



CIB NEWS ARTICLE

International Council for Research and Innovation
in Building and Construction

Providing a global network for international exchange and cooperation in research and innovation in building and construction, in support of an improved building process and of improved performance of the built environment.

August 2009

Around the Task Groups and Working Commissions

TG76 - Recognising Innovation in Construction

Introducing a new Task Group

The CIB Board established a new Task Group: TG76 on Recognising Innovation in Construction, with Mr. Carl Abbott of the University of Salford, UK and Prof. Dr. Andrew Dainty of Loughborough University, UK as its Joint Coordinators. A short description of the Task Group and a brief introduction of the Coordinators follows.

Background

Successful innovation is increasingly being recognised as important for maximising the quality of life and wealth generation potential of the built environment. There is now widespread acknowledgement that the construction industry needs to develop an innovation-based model of competitiveness, rather than rely on a model of performance improvement rooted in the incremental evolution of short-term production efficiency measures. The transformational role of innovation is particularly important for the built environment to respond to the environmental agenda. Despite the widespread acknowledgement of the importance of innovation however, construction is considered by some to be 'less innovative' than other sectors.

In the annex to this CIB News article an elaborate systems view on innovation in construction is given.

Scope and Objectives

Against this background the focus of this newly established Task Group is fourfold:

- to bring together international perspectives on innovation in the built environment from socio-technical and socio-economic perspectives
- to develop context sensitive ways of recognising and measuring innovation
- to make an explicit contribution to the CIB Revaluing Construction agenda by further understanding the 'soft' and 'hard' impacts of the built environment
- to develop a proposal for a new Working Commission, which integrates the innovation

agenda across the portfolio of CIB Working Commissions and TGs. This holistic agenda would be prepared in collaboration with TG71.

The aim of the Task Group is:

- to bring together the experience and expertise of researchers and practitioners who would not have otherwise interacted with each other
- to develop, share and disseminate appropriate research methodologies, and innovation theory and practice, with regard to revealing the nature of innovation in construction at a firm, sector and national level
- to encourage and enable new collaborative, multi-disciplinary research activity to take place through the establishment of a critical mass of interested and diverse researchers and practitioners.

The specific research objectives are:

- to define the concept and scale of innovation in construction activity in various contexts
- to develop a robust methodology to investigate and measure the impacts of innovation
- to develop existing innovation theories in the context of the built environment.

Programme

The Task Group will undertake the programme and produce the deliverables as described hereafter.

Year 1: October 2009 – September 2010

- Start-up meeting in CIBW065 symposium, Dubrovnik, September 2009
- Collaborative development of a survey questionnaire to collect data on how different countries measure the scale and impact of innovation at a built environment level of resolution.

This will involve closely working with other CIB Commissions to maximise synergies.

Year 2: October 2010-September 2011

- CIB World Congress 2010, Salford
- Conduct international survey and Analyse survey data
- CIB Conference in 2011
- Conduct cases studies (using framework) in individual countries.

Year 3: October 2011 – September 2012

- Continue to contact cