributed across boundaries as a result of the innovation, and argumentation over the appropriate sharing of risks and rewards associated with the innovation.

The reality of project-based work in the construction industry is that a multiplicity of specialist firms must work together in inter-organizational teams to execute the work and meet the specified deliverable. The level of vertical integration required to complete even a low complexity construction project today is beyond the financial grasp of most firms. However, 'systemic' innovations (Taylor and Levitt, 2004) that span organizational boundaries have the potential to significantly increase productivity, profitability, and competitive advantage for construction firms. Faced with the reality of the interdependent nature of the work, we must identify strategies that inter-organizational teams can implement to improve innovation adoption and implementation processes.

Research suggests (Taylor, 2006; Taylor and Levitt, 2004, 2005) that resolving boundary issues can facilitate adaptation to innovations in project networks. Teams can address compositional changes from project to project by making efforts to partner with other organizations that are impacted by a boundary spanning change. This reduces the impact of cross-boundary learning processes and enables inter-organizational teams to rapidly achieve the productivity benefits of a systemic innovation. Inter-organizational teams can foster alignment of shared interest by arranging open discussion forums where various stakeholders are able to express the impact a seemingly insignificant change in process may be having on their business. Inter-organizational teams that address the change requirements across organizational boundaries and equitably distribute the risks and rewards of innovations will achieve implementation success sooner and achieve the collaborative approach to coalitions that results in greater perceived value to the stakeholders.

Learning organizations

The ability to enhance teams and inter-organizational team collaborations begins with a focus on learning within the organizations from which the teams are composed. Although short-term gains can be obtained from focusing on providing new skills to specific teams, fundamental change and enhancements can only occur when the supporting organization adopts an approach to learning that maximizes the capacity of the workforce to achieve innovative solutions. Therefore, a move toward a learning

organization culture is required to support a learning environment that builds on human resource capacities to improve coalition capabilities. The support for this move is well documented by researchers both within and outside the business domain (Goh 1998; McGill et al., 1992; Stata 1989). Primary among these drivers is the emergence of the Knowledge Era as the new model for an organization employee (Drucker 1993). Today's economy is moving toward the knowledge era where the manipulation and application of knowledge takes primacy over the production of components. In parallel with this transformation is the emergence of the knowledge worker who is expected to understand how to apply knowledge in unique scenarios and with greater imagination and efficiency.

The emergence of this Knowledge Era and the expectation for more creativity in solutions is creating the need for the learning organization as a basis for supporting effective teams. The evolution to a learning organization has been defined by the authors as a five-level approach with each level representing a stage of development towards a mature learning organization concept (Chinowsky and Molenaar 2005). Each level is defined as an organization having completed the implementation of specific concepts. As an organization achieves the complete range of implementation levels for each cell, the organization is considered to have achieved that level of learning organization maturity.

Level 0: At Level 0 it is assumed that the organization is just beginning the transformation to a learning organization concept. It is thus considered the base layer where all organizations begin. Although some activity may be occurring in individual maturity cells, the transition to a Level 1 organization is still occurring.

Level 1: A Level 1 learning organization is focused on establishing the leadership required to move the organization toward a learning organization concept. The idea that leadership is required to move the organization forward, starting from an individual level is represented by the matrix completion evaluations. Additionally at this level, the organization will begin addressing the processes and infrastructure that will be required to implement the knowledge sharing concept that is a key component of a learning organization.

Level 2: A Level 2 organization has completed the leadership transformation as well as the individual and community levels of process and infrastructure development. Additionally, the Level 2 organization is actively addressing the communication aspects of learning and the initial stages of education and culture change at the individual and community levels. At this stage, the organization is actively moving toward and supporting a new focus on knowledge sharing and open communication.

Level 3: A Level 3 organization is distinguished by its full implementation of organization-wide processes to support learning as well as a new focus on the learning culture at the individual and community levels. Learning is no longer viewed as a necessary human resources requirement, but is viewed as an integral part of an individual's job and career.

Level 4: The Level 4 organization has almost achieved full learning organization maturity. Communication and sharing are now part of the corporate culture and standard operating procedures. Leadership is championing learning throughout the

organization and at all levels. Additionally, the culture now reflects the strong focus on learning at the community and individual levels with the organization now focusing on moving that culture throughout the organization.

Level 5: The Level 5 organization has achieved maturity in the learning organization model. Each level has adopted the complete range of learning organization characteristics and the learning organization culture now characterizes the organization.

4.4. The need for leadership to encourage and support learning

The move to a greater focus on team collaboration, organizational learning, and innovative approaches to construction solutions begins with the support of leaders who are committed to the ultimate success of the team. These leaders can be either organization-level leaders or project-level leaders. It is the role of these leaders to provide opportunities for success by motivating the teams to bring new knowledge, processes, and perspectives to a given task. In this section, the relationship between leadership and teams is explored both in terms of the emerging challenges for team leaders and the need for leaders to actively support project networks.

Leadership perspectives

Leading a team, either at the project level or the organization level, requires a leader to understand the challenges facing the team. Specifically, for the leader to take a proactive role in preparing the team to display greater value to the stakeholders, the leader must first understand emerging challenges. In this context, the team leader must be proactive in identifying, understanding, and learning about the underlying cause and effect of emerging drivers towards revaluing construction.

In one effort to identify these challenges, the authors surveyed construction executives to identify the issues that will require a proactive response by individuals in leadership positions at all levels of the organization. Similar to the five-country survey developed by CIB W092, the participants were asked to fill out surveys to provide insights into their own career, their concerns for the next generation of industry leaders, and their thoughts on the challenges for the industry in the near future. The industry perspective study documents the responses in relation to; 1) attributes of leaders, and 2) the primary challenges facing the industry. From the requests presented, 140 surveys were completed. In the response group, there were 14 females and 126 males with the average age being 50.9 years.

Attributes of leaders

The first area of interest focused on what participants believed were the most important attributes of a leader in terms of leading a team or an organization. The respondents were given the opportunity to enter three traits in rank order (Table 4.1.). The respondents believe strongly that the three most important traits of a leader are: 1) integrity, 2) the ability to interact with others either through communication or interpersonal relationships, and 3) the ability to set a corporate vision. The first of these responses, integrity, received significant response both in terms of standard expectations and an increasing concern over integrity in the corporate environment. This latter element became evident based on comments from the respondents, where increasing concern over the perceived integrity of business is believed to be a major issue for the next generation of leaders.

The second leadership attribute, communication, is a standard in leadership surveys, with organization leaders consistently recognizing this trait as a key to successful team development and performance. However, communication is becoming increasingly important as construction leaders begin to understand that issues such as coalition building are requiring additional communication skills to retain team performance levels.

The final leadership attribute, vision, is a belief that having a team leader who is visionary and can set long-term strategic goals is essential for the success of an organizational team. While this is an essential component of leadership, it is also an indicator that "softer" issues such as vision need to be given a greater emphasis in personnel development.

Table 4.1. - Essential leadership traits as identified by survey participants.

Trait	1st Trait	2nd Trait	3rd Trait	Total Points
Integrity	48	27	14	335
Vision/Goals/Change	34	22	25	261
Interpersonal Skills	23	55	65	345
Communication	17	21	21	169
Other	8	2	5	51
Experience/Competence	6	9	6	63

Industry challenges

The second area of concern for leadership is the preparation that leaders receive for addressing emerging, not just traditional, team challenges. Table 4.2.illustrates responses for this point through the question of, "What do you consider the biggest 'overall' challenge facing the engineering-construction industry in the next 10 years? The participant responses demonstrate a strong focus on leadership and workforce challenges. The principle challenges of lack of quality personnel, attracting talent, aging workforce, workforce issues, and training indicate both a need for leadership and personnel development. Specifically, the predominance of workforce issues is not isolated to labor, it includes the shortage and need of mid and senior level leadership training. This response corresponds to previous findings in the industry in relation to labor demands (Preistland and Hanig 2005).

Of particular interest for the development and support of teams with the capacity to revalue construction projects, is the concern over the quality of people available to the construction industry. A team can only perform to the capacity level of the individuals who are members of the team. Industry leaders made it clear that concerns exist over the availability of personnel who possess both strong leadership characteristics as well as motivational skills. As related to team development and learning, the survey respondents are concerned that individuals who are motivated to excel within leadership or team roles as identified by the attributes identified in part 1, may not be available to the industry in the numbers required to build competitive teams.

Table 4.2. - The biggest challenges facing the construction industry and new industry leaders

Biggest Challenges	
Challenge	Responses
Lack of Quality People	35
Attracting Talent	18
Globalization	16
Aging Workforce	15
Workforce Issues	13
Change/Transition	7
Teamwork/Communication	6
Training	6
Capable Workforce	5
Education	5
Costs	3
Politics	1

4.5. Leadership development

The need to enhance leadership, learning, and team development within the construction industry ultimately arrives at the need to enhance the leadership development process. The focus on leadership development is a concept that has been written about frequently in the last several years (Badger and Smith 2006). In the construction industry, leadership development is receiving increased attention due to the concern that construction education and career development programs do not emphasize human capital capacities and the need to focus on broad, or holistic, perspectives of construction projects. With the engineering and management education process rooted in its 1960s origins, the focus of university programs is on enhancing specialized knowledge and skills for the construction workforce. However, this paradigm does not match the requirements for organization and team leaders who are attempting to revalue construction.

The current education focus is too narrow, placing too much emphasis on the construction planning and execution phases, rather than developing broader concerns such as team leadership. Similarly, the majority of career development programs emphasize the enhancement of skills or the reinforcement of company procedures rather than the introduction of new knowledge or innovations. Reinforcing this focus on technical expertise is the career development timeline. Specifically, career development often emphasizes a long-term focus on technical specialization before organizational concerns are introduced (Chinowsky and Meredith 2000).

In addition to the need for broader leadership development at the university level, the increasing emphasis on team development impacts career development. The move to a greater emphasis on organizational and inter-organizational coalitions requires construction professionals to continue their education beyond the realm of the university. The diversity and breadth of issues associated with emerging industry issues requires professionals to actively pursue education throughout his or her career. The realization of this fact requires companies to alter their perspective on career development to acknowledge the importance of maximizing human capital. Although this perspective exists sporadically in the construction industry, it is far from prevalent.

To successfully change this established career development pattern and address the increasing need for team leaders, career development, from university education through professional personnel development, requires a greater emphasis on balancing the introduction of broader industry issues with the enhancement of technical skills (Chinowsky and Songer 2003). Leaders require an understanding of how to balance the increasingly disparate and specialized views expressed within the context of a project network. Specifically, internal project views from architects, financiers, risk specialists, engineers, and owners must be balanced with societal and global concerns within the context of the project timeframe. However, the manner in which this goal is achieved can take many paths including confrontational approaches, coordinated approaches, and balanced approaches among others. Career development must emphasize the introduction of communication, psychology, and sociology principles that will provide leaders with the tools to understand how and when to integrate these diverse demands and what approach is appropriate to weave these perspectives into a unified set of goals and directions.

4.6. Future research agenda

In this paper we have examined the issues project coalitions in construction face with regards to leadership and learning. We described past and on-going research efforts focused on these issues, however, there is still much more research to be done in this area. We lack research that links leadership and learning in construction project coalitions. Research on the construction industry has identified leadership as impacting learning. Researchers should examine this relationship in more detail to understand; 1) what types of leadership produce the strongest learning capabilities and human capacity enhancement, 2) whether in some instances leadership can be a replacement for learning, and when leadership that is too strong might impede learning, and 3) we should also examine learning at a more nuanced level to research how leadership impacts different kinds of learning. Researchers have described learning as being explorational/adaptive or exploitational/repetitive. The question of how leadership impacts these different kinds of learning should be investigated. Research that examines the linkage between learning and leadership should be; (1) empirical in order to qualitatively define the relevant constructs and quantitatively define the relationship among the constructions and (2) computational in order to examine a range of scenarios that can model and predict idiosyncratic project scenarios not described by the empirical research.

4.7. Conclusion

The development of project coalitions that have the capacity to perform at superior levels has been a topic of interest for management researchers for decades (Katzenbach and Smith 2005). Today, this interest in teams is directly relevant to the construction industry. With drivers emerging from multiple sectors such as technology, society, globalization, and demographics that each impact the industry, the need for personnel that have the capability to address these issues and integrate them into successful project and organization solutions is paramount. The foundation of this need is the requirement for leaders who have the ability to concurrently motivate a team to develop successful solutions and put in place the plans for successful innovation adoption. The development of these leaders and the support of high performing teams is a primary challenge for the construction industry.

As outlined in this paper, the successful introduction of project coalitions that have the motivation to learn, work in inter-organizational environments, and address broad issues requires a change in career development perspectives. Specifically, the development of high-performance teams within the construction industry starts with the successful career development path of individuals. Each member of the team must have the opportunity to obtain new knowledge that invites opportunities for leadership development, innovative solutions, and the desire to continue knowledge acquisition. It is only through these opportunities that the evolution of knowledge and attitudes that is at the core of revaluing construction can commence.

References

Afuah, A. 2001. Dynamic boundaries of the firm: Are firms better off being vertically integrated in the face of technological change? *Academy of Management Journal* 44(6) 1211-1228.

Ahuja, G. 2000. Collaboration networks, structural holes, and innovation: A longitudinal study. *Administrative Science Quarterly* 45(3) 425-455.

Badger, William and Smith, James (2006). "Building Leadership Skills and Traits: The Critical Faculty Enabler," P*roceedings of the Second Specialty Conference on Leadership and Management in Construction*, Grand Bahama Island, May 2006, CIB.

Chinowsky, Paul S. and Meredith, James E. (2000). "Strategic Management in Construction," *Journal of Construction Engineering and Management*," 126(1), 1-9, American Society of Civil Engineers.

Chinowsky, Paul S. and Molenaar, Keith R. (2005). "Learning Organizations in Construction," P*roceedings of the 2005 Construction Research Congress, San Diego, CA*, ASCE.

Chinowsky, Paul S. and Songer, Anthony (2003). *Planning Meeting on the Construction Professional 2020*, National Science Foundation.

Drucker, Peter F. *Post-Capitalist Society.* Harper Business, 1993.

Eccles, R. 1981. The quasifirm in the construction industry. *Journal of Economic Behavior and Organization* 2(4) 335-357.

Gann, D., A. Salter. 2000. Innovation in project-based, service-enhanced firms: The construction of complex products and systems. *Research Policy 29*(7-8) 955-972.

Goh, Swee C. (1998). "Toward a Learning Organization: The Strategic Building Blocks." *Advanced Management Journal*, 63(2).

Granovetter, M. 1985. Economic action and social structure: The problem of embeddedness. *Administrative Science Quarterly* 91(3) 481-510.

Gulati, R. 1995. Social structure and alliance formation patterns: A longitudinal analysis. *Administrative Science Quarterly* 40(4) 619-652.

Hall, P., D. Soskice. 2001. *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. Oxford University Press, New York.

Hamel, G. 1991. Competition for competence and inter-partner learning within international strategic alliances. *Strategic Management Journal* 12(Summer Special Issue) 83-103.

Katzenbach, Jon R. and Smith, Douglas K. (2005) "The Discipline of Teams," *Harvard Business Review*, July 2005.

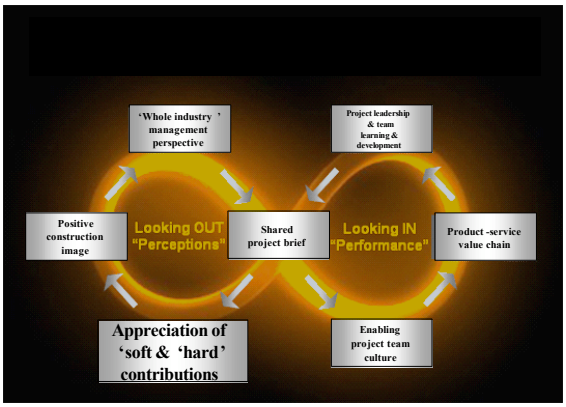
Lampel, J., J. Shamsie. 2003. Capabilities in motion: New organizational forms and the reshaping of the Hollywood movie industry. *Journal of Management Studies* 40(8) 2189-2210.

McGill, Michael E., Slocum, John W. Jr., and Lei, David (1992). "Management

Practices in Learning Organizations." *Organizational Dynamics*, 21(1), 4-17.
Pekar, P., R. Allio. 1994. Making alliances work: Guidelines for success. *Long Range Planning* 27(4) 54-65.
Powell, W. 1990. Neither market nor hierarchy: Network forms of organization. *Research in Organizational Behavior* 12 295-336.
Powell, W., K. Koput, L. Smith-Doerr. 1996. Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly* 41(1) 116-45.
Powell, W., D. White, K. Koput, J. Owen-Smith. 2005. Network dynamics and field evolution: the growth of interorganizational collaboration in the life sciences. *American Journal of Sociology* 110(4) 1132-1205.
Priestland, Andreas and Hanig, Robert (2005). "Developing First-Level Leaders," *Harvard Business Review*, June 2005.
Senge, Peter M. (1990). *The Fifth Discipline*, Currency/Doubleday, New York.
Stata, R. (1989). "Organizational learning – The key to management innovation," *Sloan Management Review,* 30(3), 63-74.
Taylor, J., R. Levitt. 2004. Understanding and managing systemic innovation in project-based industries. D. Slevin, D. Cleland, and J. Pinto, eds. *Innovations: Project Management Research 2004*. Project Management Institute, Newton Square, PA, 83-99.
Taylor, J. R. Levitt. 2005. Aligning innovations and networks: The global challenge. Academy of Management 2005 Annual Conference.
Taylor, J., 2006. Exploring the Antecedents of Boundary Object Technological Change in Interorganizational Networks. In K. Mark Weaver (Ed.), *Proceedings of the Sixty-fifth Annual Meeting of the Academy of Management (CD)*, ISSN1543-8643.
Uzzi, B. 1997. Social structure and competition in inter-firm networks: The paradox of embeddedness. *Administrative Science Quarterly* 42(1) 35-67.
Williamson, O. 1975. *Markets and Hierarchies*. MacMillan, New York.
Williamson, O. 1985. *The Economic Institutions of Capitalism*. The Free Press, New York.

REVALUING CONSTRUCTION – HARD AND SOFT VALUES

David Langford
School of the Built and Natural Environment, Glasgow Caledonian University, United Kingdom.
E-mail: david. langford@gcal.ac.uk



Abstract
This paper evaluates the values prevailing in the change movement of the UK construction industry in the period 1996 – 2007. It traces the use of hard values of measurement of time, cost and quality and provides an alternative set of soft values which may be more suitable to evaluate the progress of the construction industry such that it is productive and pacific. It reviews economic theories of value and proposes several positions by which contractors may seek to valorize construction by behaviour rather than work measurement. It welcomes the fresh thinking in the Revaluing Construction Report and celebrates the more even handed distribution of wealth creation in all stages in the life of buildings.

5.1. Introduction
The revaluing construction project may be seen as a component of the discussion surrounding the change movement for UK construction. This contribution to the discussion of Revaluing Construction has been written at the request of the coordinators of CIB W065. It is presented as a 'think-piece' and a critique rather than as an academic paper.

The UK construction industry has been exposed to several initiatives which have sought to create momentum for change. Amongst them have been:

- The Latham report (1994);
- Construction task force (1997);
- Rethinking construction (1998);
- Constructing excellence(2002);
- Better public buildings (2000);
- Client charter (2000);
- Modernising construction (2001);
- Rethinking construction research and development (2002);
- Accelerating change (2002);
- Improving public services through better construction (2005); and,
- Achieving excellence through construction (2006).

All of these initiatives were steered by various organisations over the life of the reform movement and all had government endorsement. The organisations promoting change

have included Construction Best Practice, the Movement for Innovation, Rethinking Construction, and Constructing Excellence. A feature of the reform movement has been the development of measurement systems which rely on the identification of best practice to gauge the rate of change of the construction industry. Whilst Construction Excellence acknowledges that its business is to deliver 'process, product and cultural changes' (Constructing Excellence, 2004), the main emphasis has been on process changes whilst the main instruments for managing the change have been the key performance indicators and the identification of best practice through the study of selected demonstration projects.

The revaluing construction project is free of the hand of government but it is also harnessed to the wheel of change. However, it must be noted that the tone of exhortation for change is sharply different from what has gone before. Its aim is to achieve:-

> 'the maximisation of the value jointly created by the stakeholders to construction, and the equitable distribution of the resulting wealth' (CIB 2005).

For the first time in the life of the change movement 'equity' has been explicitly mentioned as an objective. Previously, clients had sequestrated the outputs of any performance improvement. Moreover, the revaluing construction contribution addresses all of the stakeholders in construction and recognises that buildings are an expression of history, culture and identity. Churchill (1943) once observed ‘first we shape our buildings, then they shape us’. In a similar vein, the revaluing construction report acknowledges the way in which organisations use buildings to signify something about themselves and conversely that buildings can shape organisations. Issues such as population demographics in terms of the growth of the population and its age, along with the distribution of wealth amongst countries are picked out as important drivers for the construction industry. As such, the revaluing construction report is intellectually more advanced than the previously cited reports. Yet the preference for measurement of the hard data is still with us and is emphasised in the oft -repeated clarion call ‘if it gets measured. it gets managed’.

The Revaluing Construction report started life as a project based upon models used by business process re-engineering research. It was quickly recognised that the kind of technical quick fixes that had been applied to manufacturing (with mixed success) were hardly suitable for construction (Courtney and Winch 2003). The factors differentiating construction for manufacturing was also noted by Green (1998) some five years earlier when he saw the difficulties in applying quick fixes from manufacturing. Green (1998) is particularly scornful of how the construction industry could learn production techniques from a UK motor car industry which has been singularly unsuccessful. This view was supported by surveys carried out by the revaluing construction team who found that the industry's performance is not improved by technical solutions, but more by organisational and behavioural issues; still the agenda for the change movement has been driven by technical concerns. The list of factors which are said to drive performance improvement were listed in a special edition of Building Research and Information (2003) on performance improvement. The prescriptions for betterment included:

- focus upon client requirements;

- dispute reductions;
- framework agreements;
- whole life costing;
- integrated supply chains;
- extended IT;
- pre-fabrication;
- lean thinking;
- safety;
- client oriented performance indicators; and,
- national body to oversee progress.

All of the above were said to add value to the sum of our buildings stock in particular and to the wider built environment in general, but *what is meant by value?*

5.2. Value

What is value and who gets it in the complex process of building? Advocates of the best value movement see value in a rather myopic way. According to the Office of Government Commerce (OGC), value is to the benefit of the client, meaning that the project is worth doing and can be quantified in business terms (OGC 2007). Whilst this definition recognises that business terms go beyond the bottom line yet it is unambiguous that the client is to be the recipient of 'value'. The OGC's position is doubtless influenced by representing Government as a major client. However, as representatives of Government policy, they have a responsibility to be even-handed in their recommendations about how value is distributed between the parties in the building process.

There are other interpretations of what 'value' is and the central question of who should get what in multi-organisational ventures still remains a conundrum. Part of this difficulty is that 'value' can be interpreted in a multitude of ways; there are economic, cultural and social interpretations of what is meant by value but perhaps the best known interpretation draw upon on economics. Early thinkers such as Ricardo(1772 - 1823) made huge contributions to the understanding of value. In his book, *The Theory of the Principles of Political Economy and Taxation* (1817*)*, he predates Marx by laying down the' labour theory of value'. The central idea was that the value of a commodity was linked to the amount of labour needed to produce it. This theory was mainly drawn from evidence of manufacturing and different considerations were applied to agriculture, where variables such as the quality of the agricultural land are a key to assessing value. Ricardo also delineated goods which held what we would now call,' esteem value', for example, artworks, fine wine etc. which would have their value shaped to what a small proportion of the population would be prepared to pay for them. Ricardo's theory was developed by Marx (1810-1883). The increment that Marx (1867) makes was that he built into the labour theory of value the costs of the fixed capital(e.g. buildings and machinery) and materials. He argued that the capitalist buys machinery and materials from other capitalists at the level of value, then labour is applied to these assets to valorise them. For example, if labour is applied at a rate of 10 hours to each commodity which is then sold for a value commensurate to 15 hours, the benefit to the capitalist is the creation of surplus value which usually has a relationship to the price of the commodity. Marx sees two types of value; use value and exchange value. Use value because the commodity is exchanged for money (or another commodity) and it has to have a usefulness to the buyer which could be an artefact or a

factory. The use value is the engine of consumption. In exchange value the commodity has two features, it has to have usefulness to the buyer but also a value in its exchange and this is demonstrated by the amount of money people are prepared to pay for the commodity. For the exchange value to be realized, some kind of market mechanism needs to be in place, so that not only will the issue of surplus value shape the price of the commodity, it will also have a social value. For example, a few years ago Partick Thistle football club sold 'Partick Pies' as a half -time snack at the price of 50 pence. Overnight, they were replaced by 'Partick Burgers' priced at £1. The labour value of a pie or burger is unknown to me but it is a fair guess that the social price of a burger is deemed to be twice that of a pie.

Marx was also influenced by the thinking of Adam Smith (1723-1790) who, in *The Wealth of Nations* (1776), argued that wealth was created by the act of producing goods. Moreover the wealth created was drawn from the labour of the nation. This labour was best applied in the specialized divisions and in that the value of all commodities was proportional to the amount of labour applied to their manufacture.

Smith expanded this theory to say that in capitalist societies land, capital and labour have a return on them. This sits well with the re-evaluating of the construction agenda where value is created through the lifespan of a building from initiation to demolition where all the physical and social resources are harnessed to the valorisation of construction.

A fourth figure who contributed to the value argument was John Ruskin(1819-1900). He observed in his famous *Seven Lamps of Architecture* (1849) that:

> "It is unwise to pay too much but it is worse to pay too little. When you pay too much you lose a little money, that is all. When you pay too little you may sometimes lose everything because the thing you bought is incapable of doing what it was bought to do. If you deal with the lowest bid, it is well to add something for the risk you run. And if you do that, you will have enough money to pay for something better".

This is surely good advice for clients and it resonates with the re-evaluating construction preference for partnered contracts (albeit frequently underpinned with traditional contracts) over the appointment of low price bidders.

However, value needs to be considered in a wider context, it is inadequate to take into account only the economic understanding of value. Kelly (2007) sought to identify what value means and argued that value cannot be defined because it is 'adjectival' rather than substantive'. Moreover, value could be seen as metaphysical entity which exists as a proxy for 'goodness'. Kelly cites Perry (1914) who saw value as being present when a person is interested in an object and derives pleasure from it. He saw value as bifurcated into ' intrinsic value', where something is perceived to have value by the individual and 'extrinsic value' where the properties of an object create the value. Value can also be read in context of the user, for example a piece of sporting equipment such as a cricket bat. One bat may be perceived as being of better quality and so more valuable because of certain features such as weight, balance etc. However, an alternative bat may be seen as of better value because the batsman trusts it to be his companion in scoring runs. In other words, value is as much about perception as it is

about the set of hard criteria such as quality, cost and time outcomes.

Liu and Leung(2002) see value as an appropriate methodology for evaluating performance. In their paper, they see hard values which emphasise control and measurement as being the principal paradigm of the reform movement (although the Respect for People element would rely upon a different approach). In the main, hard values are useful to solve well-defined problems such as the seven targets articulated in the Egan report. The characteristics of hard values are optimisation of costs or resources and methods of finding optimal alternatives which are then converted into best practice. In contrast, soft value systems are much more adept at tackling unstructured problems which are likely to have a human element deeply embedded into their nature. In this system the perception of satisfactory outcomes may be critical. The 'Looking Out' component of the Revaluing Construction report sees multiple stakeholders in the production process, including 'the community' who may have issues concerning the satisfactory outcomes from construction projects. Such issues are likely to use soft values to appraise performance.

In a formal sense, value in construction has been defined in BS EN13251 (1997) as the relationship between functionality, user satisfaction and cost. Langford *et al*. (2003) reviewed 'best value' in construction and noted that whilst value engineering and value for money were given considerable space in academic journals, there were only a few papers which explored the concept of value in a philosophical sense. More mature thinkers on the subject of 'value' could extend the value propositions applicable to construction.

5.3. The value matrix

The reform movement over the last 10 years has emphasised hard value dimensions such as time, cost and quality, so it is refreshing that Revaluing Construction accepts that soft value dimensions will be as important in reshaping the industry. It rejects the claim that time, cost and quality provide the hub of what is considered to be value, these are easily measured easily but do not assay the fullness of what is meant by value.

In contrast, softer value dimensions focus upon issues such as image, reputation and superior relationships with clients and others in the supply chain are seldom quantified. Langford et al (2003) presents a Value Matrix where value propositions are tested against hard and soft value dimensions as shown in Table 5.1.

Table 5.1.: Hard and soft value propositions

		Hard	**Soft**
Value Propositions	**Operational excellence**	Price Minimisers Low Budgets	Simplifiers Simplifying life for Clients (no hassle)
	Innovation Leaders	Innovators Innovators	Brand Managers Reputation Managers
	Client Intimacy	Technological Integrators Technical Managers	Socialisors Socialisors

(Adapted from: Martinez 2003)

1. Price Minimisers
This hard value dimension is common in construction where firms seek to win work by being operationally more efficient. For example, they can pour a metre cube of concrete cheaper than their competitors and set out to do the work in the most cost-effective way with a culture of minimising waste. They are likely to be found in traditional procurement forms or in organisations occupying the lower tiers of the supply chain.

2. Simplifiers
This softer value proposition simplifies the process for clients and it is not expected that clients will be active in the process. Firms operating within this softer value will need to know how to use the systems and support networks to capture client requirements and then be able to deliver such requirements without further intervention. Examples would be turn-key contractors and innovators.

3. Innovators
The strategic objective for Innovators is to provide breakthroughs through continuous generation of new designs, features, materials and techniques. Innovators' look for exciting solutions to building challenges. Clients in this group are likely to be experienced and able to mange the risks that are presented by innovative building designs.

4. Brand Managers
The value proposition in this box is that the participants in the building process develop a brand which is recognisable. This is more easily done by designers who can create a *marque* by the style of the building or structure which is then recognisable as the work of a particular designer. Builders have less opportunity to develop a brand since the creation of the product will hide the process that has been followed to create the building i.e. the distinctiveness of the builders work is hidden.

5. Technological Integrators
In the third value proposition of client intimacy, we have seen firms which operate by tailoring specific solutions for clients. This value is likely to exist where long-term relationships are in place and are supported by framework agreements and partnered contracts.

6. Socialisers
The soft value boxes related to the client intimacy value proposition contains firms who have staff specifically engaged to act to liaise with a key client. Trust is an important asset in this soft value and, as seen in the revaluing construction report notes, this may account for 8-20% of construction costs.

5.4. Beyond best practice: Beyond rational instrumentalism

The re- evaluating construction agenda strongly advocates benefit sharing between all stakeholders in the construction process. Hitherto, the construction industry has relied upon hard value solutions especially in the search for best practice and so best value. In many ways the concept of best practice is a phenomenon in which shared preconceptions are presented as commonsense. Best practice is seen as an objective reality in which one way of doing things is superior to all others. This carries an

implied reality which is commonly shared and as such informs the community of practitioners so that experienced professionals are said to be able to distinguish between best and less than best practice. This tradition has its historical precedents in the era of Taylor (1856-1915) and Gilbreth(1868-1924). It will be recalled that their work was concerned with finding the best way of doing things by experimentation and observation. So, there would be an optimal shovel size for moving sand and a different shovel size for moving gravel (Taylor, 1911). Gilbreth (1968*)* pioneered work measurement for bricklayers. This mechanistic approach has been criticized by Cox *et al.* (2006) who say that best practice is only to be found in a particular context, it is not a universal truth. 'Best practice' needs to sit comfortably with the culture, organizational and commercial circumstances of a firm or organisation. The question 'for whom is it best?' still remains and is seldom asked. At the current stage of development of the UK construction industry (and many others around the world) different stakeholders will get different benefits or disadvantages from the same best practice. For example Thorpe *et al.* (2003) found that the new procurement régimes associated with frameworks, partnering arrangements and preferred contractor schemes deliver benefits to the main contractor and leave the larger specialists subcontractors prone to risk because the main contractors download risk and responsibility. Abhukder *et al*. (2004) found a similar conclusion in a post-Egan study of cultural change amongst small to medium size enterprises in construction. Larger main contractors had a preference for framework agreements with their clients but expected trade subcontractors to compete on price. So, ‘best practice’ as the leading spear of the reform movement cannot be seen as universal but is more specific to a particular firm, project and task. Consequently best practice cannot be seen as an objective truth but more relativistic in its application. It has to fit to what Green (1998) calls "the dominant power groups in terms of all the vested interests of the construction industry's establishment".

Garnett and Pickrell (2000) say that

> "current thinking in construction is predominantly towards a positivistic view where generic processes are sought by what best practice can be established"

To go beyond this and to follow the revaluing construction prescription, the industry needs to embrace soft and hard methods in evaluating the progress of the reform movement. The re-evaluating construction proposals recognize this and acknowledge that progress can be made by seeing research as a product of social interactions which are pluralist and seek a common understanding or agreement about what is appropriate or shared practice. The re-evaluating construction report moves this aspiration forward.

The current change agenda is also carried forward on the mantra of modernization. The hard tools of this modernization go beyond best practice and encompass slogans such as 'customer focus', 'continuous improvement', 'lean construction' and many more which are rooted in market- based thinking. Again, the re-evaluating construction agenda does a great service by noting the need for social markets to be recognized alongside business markets.

5.5. Future research agenda

The current research agenda has largely been driven by the development of KPI’s to measure performance. The driver behind this explores of KPI’s was the ubiquitious

‘business case’. If a business case could be made for measurement then it must be done. But as Einstein observed ‘not everything that counts can be counted, and not everything that can be counted counts’ (poster in Einstein’s office at Princeton University).

The research agenda needs to be widened to incorporate ‘things that count’. These will include:

- Research into the values that are held by different stakeholders in the construction industry. Such research could lead to an understanding of the differences and similarities of values. This could be the platform for harmonising values to arrive at the ‘shared vision amongst stakeholders’ an ambition at the heart of the global agenda for revaluing construction.
- Research to test the hypothetical value propositions outlined in this paper. If the participant to a project has researcher value similar value propositions is it more likely to lead to success.
- Meta-Research to test wether the ‘business case’ driven hard values used on demonstration projects have led to improvements in project performance.

5.6. Conclusion

The Revaluing Construction report marks a distinct break from the past. The reform movement gathered around the Latham and Egan reports had a vested interest in client-led reform of the industry. Market -led reforms to the benefit of large clients was the dominant ideology but this was hardly surprising given the roles and responsibility of the people driving the reform movement. In their book 'Change in the Construction Industry'. Adamson and Pollington (2006) list a number of high-profile leaders in the industry who are driving the changes. The revaluing construction report was sourced from another constituency, drawing upon different intellectual traditions - it was prepared by academics. As such, it might be thought that academics do not have axes to grind and therefore could be more even handed about promoting the interests of smaller companies as beneficiaries of any changes to the industry. Although it must be noted that, with few exceptions, the role of academics in the reform movement from 1996 to 2006 has hardly been that of independent critics. The hard values that have driven the reform agenda have been based upon the rational instrumentalism which is positivist in its outlook. It will be recalled that 'positivism' was developed by the French philosophical school of 'Positivists' who believed that that the engine of economic growth was knowledge. Modernity was born of knowledge and that the outcome of modernity was always seen as good. It was an article of faith. Whilst the current construction reform movement is rooted in this philosophy, the revaluing construction program offers another vision.

Hitherto, the underpinning ideology of value has been dominated by economic ideas set in neo-liberal capitalism i.e. a condition in which stakeholders in construction are said to share the benefits of process improvements which add 'value'. At the moment there is little evidence that the current ideology offers equitable sharing of created value. The revaluing construction agenda offers a more balanced perspective of 'value' with wealth being a prize of value for those organizations engaged in the production of buildings. For clients and users the value proposition is satisfaction of their expectations (these may of course be realised as wealth acquired by selling or renting the assets).

The revaluing construction report offers us an insight into many more value propositions. These may be rooted in soft methods to tease out 'value' that will be subject to social and political interpretations of what constitutes value. Needless to say they will go beyond the philosophy of instrumental rationality.

The value flow of giving wealth to the supply side of the industry and satisfaction (not to say delight) to the demand side can help to balance the value delivered to stakeholders in the construction industry. There are many more values beyond cost and time and the Revaluing Construction report has helped us to identify them.

In passing, if revaluing construction draws in the community as one of the concerned stakeholders, it could be beneficial to the prestige of the industry and the professions within it. Writing in the Guardian (8:2:2007) David McKie noted that we seldom celebrate the builders of our historic infrastructure. He contrasts this with the recognition afforded to musicians, writers and other artists who will be honoured in all forms of media. The Revaluing Construction agenda provides the opportunity for our architects, engineers, contractors and specialists to be widely known as heroes (or villains) in a society which is deeply concerned about its built environment.

References

Abhukder, J., Langford, D.A., Murray, M., Hardcastle, C. and Vernca, E. (2004). Re-Thinking Construction: What About the SME's? Journal of Construction Procurement, 10 (1), pp. 16-27

Adamson, D.M. and Pollington, T. (2006). Change in the Construction Industry: An Account of the UK Construction Reform Movement 1993-2003. London: Routledge.

Churchill, Sir Winston (1943) Speech to the House of Commons. London: Hansard

Constructing Excellence (2002). Construction Excellence in the Built Environment: London

Courtney, R. and Winch, G.M. (2003). Re-engineering Construction: the Role of Research and Implementation. Building Research and Information, 31 (2), pp. 172-8

Cox A., Ireland, P. and Townsend, M. (2006). Managing a Construction Supply Chain and Markets. London; Thomas Telford

Gilbreth, F. (1968). Cheaper by the Dozen. London: Penguin

Garnett, N. and Pickrell, S. (2000). Benchmarking for Construction: Theory and Practice. Construction Management and Economics, 18 (1), pp. 55-63.

Green, S. D.(1998). The Technocratic Totalitarianism of Construction Process Improvement: A Critical Perspective. Engineering, Construction and Architectural Management, 5 (4), pp. 376-86.

Green, S. D. (2002) The Human Resource Management Implications of Lean Construction: Critical Perspectives and Conceptual Chasms. J. of. Construction Research, 3 (1) pp. 147 -166

Kelly, J. (2007). Making Construction Values Explicit in Value Management Workshops. Construction Management and Economics (forthcoming).

Langford, D.A., Martinez, V. and Bititci, U.(2003). Best Value in Construction: Towards an Interpretation of Value from Client and Construction Perspectives. Journal of Construction Procurement, 9 (1), pp. 56-67.

Liu A.M.M. and Leung M.Y. (2002). Developing a Soft Value Management Model. International Journal of Project Management. 20, (5) pp. 341-349.

Martinez, V (2003). Undertaking Value Creation: the value matrix and the value cube. PhD thesis, University of Strathclyde.

McKie, D. (2007). "A View From Somewhere". The Guardian, 8th. February.

Marx, Karl. (1867) Das Kapital. London: Penguin

Office of Government Commerce (OGC) (2007). Risk and Value Management. London: HMSO.

Perry, R. (1914). The Definition of Value. Journal of Philosophy, Psychology and Scientific Methods, 12 (6) pp. 141-62.

Ricardo, D. (1817) Theory of the Principles of Political Economy. London: John Murray.

Ruskin, John. (1849). The Seven Lamps of Architecture. New York: The Noonday Press.

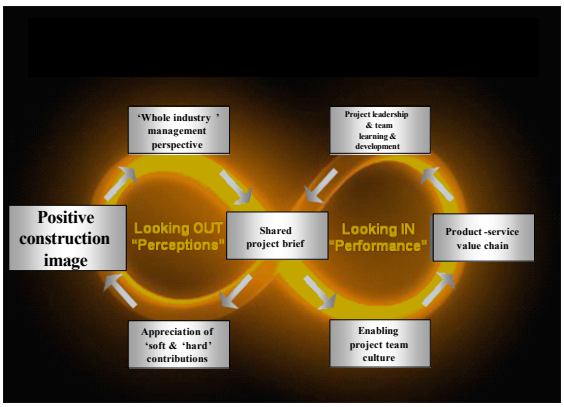
Smith Adam. (1999 edition). The Wealth of Nations. London: Penguin

Taylor, F. (1911). The Principles of Scientific Management New York: Harper Brothers

Thorpe, A., Dainty, A.R.J. and Hatfield, H. (2003). The Realities of Being Preferred: Specialist Subcontractor Perspectives on Restricted Tender List Membership. Journal of Construction Procurement, 9 (1), pp. 47-55.

IMAGE OF THE CONSTRUCTION INDUSTRY

Raufdeen Rameezdeen
Department of Building Economics, University of Moratuwa, Sri Lanka.
E-mail: rameez@becon.mrt.ac.lk



Abstract
The construction industry is a major contributor to the economy of a country. Despite many positive contributions, the industry suffers from a negative image. The purpose of this paper is to gain an understanding of the reasons for this negative image and to explore possible means by which these traditional perceptions can be changed, promoting a positive image of the industry.

6.1. Introduction
The term 'construction' is generally defined as the activity, which creates all types of new building and engineered structures, as well as the maintenance and repair of existing facilities (Wells, 1984). Construction in any country is a complex sector of the economy, which involves a broad range of stakeholders and has wide ranging linkages with other areas of activity such as manufacturing and the use of materials, energy, finance, labour and equipment (Hillebrandt, 1985). The contribution of construction industry to a country's economy may be broken down into following components (Field and Ofori, 1988):

1. production of specific and national basic needs:
2. provision of fixed capital assets and infrastructure of a country
3. direct contribution to the Gross Domestic Product (GDP), thereby stimulating further growth via its backward and forward linkages with other industrial sectors: and,
4. employment generation.

Turin (1969) highlighted the significant role of the construction industry in the national economy and its importance was further elaborated by Hillebrandt (1985). Field and Ofori (1988) stated that the construction makes a noticeable contribution to the economic output of a country; it generates employment and incomes for the people and therefore the effects of changes in the construction industry on the economy occur at all levels and in virtually all aspects of life (Chen, 1998). This implies that construction has a strong linkage with many economic activities (Bon, 1988; Bon and Pietroforte, 1990; Bon et al., 1999; Lean, 2001), and whatever happens to the industry will directly and indirectly influence other industries and ultimately, the wealth of a country. Hence, the construction industry is regarded as an essential and highly visible contributor to the process of growth (Field and Ofori, 1988). Low (1994) argued that

the construction industry has a direct bearing on the national economy and, consequently, can be used as an indicator of economic well-being for a country. In addition, Low (1994) suggested that the relationship could be found in terms of capital formation and employment creation as well. He found that in most developing countries the capital formation in construction accounts for 7-13% of the GDP while that of most industrialized countries ranges between 10-16%. Further, he proposed that construction provides 6-10% of total employment in most industrialized countries and 2-6% in less developed countries.

Despite these significant contributions to the economy of a country, the construction industry suffers from a negative image. Construction has an image synonymous with high cost, low quality, chaotic working practices and a poor health and safety record (Ball, 1988). The construction industry is seen as tedious, dirty, non-technical, non-professional, hazardous, cyclical, and associated with difficult working conditions (Reid, 1995). Gale (1994) found that image played a central part in career choice, but in order for change to occur, gender relations must be changed. This leads to a widely held perception that career opportunities within the industry are also poor (Baldry, 1997). Hence, there is an overwhelming need to improve the image of the industry if new recruits are to be attracted (Griffith, 1988). Creating a better public image may attract more professionals, workers, investors, developers, etc., to the industry. The media appear to exploit and highlight news stories that foster a negative image of the construction industry.

There is a need for a revaluing of the construction image to form a positive image – an industry which is valued by society. This paper examines the reasons for these negative perceptions and explores mechanisms that can improve the image of the construction industry.

6.2. Understanding image

``Image'' refers to an impression created at a particular time at a particular level of abstraction (Grunig, 1993). Reynolds (1965: 69) describes an image as a ``. . . mental construct developed by the people on the basis of a few selected impressions among the flood of total impressions; it comes into being through a creative process in which these selected impressions are elaborated, embellished and ordered.'' The individuals construct images within them depending on their objective and cognitive capabilities. Further, due to the unanimity the experienced physical environment, norms shared by individuals and the biological and perceptual similarities, there can be many overlapping areas in “individuals” image. The “public Image” is a composite of “individuals” image. Also it is a common mental picture carried out by large number of people. As Avenarious (1993: 66) stated, the real image makers are the publics. Since the public image is a composite of “individuals” image, it can be purported as collective image.

Kennedy (1977) distinguishes two components of image: functional, related to tangible stimuli that can be easily measured; and emotional, associated with psychological conditions that become apparent in feelings and attitudes. According to Baloglu and Brinberg (1997) the image construct consisted of two components, cognitive and affective, the cognitive referred as perceptual, was concerned with beliefs and knowledge about an object while the affective was related to feelings or emotions about an object. They suggested that environments and places have perceptual and affective

images and that places additionally have an overall image that is a summation of both perceptual and affective components (see Figure 6.1.).

Thus, an image can be formed as a network of meanings stored in memory that range from holistic general impressions to very elaborate evaluations of objects. These meanings may be related to the tangible features and consist of fleeting and ephemeral perceptions that public hold. Also an image is a perception of a receiver of his or her received projection of the physical/tangible things and own reflections of interpretations of various attributes from various sources. There is no clear distinction made in terms of ``the difference between the artistic concept of image as symbols and the psychological concept of image as something constructed by receivers of those messages" (Grunig 1993: 126). Therefore, image can be defined as a multidimensional concept, based upon variety of factors.

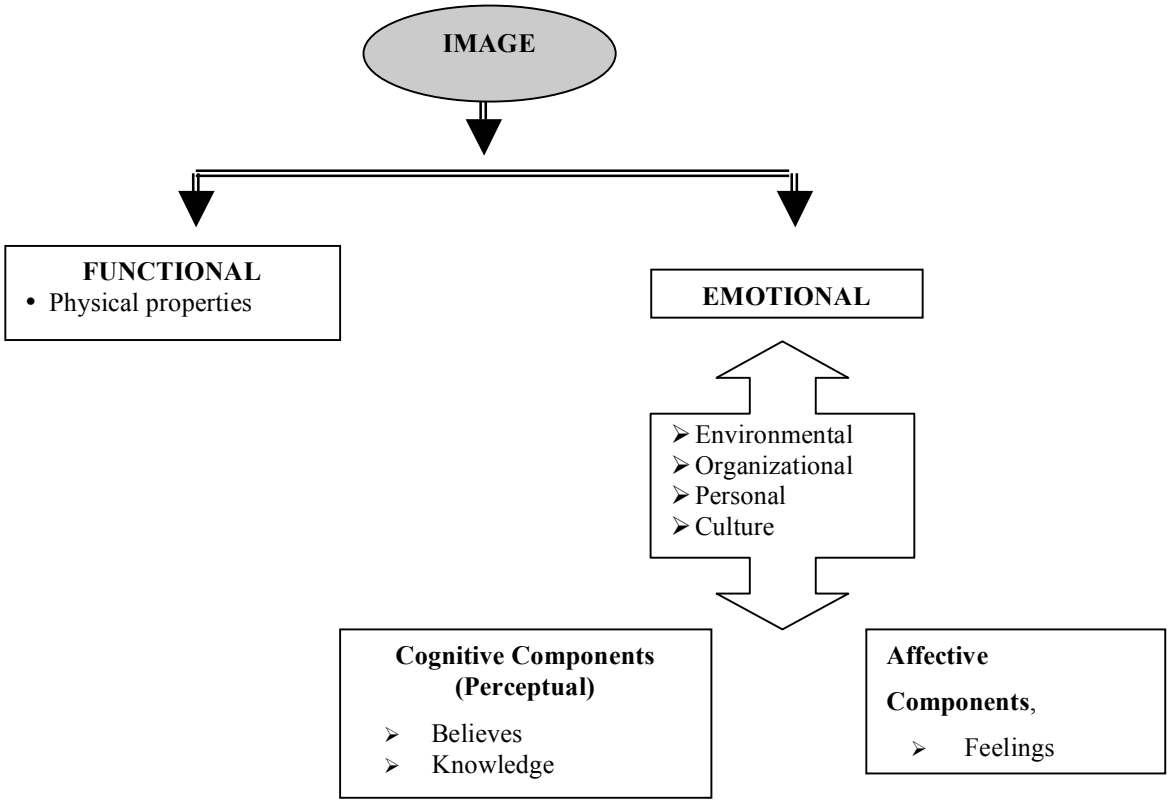


Figure 6.1. - Different paths that image can be formed
Source: Baloglu and Brinberg (1997)

6.3. Image formation

Within different fields of business; marketing, advertising, management, and public relations; research findings have demonstrated some differing and some consistent views toward corporate image formation. For advertising and marketing, a long established line of research into consumer behaviour suggests that an organization originates image in order to foster increased sales. This consumer behaviour research has long held that multiple images are present in the consumers and that they are variable and subject to change (Dowling, 1986; Gray and Smeltzer, 1987; Cottle, 1988; Garbett, 1988; Knoll and Tankersley, 1991). Business management studies have a

slightly different view towards image formation but similar to advertising and marketing finds multiple images that can be managed and changed by various internal audiences (Lee, 1971; Kovach, 1985; Ashforth and Mael, 1989; Carlivati, 1990; Pratt and Foreman, 2000; Albert et al., 2000). Public relations research has identified mainly the audience as forming the image of an organization, focusing on the interaction among the various organizational, personal, and environmental factors (Alvesson, 1990; Fomburn and Shanley, 1990; Moffitt, 1994 a; Williams and Moffitt, 1997). Thus, it is arguable that recent research into understanding the process of corporate image has called attention to both the process of production of corporate image by the organization and the process of reception of corporate image in the audience member.

In the first set of theories as promulgated by business, marketing, and advertising fields, image is created and manipulated by the corporate sector. For an industry, the image can only be created by its members. In creating image, Corporate Social Responsibility (CSR) plays a major role by having a far reaching impact not only among the community but also among the workers of an industry (Alsop, 1999). On the contrary, as held by public relations research, the general image is the public's perception about an industry (Gallager et al., 2001). This implies that an image is a collection of impressions which changes from time to time due to external influence. Image is also influenced by the everyday interactions between members (stakeholders) of the industry and its external audiences (Moffitt, 1994 b). These two differing views were used in this study to:

1. Understand the audience perception on the construction industry, and
2. How a positive image can be created through CSR.

The next two sections of the paper discuss the results of these two studies on image formation in the construction industry, i.e., the audience perception and how the industry can promote image through CSR.

6.4. Audience perception

In order to understand the reasons for the negative image of the industry, a Delphi study was undertaken among the general public of Sri Lanka. The Delphi technique is being increasingly used in many complex areas in which a consensus is to be reached (Chan et al, 2001). The objective of a Delphi study is to obtain a reliable response to a problem or question from a group. The study consisted of three Delphi rounds having a face-to-face questionnaire survey. The following research questions were used to guide this investigation and to provide a methodological test towards the image formation process (Moffitt, 1994 a,b; Kazoleas et al., 2001):

1. What are the overall images of the Sri Lankan construction industry among the general public.
2. What factors influence the dominant image held by the public regarding the industry.

The participants in this investigation were 160 individuals who were selected using a quota sampling technique representing various ethnic groups, gender and the nine provinces of the country (Tan, 2002). The nine provinces covered were based on population centers as opposed to geometric size. Out of the 160 participants only 143 were able to participate in all three rounds, thus reducing the sample size to 143. Most

of the dropouts were from North, Eastern and North-central provinces, making the sample a bit biased towards southern provinces of the country.

Research question one posited few questions regarding respondents' perceptions of overall images regarding the industry. Overall the data indicated that the respondents had a very high negative image of the industry. The respondents had been asked to identify the source of information that had the greatest impact on their perceptions of overall image. Many respondents answered that construction work carried out in their premises or in one of their family members or friends place (mainly houses) and in the vicinity (public works) influenced their image (43.7 percent), followed by family members and friends who work in the industry (21.2 percent), media (10.4 percent), other workers (7.3 percent), and so on. These results were surprising, in that most respondents' perceptions were shaped by either personal experience, or by interpersonal relationships with others who had experience with the industry, and not by the media. Overall, these results suggest that personal experience and interpersonal networks had a greater impact on perceptions of image than media exposure.

Fourteen factors that were elicited from literature review, as contributing factors of the negative image of the industry, became the stating point of the first round of the Delphi study. At the end of the third round, following main reasons, in the order of priority, became the most pressing concerns of the general public regarding the industry.

1. Low quality of the construction product.
2. Low professionalism and skill among workers (non-availability of skilled workers).
3. Inconvenience caused to the public during construction in terms of noise and pollution.
4. Time overruns in the product delivery.
5. Lack of management inputs during construction which causes accidents and high wastage.

6.5. Corporate social responsibility (CSR)

CSR is fundamentally the ethical behaviour of a company towards all its stakeholders, including its workers (Moirs, 2001; Clarkson, 1995). Many definitions for CSR are being outlined by various organizations and institutions. The World Business Council for Sustainable Development (WBCSD) (2002: 2), defined CSR as "the continuing commitment of business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families, as well as the local community and society at large". The UK Government sees CSR as the business contribution to their sustainable development goals. "Essentially it is about how business takes account of its economic, social and environmental impacts in the way it operates; maximising the benefits and minimising the downsides" (UK Gov., 2005). Furthermore, it sees CSR as the voluntary actions that business can take, over and above compliance with minimum legal requirements, to address both its own competitive interests and the interests of wider society (UK Gov., 2005). Therefore, CSR at present is by and large about recognising and addressing the needs (that go beyond existing legal and economic concerns) of all stakeholders, whom are affected by and who affect the activities of an organization (Carroll, 1999; Lantos, 2001; Papasolomou-doukakis et al., 2005).

At present CSR is not only focused on corporate philanthropy or social consideration. It covers six broad areas which goes beyond corporate philanthropy as follows (WBCSD, 1999; WBCSD, 2000; Graves et al., 2001).

1. Workplace: The well-being and comfort of workplace is paramount in any discussion of CSR.

2. Human rights: When Human Rights are addressed in CSR, different businesses interpret it differently. It ranges from the narrowly interpreted term of denoting child or slave labour, to an umbrella term to cover almost all social and environmental issues starting with the right to breathe clean air and drink clean water.

3. Community involvement: Community relations include a focus on core business impacts and interactions as well as on more traditional philanthropy. Building trust with the community demands consistency and long term commitment from the company.

4. Environmental protection: Protecting the environment from the impact of operations is a core responsibility. Besides their legal obligations, which differ according to region and country, corporations are seen to have a broad responsibility to protect the physical environment throughout their supply chains.

5. Marketplace: Under marketplace issue, both customer and supplier relations need to be addressed.

6. Ethical business operations: Economic performance is not something excluded from global CSR agenda. Under this issue, companies are more focused on addressing needs and fulfilling their responsibilities towards shareholders and investors.

In order to understand the use of CSR in the construction industry, a case study research was undertaken among four organizations in Sri Lanka (Yin, 1994). A code-based content analysis technique was used in the study (Catterall and Maclaran, 1996). The analysis was mainly a pattern matching approach, which was carried out through cross case analysis (Cassell and Symon, 2005). The results of the study reveals that CSR as a concept is not very well known by the Sri Lankan construction organizations. However, the discussion revealed that these organizations are engaged in all the six key CSR activities. These six activities were further identified with sub-activities, which emerged during the analysis.

The “Workplace CSR” is addressed under five sub-categories by these firms. They are; allowances and benefits, obligation to provide training, workforce diversity, safety and health, and finally communication. The level of responsibility shown towards workplace CSR is considerably substantial compared to other five activities and is relatively uniform across all four cases. Furthermore, the organizations have engaged in workplace CSR with real commitment and enthusiasm.

The level of awareness given for “Human Rights” activities is very low.

Findings reveal that “Community Involvement” happens in six ways. Philanthropy; collaborative projects with community, training for community, contact and dialogue, safety systems to protect the community and employment of disabled are the six sub-activities. Among them philanthropy seems to be the most favoured and the most frequent among all four organizations.

The priority given for "Environmental Protection" is very low among the construction organizations. The level of responsibility shown is somewhat limited to the company reputation, government regulations and cost aspects.

The social responsibility towards the "Marketplace" is shown through customer dialogue, product safety, and quality concern. However, as a whole the amount of responsibility shown towards marketplace is low.

In general, "Ethical Businesses Operations" is performed by two ways. One is through "responsibility towards shareholders" and other is through "disclosure". Due to the nature of ownership in all four case study organizations (i.e. since all shareholders are directors), this aspect was performed automatically. On the other hand, disclosure of relevant information is only carried out towards the shareholders.

Overall, apart from workplace and community involvement, other CSR activities are carried out only due to legal requirements and the customs of the construction industry. It is interesting to note that human rights and environmental protection seems to have gained very low priority among the six key activities. This is a very disturbing result as construction industry is one of labour intensive industries with very high impact on the environment.

Table 6.1. illustrates a summary of the enablers and constraints emerged through the cross cases analysis. It can be seen that there is a genuine concern to help others by the senior management of construction organizations. Interestingly, it is because of their own past that they have realized the importance of CSR. The major constraint seems to be lack of awareness and misconceptions regarding CSR.

Table 6.1. - Enablers and Constraints of SCR in Construction

Enablers	Constraints
Genuine need to contribute to the betterment of society by owners	Lack of awareness on CSR
Top managers' own difficult past	Identifying CSR as an obstacle for achieving targets
Positive perception /attitude of the top-management	Rejecting the need for marketing tools
Employee pride /commitment	Laws and regulations at nation level are not adequate to promote CSR
Superior financial capacity	Cost implications
Contemporary knowledge	Policies at organizational level
Smaller size of the firms	Lack of openness
Legal Requirements, professional requirement and industry customs	Negative perceptions of the lower level employees

6.6. Discussion

The findings of the Delphi study suggest that quality of final product immensely contribute to the formation of a positive image of the construction industry. This study confirms that the quality of final product is the most basic and critical factor of image. Quality of final product coupled with concerns over time overruns and lack of management inputs during construction, questions the way the industry delivers its products to the customers. The negative image associated with construction workers

discourages young people from joining the industry. Some in the industry believe that negative attitude towards careers in construction have contributed to a shortage of construction workers. In addition to the shortage of workers, the shortage of female workers is even more striking. The Department of Census and Statistics reported that only 3 percent of skilled worker positions, 7 percent of supervisory positions, and 12 percent of non-skilled positions are filled by women (Dept. of Census and Statistics, 2005). Thus, the results of the study could be portrayed using a vicious cycle as given in Figure 6.2.

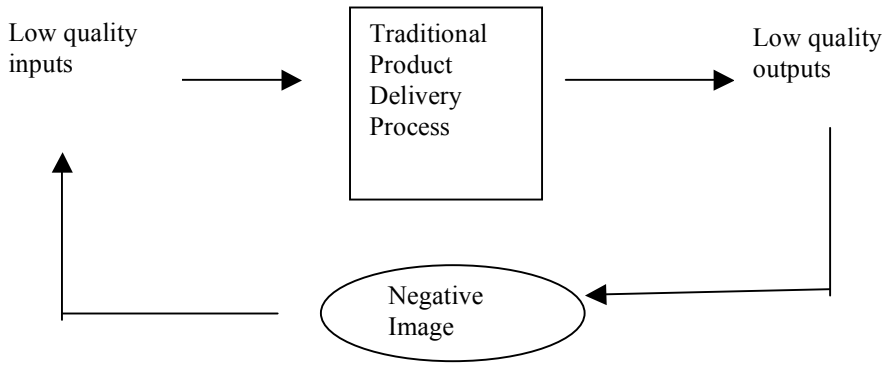


Figure 6.2. - The vicious cycle of construction image

In order to arrest this vicious cycle, one has to start from the quality of inputs, particularly the workforce. There is a need to dispel the misconception that construction work is tedious, dirty, and non-professional. Education, training and continuing professional development programs should be targeted at improving the professionalism of the industry. Recruitment of only trained skilled workers should be strictly adhered as a corporate culture of the industry. The next step is to look into the project delivery process. There is an increasing realization on the part of the clients that the traditional procurement methods that are used in product delivery to be drastically changed to have a meaningful improvement in the image of the industry. These alternative project delivery systems should eliminate quality, time and cost problems endemic in current construction projects. In addition, the need for construction companies to undertake socially responsible activities that believed to produce a better corporate image cannot be underestimated. Most importantly, CSR should involve all six areas of activities, rather than limiting it to corporate philanthropy and workplace issues.

6.7. Further research agenda

One of important findings of this study is that the construction industry image, as perceived by the audience, was not primarily a function of exposure to the mass media coverage. Rather, the main influence was either personal experience or experience of a close relative or friend. The implication of this result is that the industry should focus image enhancement through better services to its clients rather than focusing on campaigns through mass media. However, to attract young workers in to the industry mass media campaigns could be very effective. Therefore, one could argue that the image formation among young and elderly could be through different means. Since

labour shortages and skill shortages are some of the pressing issues in the construction industry, further research is needed to systematically study how young people perceive the image of the construction industry, what are the main influencing factors of the image formation among them and how the misconceptions regarding the industry could be overcome. In addition, it is important to review whether mass media campaigns could be effective in attracting a quality workforce in to the industry.

As image is highly related to better output and excellence in product delivery, another area of further research is the role of national/ regional level award schemes in improving the output quality of the industry. Whether incentives/awards could improve the quality of an industry as a whole?, how these incentives/awards should be designed to achieve an enhanced image of the industry? What is the role of the government, professional bodies related to construction, and contractors' associations in promoting a positive image of the industry? Can government regulations and control enhance the image of an industry?, if yes, how they should be implemented to achieve maximum benefit? These are some further research that emanate from the results of this study.

6.8. Conclusion

The image of the construction industry can be changed through the conscious effort and dedication of its members. The improvement of the image of the construction industry will depend very much on the industry's commitment to promoting quality products, time cost and safety management, and education and training programs. The study revealed that the construction industry image was not primarily a function of exposure to the mass media coverage. Rather, the results indicated that the sources of the greatest influence were close personal relationships (family and friends who had experience with the industry) or actual experience. These results suggest that the industry should focus image enhancement efforts on the way that they deliver services to their clients and employees. That is, results indicate that efforts at community relations and customer relations may also be relatively more important to industry image than a coordinated campaign targeted through mass media. Corporate Social Responsibility provides a platform that can be used to build a strong positive image of the industry.

References

Albert, S., Ashforth, B.E., and Dutton, J.E. 2000, Organizational identity and identification: charting new waters and building new bridges, Academy of Management Review, Vol. 25, 13-17.

Alsop, R. 1999. The best corporate reputations in America, The Wall Street Journal, Vol. 29, 1-6

Alvesson, M. 1990, Organization: from substance to image?, Organization Studies, Vol. 11, 373-394.

Ashforth, B.E. and Mael, F. 1989, Social identity theory and the organization, Academy of Management Review, Vol. 14, 20-39.

Avenarious, H. 1993. Introduction; image and public relations practice. Journal of public relations research, 5, 65-70.

Baldry, D., 1997. The image of construction and its influence upon client's, participants and consumers. Proceedings of 13th Annual ARCOM Conference, Kings College Cambridge, September, 1, 52–61.

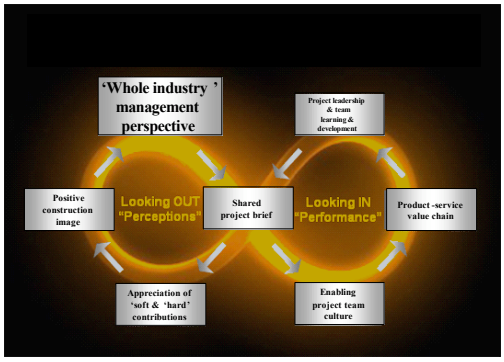
Ball, M., 1988. Rebuilding construction. Routledge, London.

Baloglu, S. and Brinberg, D., 1997. Affective images of tourism destinations. Journal of travel research, 35 No. 4, 11-15.
Bon, R. 1988, Direct and indirect resource utilization by the construction sector: the case of USA since World War II, Habitat International, 12, 49-74.
Bon, R. and Pietroforte, R. 1990, Historical comparison of construction sectors in the United States, Japan, Italy, and Finland using input-output tables, Construction Management and Economics, 8, 233-247.
Bon, R., Birgonul, T., and Ozdogan, I. 1999, An Input-output analysis of the Turkish construction sector, 1973-1990: a note, Construction Management and Economics, 17, 543-551.
Carlivati, P.A. 1990, Measuring your image, Association Management, Vol. 42, 40-52.
Carroll, A. B., 1999. Corporate Social Responsibility: the evolution of a definitional construct. Business and Society, 38 (3), 268-295.
Cassell, C. and Symon, G., 2005. Essential guide to qualitative methods in organizational research. London: SAGE publication.
Catterall, M. and Maclaran, P., 1996. Using computer programs to code qualitative data. Marketing Intelligence and Planning, 14 (4), 29-33.
Chan, A.P.C., Cheung S.O., Lam P.T.I. and Yung E.H.K., 2001. Application of Delphi method in selection of procurement systems for construction projects. Construction management and economics, 19, 699-718.
Chen, J.J. 1998, The characteristics and current status of China's construction industry, Construction Management and Economics, 16, 711-719.
Clarkson, M.B.E., 1995. A stakeholder framework for analyzing and evaluating corporate social performance. Academy of Management Review, 20(1), 92-117.
Cottle, D.W., 1988. How firms can develop and project a winning image. The Practical Accountant, Vol. 21, 46-50.
Department of Census and Statistics, 2005, Bulletin of Construction Industry Statistics, Colombo.
Dowling, G.R,. 1986. Managing your cooperate images. Industrial Marketing Management, Vol.15, 109-115.
Field, B., and Ofori, G. 1988, Construction and economic development – a case study, Third World Panning Review, 10, 41-50.
Fomburn, C. and Shanley, M. 1990, What in a name? reputation building and corporate strategy, Academy of Management Journal, Vol. 33, 233-258.
Gale, A.W., 1994a. Women in non-traditional occupations: the construction industry. Women in Management Review, 9 No. 2, 3-14.
Gallager, C., Maguire, E.R., Mastrofsiki, S.D., and Peisig, M.D., 2001. The public image of the police, final report to international association of chief of police by the administration of justice program George Mason University (online). Available from: http://www.publicimage/admin/iacp.htm (Accessed 7 May 2006).
Garbett, T.F., 1988. How to Build a Corporation's Identity and Project its Image, Lexington, Lexington, MA.
Graves, S.P., Waddock, S. and Kelly, M., 2001. How do you measure corporate citizenship?. Business Ethics, 15 (2), p.17.
Gray, E.R. and Smeltzer, L.R., 1987. Planning a face-lift: implementing a corporate image. Journal of Business Strategy, Vol. 8, 4-10.
Griffith, A., 1988. Educational provision for the building industry's future managers. CIOB Technical Informatio(online). Available from: http://www.service_paper_96/the uk/building education recruitment crisis/767 (Accessed 7 May 2006).

Grunig, J.E. 1993. Image and substance: from symbolic to behavioral relationships, Public relations review. 19 No. 2, 121-39.
Hillerbrandt, P. 1985, Analysis of the British Construction Industry, Macmilan, London.
Kazoleas D., Kim Y. and Moffitt M.A. 2001. Institutional image; a case study (online). Illinois State University. Available from: http://www.emerald-library.com/ft (Accessed 23 April 2006).
Kennedy, S.H., 1977. Nurturing institutional image, European Journal of Marketing, Vol 11, No 3, 120-164.
Knoll, H.E. Jr. and Trankersley, C.B., 1991. Building a better image. Sales and Marketing Management, Vol. 143, 70-78.
Kovach, J.L. 1985, corporate identity, Industry Week, Vol. 226, 21-22.
Lantos, G.P., 2001. The boundaries of strategic Corporate Social Responsibility. Journal of Consumer Marketing, 18(7), 595-630.
Lean, S.C. 2001, Empirical tests to discern linkages between construction and other economic sectors in Singapore, Construction Management and Economics, 13, 253-262.
Lee,S.M. 1971, An empirical analysis of organizational identification, Academy of Management Journal, Vol. 14, 213-226.
Low, S.P., 1994, Balancing construction and marketing in world economic development: the four global scenarios, Construction Management and Economics, 12, 171-182.
Moffitt, M.A. 1994a, A cultural studies perspective toward understanding corporate image: a case study State Farm Insurance, Journal of Public Relations Research, Vol. 6, 41-66.
Moffitt, M.A. 1994b, Collapsing and integrating concepts of public and image into a new theory, Public Relations Review, Vol. 20, 159-170.
Moirs, L., 2001. What do we mean by corporate social responsibility?. Corporate Governance, 1 (2), 16-22.
Ofori, G., 1990. The construction industry: Aspects of its Economics and Management, Singapore University press, Singapore.
Papasolomou-Doukakis, I., Krambia-Kapardis, M. and Katsioloudes, M., 2005. Corporate social responsibility: the way forward? Maybe not. European Business Review, 17 (3), 263-279.
Reid, J.L., 1995. Challenges for the construction industry, Construction Business Review, July/August, 30-32.
Tan, W. 2002, Practical Research Methods, Person Education Asia, Singapore.
Turin, D., 1969. The construction industry: its economic significance and its role in development, UNIDO, London.
UK Gov., 2005. What is CSR? [online]. London, The UK Government. Available from: http:// www.csr.gov.uk/what is csr.htm [Accessed 23 February 2006].
WBCSD, 1999. Corporate social responsibility: Meeting changing expectation. Geneva: World Business Council for Sustainable Development, 1-38.
WBCSD, 2000. Corporate social responsibility: making good business sense. Geneva: World Business Council for Sustainable Development, 1- 19.
WBCSD, 2002. Corporate Social Responsibility: The WBCSD's journey. Geneva: World Business Council for Sustainable Development, 1- 6.
Wells, J., 1984. The construction industry in the context of development: a new perspective, Habitat International, 8(3/4), 9-28.
Williams, S.L., and Moffitt, M.A. 1997, Corporate image as an impression formation process: prioritizing personal, organizational, and environmental audience factors,

Journal of Public Relations Research, Vol. 9, 237-258.
Yin, R.K., 1994. Case study research: Design and Methods. 2nd ed. , Sage Publishers,CA.

INDUSTRY-LEVEL PERSPECTIVE OF REVALUING CONSTRUCTION: FOCUS ON DEVELOPING COUNTRIES



Mohan Kumaraswamy
Department of Civil Engineering, University of Hong Kong, Hong. E-mail: mohan@hkucc.hku.hk

Gonzalo Lizarralde
Université de Montréal, Canada. E-mail: gonzalo.lizarralde@umontreal.ca

George Ofori
Department of Building, National University of Singapore, Singapore. E-mail: bdghead@nus.edu.sg

Peter Styles
Consultant, United Kingdom. E-mail: peter_styles@msn.com

Akhmad Suraji
Department of Civil Engineering, University of Andalas, Indonesia. E-mail: akhmadsuraji@yahoo.co.uk

Abstract
This paper contributes to the CIB's Revaluing Construction initiative by discussing the characteristics, opportunities and challenges at the industry-level, focusing on developing countries. The paper first discusses how revaluing should be defined in the context of developing countries. The notion of balanced development in the context of revaluing construction is presented. Next, it highlights the issue of the stakeholders' perspectives and the need for a shared vision. This discussion focuses on the forums of construction industry stakeholders which have recently been held in Indonesia. It presents the shared vision of the stakeholders, and considers the actions which are necessary for attaining the vision. The paper proceeds to consider the concept of sustainability. Unlike the typical depiction of this term which focuses on environmental issues, sustainability in construction is regarded here in terms of the ability of the construction industries in developing countries to meet the developmental needs of the nations. Finally, revaluing construction in this paper considers the perspective of the poorest sections of society in developing countries, who constitute important stakeholders of the construction industry. The case of how the informal sector meets the housing needs of the urban poor in South Africa shows an example of an innovation which provides an effective solution to the housing problems.

This paper presents the views of four contributors who have each approached the subject from their own perspective. Each of the section stands on its own and the presentation varies in content and level of detail. The message of the paper is that, in revaluing construction, a number of aspects need to be taken into consideration to arrive at a comprehensive vision of the industry which delivers sustainable development for all of the industry's stakeholders in the community.

7.1. Holistic perspective towards balanced development

Revaluing construction initiatives, and importance of construction industry

There has been a steady stream of studies and literature on the initiatives and programmes in construction industry development that aim at radical improvements in the strategies, cultures, practices, and hence, performance of the industry. The initiatives and programmes of Australia, Hong Kong, the Netherlands, Singapore, South Africa, and the UK are often referred to. There have also been attempts to compare these programmes, to extract common challenges, and to adapt and apply potential solutions in specific countries, or regions such as South and South-East Asia (de Saram et al., 2001). Researchers have also focused on, and further explored, some of the key solutions proposed in the blueprints for industry development, such as teamworking (Rahman et al., 2005). Taking a broad overview of the objectives of 'value creation' by construction industries worldwide, the CIB's pro-active theme of 'Revaluing Construction' and the initiatives formulated under it aim at identifying and increasing value in such a way that "the value jointly created is maximised and the resulting rewards equitably distributed between all stakeholders" (Barrett, 2005).

The CIB's 'Revaluing Construction' brochure reiterates the primary objective of construction: creating and sustaining an appropriate built environment for users (Barrett, 2005). The author notes that while construction contracts themselves may only typically account for about 6 to 7 per cent of national gross domestic product (GDP) (and about 9 to 10 per cent of total employment), if the related sub-sectors and associated groupings (such as architects, suppliers, manufacturers of construction materials and facilities managers), the construction industries may account for about 20 per cent of GDP. This shows the importance of construction in the economy.

There is growing evidence of the increasing imperatives for renewing and refurbishing the ageing infrastructure in developing countries at the same time as it is evident that these countries need high and increasing volumes of new infrastructure and buildings (Kumaraswamy, 2006). The linkages between construction industry development, infrastructure development and national socio-economic development were broadly mapped by Kumaraswamy (2006), within a framework of drivers for, as well as barriers impeding, such developments.

In the context of revaluing construction, and considering the role of the industry in the economy and in national demand, it is pertinent to consider the question, "how important is a national construction industry?" especially in an era of increasing globalisation. Construction industry 'lobbies' in some countries, comprising professional and trade institutions, have argued for more governmental support, including protection and/or incentives for local construction organisations. These voices are loudest during times of economic or sectoral recession. This argument is based on the premise that construction is a unique and 'essential' industry for each

country, and that national capability should be desired and valued. This has provoked counter-arguments. For example, there is the question, "why should taxpayers and the government directly or indirectly help to prop up presumably redundant or inefficient organizations", and related assertions that "spending to create jobs can cost jobs" (van der Kamp, 2003).

Given growing globalisation and increasing mobility of construction organizations, another question is the merits and scope of the participation of international companies in developing countries to build national infrastructure items which are needed for national socio-economic development. While the overseas construction organisations contribute to national development by completing some of the essential physical facilities, and also bring in new technologies and processes, a domestic construction industry is still needed. There are two main reasons for this. First, it is not possible for a country to out-source all its construction needs. Every country must retain essential knowledge and skills in core teams, who must manage the various players, carry out key functions and be able to handle projects that are not attractive to the foreign firms (Kumaraswamy, 1994). Second, there will always be critical and/or nationally strategic and sensitive infrastructure that many countries may not wish to entrust to foreign designers, constructors or asset/facilities managers (Kumaraswamy, 2006). Furthermore, even in the case of non-strategic facilities, it could be risky to repose excessive or long-term reliance on foreign organisations who may not have much interest in the downstream operations and performance, or life-cycle costs of the infrastructure they are producing. Thus, a country cannot depend totally on organisations which may have no reason to remain in the country if the economic conditions are not favourable, such as in a local, even cyclical, downturn, or problems in operations.

Some of the adverse effects of undue reliance on foreign construction enterprises have been pointed out by some authors. For example, Kumaraswamy (1998) notes that the construction industries in some developing countries such as Sri Lanka have experienced the stifling of many domestic construction organisations, with a loss of accumulated local knowledge and industry capacities, following, for example, advantages provided to foreign organisations, through aid package linked pre-qualification conditions.

For these reasons, the continuous development of the local construction industry is necessary. So, in each developing country, the above question may be changed from "do we need a national construction industry?" to "what is the capacity and the size of the local construction industry that we need?" Thus, the revaluing of the construction industry in any country should encompass national and international stakeholders, including all the producers and users of the industry's services. This would enable a globally holistic appreciation of the construction industry in each country, and help to clarify the pervasive inter-connections of the industry with national and international development.

Benefiting from knowledge flows and targeting balanced development

It is important for the developing countries to harness the valuable potential benefits of globalisation and the increased mobility of construction organisations. One of these possible benefits is related to accelerating knowledge flows, which include one-way transfers and two-way exchanges of both 'hard' and 'soft' knowledge components

between or among joint venture partners, consultants, contractors and sub-contractors, and other participants in construction projects. These also include flows between foreign and local companies, among local construction organisations themselves, and the important internal knowledge flows within an organization (Kumaraswamy, 2006).

The notion of 'balanced development' is relevant to the revaluing exercise. It refers to the need for striking an appropriate balance both within and between the development of the various stakeholders, including construction personnel, public institutions and private companies, the construction industry and the country itself. Such balancing should aim to achieve the healthy and sustainable growth of each stakeholder as well as the industry as a whole, national infrastructure and the economy in the long term, while achieving the desired outcomes in the short term. This may include providing incentives for investment, in order to attain more balanced long-term development. However, some difficulties often arise:

a. There are difficulties in identifying desirable developmental goals, agreeing on them among the stakeholders, and then achieving the right balance.

b. There are also difficulties in agreeing on the appropriate courses of action for achieving the developmental goals, as well the assignment of responsibilities for them.

c. The fragmentation of the industry also makes it difficult for companies to share information and knowledge (Robert et al, 2007).

d. The construction industries generally comprise small and medium companies that cannot easily invest in research and development (R&D) or in sophisticated information management systems (Robert et al, 2006).

Smoother knowledge flows would help to accelerate the mutual understanding of the diverse stakeholders and thereby facilitate the required holistic perspective for better management of the construction industry towards balanced development along all the fronts highlighted above (Kumaraswamy, 2006). This would contribute towards the revaluing of the construction industry in developing countries

7.2. Stakeholder's perspectives of the future of construction

Stakeholder forums

Issues related to the construction industry should be concerned with how the industry provides value in its products and services to all in the communities where it operates, and not only to clients, as practitioners, researchers and even administrators tend to consider. In developing countries, such as Indonesia, the strategic position of the construction industry in national development is widely recognised. It is pertinent to consider the perspectives of the various construction stakeholders on the Indonesian construction industry.

Since early 2006, three construction stakeholder forums have been held in Indonesia for the participants to exchange views on, and discuss, the future of the construction industry. The more than 30 participants representing the stakeholders who attended the forums included government officials, industry participants from various professional

and trade backgrounds, academics and researchers. Two or three well known participants from the different stakeholder groups were selected to present their position papers on specific issues, and these were considered in panel discussions. Summaries of the discussions were compiled by a team from *Komunitas Aksi untuk Konstruksi Indonesia*. Further virtual discussions were also carried out by the participants over the internet. The first forum dealt with the concept of a fundamental transformation of the nation's construction industry. The second forum was concerned with the principles and values embedded in construction. The third forum considered a shared vision of the future of construction in Indonesia.

A fundamental question which was discussed during all three forums was how best the construction industry can deliver a new built environment where all in the various communities in the country could have the best living standards (or quality of life). In the forums, the best dreams and challenges were discussed, and the way forward was proposed. These perspectives are now considered.

Construction driven socio-economic development: A vision

As discussed above, the developing countries have large volumes of infrastructure needs as well as requirements for facilities for commercial production and services, and improved quality of life. These items of physical infrastructure establish the new system of the built environment in which members of communities interact with each other for their socio-economic development. Therefore, it was realised during the stakeholder forum that *construction driven socio-economic development* will be a key expression in the future development of the nation. It was also understood that this will be achieved only if the nation has a construction industry which is efficient, highly competitive, reliable, and concerned with delivering quality products and services.

It was recognised at the forums that in order to achieve the expressed vision, certain prerequisites should be in place. These include competence, capability, capacity, experience, world class quality, and professionalism on the part of all individual and corporate participants in the construction industry. The enabling conditions identified for the construction industry to drive socio-economic development are synergistic forward and backward linkages between the industry and other sectors of the economy, a healthy and enabling business and industry environment, assurance of effective law enforcement, and progressive business and investment. Above all, it was recognised that there is the need for a new paradigm of establishing good construction governance supported by the government through the provision of affirmative national policies on construction industry development, empowerment, and strategic construction investment.

The supports which other stakeholders could provide were also highlighted at the forums. These include human resource development, empowerment of front liners, continuous creativity and innovation, scientific and technological development, and robust management of the development process. It was agreed that the new national paradigm for the construction industry should be based on synergy, strategic alliances, and partnering. This would enable the construction industry to attain its performance as indicated by its productivity, competitiveness, growth, profitability and sustainability.

The stakeholders identified wider issues. They recognised that, in Indonesia, as in all developing countries, the vision of a construction industry which pursues innovation

and performance improvement to benefit all stakeholders is not independent from national transformation involving political, social, and economic changes, which is taking place under the influence of globalisation. In all countries, there will be other considerations in particular national contexts. For example, in Indonesia, as mentioned above, there are other over-riding national programmes such as democratisation and decentralization (Suraji, 2006a). Thus, the stakeholders in Indonesia recognised that the construction industry must base its development on social capital which is trust, networking and reciprocity. The many participants in the construction process during the project life cycle must trust each other in setting up the rules of the game for co-operation and competition. They should also work well together towards attaining technology development and market share improvement in the industry. The stakeholders agreed that practitioners should operate from a perspective of feeling that they constitute one cluster which comprises value chains which need one and another.

Future directions

As the developing countries participate in the world's economy in an era of increasing globalisation, their construction industries face an even bigger challenge than other sectors. This is because there is a wider gap between the construction industries in developing countries in terms of technology, human resources, financial capital, and business organisation and management and their counterparts in developed countries than for other sector (Suraji et al, 2004). The industry has internal challenges such as low level of skills, lack of R&D, fragmentation, low access to capital support, and weaknesses in business management (Suraji, 2006b). For these reasons, the industry is unable to provide best value for money for clients and members of the communities. There are also external challenges such as increasingly demanding clients, international competition, increasingly stringent quality and other requirements, and construction governance. Therefore, the construction stakeholders suggested through extended discussions of the forums that the future direction for the industry is to focus on: (i) construction development; (ii) liberalisation; (iii) science and technology advancement; (iv) continuous benchmarking; (v) business ethics including excellence, trustworthy, honesty, integrity, courage and selflessness; (vi) laws and regulations; (vii) economic development, (viii) social and political change; (ix) human resource development; (x) clean development mechanisms for a sustainable environment; and (xi) the grand scenario and strategy of the nation. Based on these areas of focus, the construction industry should deal with its global competitiveness and respond domestically to the important objective of community development.

In Indonesia, the vision of *construction driven socio-economic development* means a better built environment for all members of all communities. It means that the construction industry can drive community development. It was agreed by the forum paticipants that there are four pillars of this effort by which construction can contribute to the community development. The first pillar is local economic development; the second is community empowerment; the third is public services improvement; and the fourth is a sustainable environment. These four pillars would ensure that construction creates benefits for all members of all communities. The pillars are in line with the sustainable development criteria formulated by the International Labour Office (ILO) (2006) to guide the Aceh Post-Disaster Reconstruction Project in Indonesia. The ILO's (2006) criteria are: (i) technologically appropriate; (ii) socially acceptable; (iii) institutionally possible; (iv) environmentally sustainable; (v) economically feasible; (vi) financially viable; and (vii) politically supportable (ILO, 2006). As with the

complexity of each stage of construction life cycle, there is also the need for a proper management system. Thus, "rationally manageable" can be added to the criteria for sustainable development outlined by the stakeholders.

Construction plays a big role in the life cycle of the built environment; it can provide opportunities for the members of local communities to benefit from the economic value created. The components of the built environment can also be designed in order that the local communities have the capacity to adapt to, and utilise it most beneficially. Thus, construction should deliver better access to the services comprising the built environment, including production services. The capacity of the community should also be developed to enable it to benefit from the enhanced built environment.

7.3. Requirements for a sustainable construction industry

The third aspect of revaluing construction considered in this paper is that of "sustainable construction". There are two main strands of this notion. First, there must be a basic infrastructure in place which provides a framework within which the industry may function. Second, 'sustainable' means that there must be measures in place that ensure that the 'constructions' deliver the benefits to the intended beneficiaries.

The basic infrastructure

The basic infrastructure of the construction industry in the context of this paper comprises the inputs of the construction process: funds, human resources, expertise, plant and materials. Overlying this is the organizational structure which, at the upper level, consists of government ministries and other organizations. These include those who regulate the industry and those who specify and enforce standards. Below this level lie the principal players: the clients who commission the projects and directly benefit from them; the consultants who include designers and construction supervisors; the contractors who build the assets; and the suppliers who provide the materials, and some plant and equipment. There also needs to be acceptable methods of procurement which, in the public sector of most developing countries, are prescribed by regulation or by donor agencies (for the projects which they fund).

Whilst construction practitioners, researchers and administration tend to concentrate on the aspects outlined above, there are other features which are just as important. These may be referred to as 'soft issues'. They make up the main list of the things that often go wrong on construction projects in developing countries. They are now discussed.

Planning and programming

In many developing countries, it is common to see expensive projects which fail to deliver the required outputs (the constructed items tend to become 'white elephants') (see Figure 7.1.) and many of these failings are due to the lack of planning before the solution is chosen and design commences. Lack of in-house competence and failure to identify the objectives of the constructed assets are among the main reasons (Styles et al, 1998). This places clients in a position of having to choose between options without a long-term view of the outcome. Suppliers often offer 'attractive' solutions without consideration of the long-term outcome in terms of performance.

Few developing countries have a viable investment programme which bring together the results of the planning processes for each sector. Programmes tend to be a list of donor funded projects which frequently do not 'join up' and, sometimes, are even in conflict

with one another. The insistence by some of the major donors on the development of 'masterplans', which normally take up a ten-year period does not resolve this problem. Instead, there is often a cycle of neglect interrupted by occasional, almost frantic, construction of new facilities.

Application of inappropriate designs and technology

In developing countries, there are many examples of systems in the built environment of assets which do not provide the required benefits to the client (Styles, 2000). Many of these projects have been funded by foreign donors. The failures are often due to the insistence by 'advisers' (representing the donors) on the use of their standard designs without regard to the environment in which the system will have to operate. This is compounded where there are many donors, and the 'technical advisers' of each of the donors insist that their own solution should be used regardless of the need to integrate with the solutions proposed by the other advisers. Investment in inappropriate solutions is not only a frequent cause of project failure, but also often results in expensive solutions. In many cases, even where the systems work, a more cost effective and sustainable outcome could have been achieved by using more basic designs.

Figure 7.1. Example of a 'white elephant' in a developing country

Commissioning

Construction practitioners can easily overlook the crucial element that often determines the difference between success and failure. Commissioning is the vital link between the stages which lead up to the existence of a new asset and making it work. Whilst this may be a relatively simple process where buildings are concerned, it is often complex where the built assets comprise a mix of structures and mechanical plant. It is necessary to determine that individual components of the whole system work, and also that they operate satisfactorily in conjunction with each other. Thus, proper commissioning of a construction project is critical to its effective functioning.

Operation and maintenance
Planners, designers, builders and suppliers should all be aware of the need to operate and maintain the assets which they construct. Whilst the commissioning phase provides the link between the construction and operation phases, it is the decisions made at the planning and design stages which will determine whether the assets can be operated effectively. There is ample evidence of expensive projects which fail within a short period owing to the inability of the owner or operator to maintain it (Ogunlana, 1997). Thus, without an adequate maintenance function, any set of assets – however well designed – will fail (see Figure 7.2.). This then reflects badly on the whole construction cycle and hence the industry.

In construction, it is also being increasingly understood that decommissioning of the built item needs to be considered at the design stage. This consideration should be part of practice in developing countries.

Figure 7.2. - Example of lack of maintenance

Asset management
Whilst different business areas have different meanings for "asset management", it is generally accepted in construction that it means the long-term replacement and refurbishment of assets to prolong their life and continue to give service to the client. It is normally funded from capital, unlike day-to-day maintenance which is a revenue function. Both are essential but involve different skills and methods of funding. Asset management brings one back to the beginning of the cycle as it requires a plan for the replacement or refurbishment of the existing assets to place alongside the plans for new assets, the extension of systems and provision of entirely new services. Many businesses have failed through lack of day-to-day maintenance and failure to reinvest in long-term maintenance of their asset base.

Need for a holistic approach
It is not only the construction of assets which determines the outcome of the process. The whole system from concept, through planning, design, commissioning, operation and maintenance to eventual refurbishment or abandonment must all be taken into account. Only a holistic system is sustainable and delivers the benefits to the customer over the long term.

7.4. Informal construction industries: The case of South Africa

The construction industry in developing countries is not homogeneous. It is characterized by two parallel sectors: the formal and the informal (Keivani and Werna, 2001). Despite its large contribution to the delivery of housing solutions for the urban poor in the developing countries, the informal construction sector is still seen in many countries as an anomaly and a problem; there is a common wish that it should be replaced by the formal sector. Little is known about the way the informal sector operates. It is often seen as illegal, disorganised and spontaneous. Its products (such as informal shacks and self-help constructed items) are often seen as desperate solutions of survival rather than rational and systematic responses to the hostile economic, social and political environment. However, this perception of the informal sector often distorts the reality and fails to acknowledge that:

1. the informal sector has been the only part of the construction industry capable of providing affordable solutions for the bottom poor in developing countries (Bhatt and Rybczynski, 2003)
2. the informal sector participates significantly in, and interacts with, the formal sector, as was discovered by Mlinga and Wells (2002) in Tanzania
3. the companies of the informal sector are not – in reality – that different from the formal construction companies
4. the informal sector generates an important number of jobs for the urban population.

Prefabricated shacks industry

Post-apartheid South African cities are characterised by important needs of infrastructure and housing. While the last 13 years have helped to consolidate democracy and economic development, millions of South Africans still live in areas previously denominated as "non-white" in which lack of community services, infrastructure, legal tenure, and housing prevail. The ambitious "Reconstruction" programme, which has been in place since the Mandela government, highlights the complex interaction between two parallel industries: the formal and the informal provision of housing. In terms of housing delivery, the South African reconstruction consists on the delivery of subsidies and their use in mostly publicly procured projects that rely almost exclusively on formal delivery. However, parallel to this initiative, an enormous industry is producing thousands of informal solutions for the poorest sectors of the society.

An example of this informal sector is the emerging industry of ready-made shacks in the major South African cities. This industry is composed of small informal companies that have developed a simplified method of construction based on a modular unit made of corrugated metal sheets and a basic timber structure. The final product is light, easy to transport, easy to assemble, and dismountable. Above all, it is affordable to the poorest sectors of the society for which no products from the formal industry are available. Lizarralde and Root (2007) report on the functioning of two of these companies fictitiously called "Kayelitsha Shacks" and "Township Shacks". They report that, with 3 employees, and more than seven years in the 'business', Kayelitsha Shacks delivers more than 5 shacks per week. The owner and manager of the company, who was initially an informal builder, soon realised the potential of buying more recycled and new materials and selling additional pre-fabricated units. The business idea paid off. The manager now owns a truck, an informal canteen in one of

the townships, and a house on the coast.

Kayelitsha Shacks serves various townships in the Cape Town area and it offers product delivery and service to places as remote as the town of Stellenbosch (a 1.5-hour drive from Kayelitsha). Township Shacks, the other company reported by Lizarralde and Root (2007), is also based in Kayelitsha but it has a secondary selling point in Mfuleni, another township in Cape Town.

The main product of these two companies is a standardised shack of 3.0 m by 2.6 m with a sloped roof made of corrugated metal sheets. This product includes a simple timber window and a door, and is sold for SAR1,900 (US$1.00 = SAR 7.00). Purchasers must pay a deposit of at least SAR500. Other products include the double shack (3.0 m by 5.2 m for SAR3,900), and customised units. The price includes both transportation to the site and installation. The whole operation "in situ" is completed in less than 30 minutes by nailing together the four pre-fabricated panels and the roof. The units do not include a floor, and are installed directly on the ground. The owner of one of the companies explained that the informal dwellers might move their shacks up to three times in one month. Thus, having a permanent 'solid' floor is unsustainable. About 10 shacks are exhibited along the main access road to Kayelitsha where at least four other companies providing similar services are based. Their proximity permits the clients to do 'shopping' and select the provider they prefer.

The shacks take advantage of recycled materials and different types of corrugated iron sheets (the thicknesses and profiles of the sheets differ). However, the best sheets (often new) are used for the roof in order to avoid water leaks. The companies buy recycled and new materials according to the opportunities of the market, prices and availability. The owner of Kayelitsha Shacks has a stock place for the corrugated sheets, the spare sheets and the wood. Some panels have been built and assembled to simulate a finished house in the exhibition area on the main road. The clients are conducted to the pre-fabricated units that are already assembled. If a deal is concluded and a deposit is paid, the owner uses the deposit to buy the materials required for the roof, the window and the door. These components are not usually stocked in large quantities and are often fabricated only when the transaction has been confirmed (ands the deposit as been paid). The employees then deliver the panels and assemble the units on site. Township Shacks has a pick-up vehicle for transporting the panels and a modified shopping trolley to transport small materials within short distances (see Figures 7.3. and 7.4.).

Figure 7.3. - . Left: Informal construction on a serviced plot in the township of Mfuleni, Cape Town. Right: Preparing the sales point of pre-fabricated shacks early in the morning

Figure 7.4. - The products of Khayelitsha shacks (left) and township Shacks (right)

These informal businesses have been developed, and operate, in a rather hostile commercial environment. One of their most important barriers to growth is financing. Their limited possibilities to acquire credit largely constrain their capacity to have more materials in stock and to profit from good prices (by buying in large quantities, and during periods when wholesalers offer bargains on goods). Lack of formal financing is also a difficulty for the potential buyers. In an article in a local newspaper, *Cape Argus*, Hawker (2006) revealed that after paying the first deposit and receiving the product, some clients fail to pay the remaining amount. Such high rates of defaults in payments are adversely affecting the commercial viability of some pre-fabricated shack companies.

These informal companies provide housing units at a price that the formal sector is not able to offer, and provide the only financial and credit services that are available for the poorest sections of the urban population in South Africa. However, the housing solutions they offer have some disadvantages: (i) they have no foundations; (ii) they do not provide efficient solutions for floors (this causes major health problems in some families); (iii) they lack proper thermal insulation; (iv) they cannot be considered as part of the (formal) subsidised housing sector (due to legal restrictions); (v) they do not provide efficient solutions for infrastructure (such as water, sewerage, electricity, roads); and (vi) they do not take account of planning norms, building codes and legal standards.

In South Africa, the formal projects and the subsidised housing programmes have ignored the strong presence of the informal sector. However, this industry has been the only one that has developed effective solutions which are accessible to the poorest city dwellers in the townships adjacent to the country's main cities. The perception of this industry still misrepresents its potential and characteristics. A better understanding of the way the informal sector operates – and the whole industry is composed - is required to reduce the quantitative and qualitative need for housing in developing countries. The revaluing of the construction industry needs to consider all the dimensions of the industry.

7.5. Whole industry perspective

This paper has addressed the subject of revaluing construction from the broad industry level. The "Whole industry Management Perspective" provides the envelope for the

other elements of the seven-factor "Infinity Model" developed as a result of the CIB's Revaluing Construction process. The need for an integrated and balanced-development approach discussed in this paper underlines the "Whole industry Management Perspective", and illustrates the "Product-Service Value Chain" factor in the model.

The involvement of all of the construction industry's stakeholders is important if concerted effort is to be made to attain a "Positive Construction Image". In these regards, the stakeholders' forums held in Indonesia are a good example of developing a common understanding of the needs, challenges and potential of the industry. This would facilitate "Project Leadership and Team Learning and Development", as well as helping to develop an "Enabling Project Team Culture".

The incidence of project failure which is described in this paper as a lack of sustainability would be reduced with "A Shared Project Brief", and effective "Project Leadership and Team Learning and Development". This would, in turn, contribute to the efforts to attain a "Positive Construction Image".

The innovations in the prefabrication of shacks which effectively meets the basic housing needs of the urban poor in South Africa demonstrates the potentially positive role which the informal sector of the construction industry can play in national socio-economic development. This relates to the "Appreciation of 'Hard' and 'Soft' Contributions" in the infinity model.

7.6. Future research agenda

Much research needs to be done on various aspects of construction in developing countries. The discussion in this paper suggests some possible topics for an agenda in these regards. The revaluing process itself requires to be studied. The topics include the challenges and priorities of revaluing construction, how best to accomplish the revaluing process in a developing country, how to measure its effectiveness, and how to integrate its findings into the planning for, and implementation of, socio-economic development. Another relevant subject would be how 'balanced development' strategies may be formulated and executed in any national construction industry, taking into account the sustainable holistic development of personnel, organisations and support institutions, in ways that would contribute to each other, as well as the national economy.

For the developing countries, it is essential to reduce the number of failed construction projects in which the nations invest with their scarce resources. Research is required on the real reasons why building projects fail. Various possible causes have been highlighted in studies, including the lack of standards, poor planning, inadequate funding, poor management, unsatisfactory workmanship and high level of corruption. The root causes of failure their implications should be identified, and proposals for addressing them formulated.

Research is required on the role of the stakeholders of the construction process and the industry, in order to obtain synergies from their possible contributions. This work would first identify the stakeholders, explore their tasks and responsibilities on a project, and investigate the optimum ways in which their contributions could be integrated. A possible framework for such a study would be to consider how 'value networks' may be developed to integrate potential 'value streams' from the various

stakeholders in the construction supply chain (Kumaraswamy and Rahman, 2006). Such a study should also consider how value-adding 'knowledge flows' between stakeholders can be encouraged, incentivised and accelerated.

More work should be undertaken to provide deeper understanding of the informal sector of the construction industries of developing countries, and the way in which it can be most effectively developed. Its potential for enhancing the performance of the industry as a whole, and in meeting national socio-economic development goals should also be explored.

In the developing countries, effective disaster management is a critical and topical issue. Work is required urgently in many aspects of this subject, in order to facilitate the formulation of measures and policies which would help to save lives and property, and offer rehabilitation to persons affected by such occurrences. An important topic is the development of a ranking system for the assessment of risk and mitigation measures for all types of disaster. This would involve the development of scoring methods and an audit system which would enable one to make comparisons regardless of the location or type of risk encountered.

7.7. Conclusion

This paper shows the need for the construction industry to widen the scope of its revaluing exercise even further by adopting a whole-industry approach. The challenges posed by globalization and sustainability provide an appropriate frame of reference for the revaluing of the construction industries in developing countries. It is essential for all the parts of the industry to be taken into account in the revaluing initiatives. In the developing countries, both the formal and informal sectors of the industry should be considered. In these regards, the construction industry in each country needs to examine its internal structure and consider the potential contributions of all its component segments. For example, the example from South Africa shows that the informal sector can fill some of the gaps in the provision of building solutions which the society needs. The construction industry should identify and work with all its stakeholders, and seek to address their needs for sustainable development. As has been realized in Indonesia, it should be recognised that all in the community must have a shared vision of what they want from the construction industry in the particular country (Figure 7.5.).

Figure 7.5. - Important constituents of the stakeholders of construction

The formulation of the common vision should involve all the stakeholders, and should include consideration of their different perspectives. The broad range of actors who will need to play various roles in the efforts to attain this vision should then be identified, and mechanisms for co-ordinating their contributions towards the implementation of the initiatives, and monitoring progress towards the achievement of agreed targets should also be established.

References

Barrett, P. and Lee, A. (2007) *Revaluing Construction*. University of Salford and CIB, http://www.revaluingconstruction.scpm.salford.ac.uk/media/brochure/final.pdf

Bhatt, V. and Rybczynski, W. (2003) How the other half builds. In Watson, D., Plattus, A. and Shibley, R. (eds) *Time-saver Standards in Urban Design*. McGraw-Hill, New York, pp. 1.3.1 to 1.3.11.

De Saram, D.D., Rahman, M.M. and Kumaraswamy, M.M. (2001) Setting targets and selecting tools for construction industry development. In Proceedings of the International Seminar on "Engineering Management for Accelerated Development in South and South East Asia", Colombo, Sri Lanka, 27-28 October. Institution of Engineers, Sri Lanka, Colombo, pp. 43-53

Hawker, D. (2006) Riding wave of shack business boom. *Cape Argus*, May 29.

International Labour Office (2006) *Creating Jobs: Capacity building for local resource-based road works in selected districts in NAD and Nias*, Project Document. ILO and UNDP, Jakarta

Keivani, R. and Edmundo, W. (2001) Refocusing the housing debate in developing countries from a pluralist perspective. *Habitat International*, Vol. 25, pp. 191-208.

Kumaraswamy, M.M. (1994) Growth strategies for less-developed construction industries. Proceedings of 10th Annual Conference of Association of Researchers in Construction Management (ARCOM), Loughborough, U.K., September, Vol. 1, pp. 154-163.

Kumaraswamy, M.M. (1998) Industry development through creative project packaging and integrated management. *Engineering, Construction and Architectural Management*, Vol. 5, No. 3, pp. 228-238.

Kumaraswamy, M.M. (2006) Accelerating construction industry development. *Journal of Construction in Developing Countries*, Vol. 11, No. 1, pp. 73-96,

Kumaraswamy, M.M. and Rahman, M.M. (2006) Applying teamworking models to projects. In Pryke, S. and Smyth, H. (Eds.) *The Management of Complex Projects: a relationship approach.* Blackwell Publishing, London, pp. 164-186.

Lizarralde, G. and Root, D. (2007) Ready-made shacks: Learning from the informal sector to meet housing needs in South Africa. Paper presented at CIB Congress, Cape Town, South Africa.

Mlinga, R.S. and Wells, J. (2002) Collaboration between formal and informal enterprises in the construction sector in Tanzania. *Habitat International*, 26, 269-80.

Ogunlana, S. O. (1997) Build operate transfer procurement traps: Examples from transportation projects in Thailand. In Davidson, C. and Meguid, T.A. (eds), Procurement: A key to innovation. CIB, Montreal.

Rahman, M.M., Kumaraswamy, M.M., Karim, K., Ang, G. and Dulaimi, M. (2005) Cross-country perspectives on integrating construction project teams. In Proceedings of the 6th Construction Specialty Conference of the Canadian Society of Civil Engineers, Toronto, 2-4 June (on CDROM, 10 pages).

Robert, J.-M., Lizarralde, G. Moulet, L., Davidson, C.H., Nie, J.-Y. and Da Sylva, L. (2006) Finding out: A system for providing rapid and reliable answers to questions in

the construction sector. *Journal of Construction Innovation*, Vol. 6, No 4, pp. 250-261.

Styles, P.W., Grimes, E. and Kerof, M. (1998) Levels of service and asset lives, mimeo.

Styles, P.W. (2000) Planning for sustainability. Paper presented at CIWEM Conference, Leeds, UK.

Suraji, A., Parikesit, D. and Mulyono, A.T. (2004) Readiness assessment of the Indonesian construction industry for global competition. Proceeding of the CIB W107 International Symposium on Globalisation of Construction, September, Bangkok.

Suraji, A. (2006a) Transforming the Indonesian Construction (in Indonesian), Issue Paper for the Construction Services Development Board, Jakarta, Indonesia.

Suraji, A. (2006b) The future of Indonesian construction (In Indonesian). Paper presented at the Seminar for the Construction Services Development Board, Jakarta, Indonesia.

van der Kamp, J. (2003) Spending to create jobs can cost jobs. *South China Morning Post*, Business Section, 24 December, p. B14.

International Council for Research and Innovation in Building and Construction

CIB's mission is to serve its members through encouraging and facilitating international cooperation and information exchange in building and construction research and innovation. CIB is engaged in the scientific, technical, economic and social domains related to building and construction, supporting improvements in the building process and the performance of the built environment.

CIB Membership offers:
- international networking between academia, R&D organisations and industry
- participation in local and international CIB conferences, symposia and seminars
- CIB special publications and conference proceedings
- R&D collaboration

Membership: CIB currently numbers over 400 members originating in some 70 countries, with very different backgrounds: major public or semi-public organisations, research institutes, universities and technical schools, documentation centres, firms, contractors, etc. CIB members include most of the major national laboratories and leading universities around the world in building and construction.

Working Commissions and Task Groups: CIB Members participate in over 50 Working Commissions and Task Groups, undertaking collaborative R&D activities organised around:
- construction materials and technologies
- indoor environment
- design of buildings and of the built environment
- organisation, management and economics
- legal and procurement practices

Networking: The CIB provides a platform for academia, R&D organisations and industry to network together, as well as a network to decision makers, government institution and other building and construction institutions and organisations. The CIB network is respected for its thought-leadership, information and knowledge.

The CIB has formal and informal relationships with, amongst others: the United Nations Environmental Programme (UNEP); the European Commission; the European Network of Building Research Institutes (ENBRI); the International Initiative for Sustainable Built Environment (iiSBE), the International Organization for Standardization (ISO); the International Labour Organization (ILO), International Energy Agency (IEA); International Associations of Civil Engineering, including ECCS, fib, IABSE, IASS and RILEM.

Conferences, Symposia and Seminars: CIB conferences and co-sponsored conferences cover a wide range of areas of interest to its Members, and attract more than 5000 participants worldwide per year.

Leading conference series include:
- International Symposium on Water Supply and Drainage for Buildings (W062)
- Organisation and Management of Construction (W065)
- Durability of Building Materials and Components (W080, RILEM & ISO)
- Quality and Safety on Construction Sites (W099)
- Construction in Developing Countries (W107)
- Sustainable Buildings regional and global triennial conference series (CIB, iiSBE & UNEP)
- Revaluing Construction
- International Construction Client's Forum

CIB Commissions (April 2007)

TG33	Collaborative Engineering
TG43	Megacities
TG49	Architectural Engineering
TG50	Tall Buildings
TG53	Postgraduate Research Training in Building and Construction
TG56	Macroeconomics for Construction
TG57	Industrialisation in Construction
TG58	Clients and Construction Innovation
TG59	People in Construction
TG61	Benchmarking Construction Performance Data
TG62	Built Environment Complexity
TG63	Disasters and the Built Environment
TG64	Leadership in Construction
TG65	Small Firms in Construction
TG66	Energy and the Built Environment
W014	Fire
W018	Timber Structures
W023	Wall Structures
W040	Heat and Moisture Transfer in Buildings
W051	Acoustics
W055	Building Economics
W056	Sandwich Panels
W060	Performance Concept in Building
W062	Water Supply and Drainage
W065	Organisation and Management of Construction
W069	Housing Sociology
W070	Facilities Management and Maintenance
W077	Indoor Climate
W078	Information Technology for Construction
W080	Prediction of Service Life of Building Materials and Components
W083	Roofing Materials and Systems
W084	Building Comfortable Environments for All
W086	Building Pathology
W089	Building Research and Education
W092	Procurement Systems
W096	Architectural Management
W098	Intelligent & Responsive Buildings
W099	Safety and Health on Construction Sites
W101	Spatial Planning and infrastructure Development
W102	Information and Knowledge Management in Building
W104	Open Building Implementation
W106	Geographical Information Systems
W107	Construction in Developing Countries
W108	Climate Change and the Built Environment
W110	Informal Settlements and Affordable Housing
W111	Usability of Workplaces
W112	Culture in Construction
W113	Law and Dispute Resolution
W114	Earthquake Engineering and Buildings
W115	Construction Materials Stewardship
W116	Smart and Sustainable Built Environments

International Council for Research and Innovation in Building and Construction

Publications: The CIB produces a wide range of special publications, conference proceedings, etc., most of which are available to CIB Members via the CIB home pages. The CIB network also provides access to the publications of its more than 400 Members.

Recent CIB publications include:

- Guide and Bibliography to Service Life and Durability Research for Buildings and Components (CIB 295)
- Performance Based Methods for Service Life Prediction (CIB 294)
- Performance Criteria of Buildings for Health and Comfort (CIB 292)
- Performance Based Building 1st International State-of-the-Art Report (CIB 291)
- Proceedings of the CIB-CTBUH Conference on Tall Buildings: Strategies for Performance in the Aftermath of the World Trade Centre (CIB 290)
- Condition Assessment of Roofs (CIB 289)
- Proceedings from the 3rd International Postgraduate Research Conference in the Built and Human Environment
- Proceedings of the 5th International Conference on Performance-Based Codes and Fire Safety Design Methods
- Proceedings of the 29th International Symposium on Water Supply and Drainage for Buildings
- Agenda 21 for Sustainable Development in Developing Countries

R&D Collaboration: The CIB provides an active platform for international collaborative R&D between academia, R&D organisations and industry.

Publications arising from recent collaborative R&D activities include:

- Agenda 21 for Sustainable Construction
- Agenda 21 for Sustainable Construction in Developing Countries
- The Construction Sector System Approach: An International Framework (CIB 293)
- Red Man, Green Man: A Review of the Use of Performance Indicators for Urban Sustainability (CIB 286a)
- Benchmarking of Labour-Intensive Construction Activities: Lean Construction and Fundamental Principles of Working Management (CIB 276)
- Guide and Bibliography to Service Life and Durability Research for Buildings and Components (CIB 295)
- Performance-Based Building Regulatory Systems (CIB 299)
- Design for Deconstruction and Materials Reuse (CIB 272)
- Value Through Design (CIB 280)

A recent major CIB collaborative activity was the Thematic Network PeBBu Performance Based Building: a four-year programme that included 50 member organisations, that was coordinated by CIB and that was funded through the European Commission Fifth Framework Programme.

Themes: The main thrust of CIB activities takes place through a network of around 50 Working Commissions and Task Groups, organised around three CIB Priority Themes:

- Sustainable Construction
- Performance Based Building
- Revaluing Construction

A fourth priority Theme, Integrated Design Solutions is currently being developed within CIB.

CIB Annual Membership Fee 2005/07

Membership Fee (Euro)

Category	2005	2006	2007
FM1	10.019	10.270	10.526
FM2	6.680	6.847	7.018
FM3	2.297	2.354	2.413
AM1	1.154	1.183	1.213
AM2	703	773	851
IM	229	235	241

The lowest Fee Category an organisation can be in depends on the organisation's profile:

FM1 Full Member Multi disciplinary building research institutes of national standing having a broad field of research

FM2 Full Member Medium size research Institutes; Public agencies with major research interest; Companies with major research interest

FM3 Full Member Information centres of national standing; Organisations normally in Category AM1 or AM2 which prefer to be a Full Member

AM1 Associate Member Sectoral research & documentation institutes; Institutes for standardisation; Companies, consultants, contractors etc.; Professional associations

AM2 Associate Member Departments, faculties, schools or colleges of universities or technical Institutes of higher education (Universities only)

IM Individual Member Individuals having an interest in the activities of CIB (not representing an organisation)

Fee Reduction: A reduction is offered to all fee levels in the magnitude of 50% for Members in countries with a GNIpc less than USD 1000 and a reduction to all fee levels in the magnitude of 25% for Members in countries with a GNIpc between USD 1000 to 7000, as defined by the Worldbank.

For more information contact CIB General Secretariat:
e-mail: secretariat@cibworld.nl

PO Box 1837, 3000 BV Rotterdam,
The Netherlands
Phone +31-10-4110240;
Fax +31-10-4334372
Http://www.cibworld.nl

DISCLAIMER

The publisher makes no representation, express or implied, with regard to the accuracy of the information contained in this book and cannot accept any legal responsibility or liability in whole or in part for any errors or omissions that may be made.

The reader should verify the applicability of the information to particular situations and check the references prior to any reliance thereupon. Since the information contained in the book is multidisciplinary, international and professional in nature, the reader is urged to consult with an appropriate licensed professional prior to taking any action or making any interpretation that is within the realm of a licensed professional practice.

CIB General Secretariat
post box 1837
3000 BV Rotterdam
The Netherlands
E-mail: secretariat@cibworld.nl
www.cibworld.nl

CIB Publication 313 – ISBN 978-90-6363-053-9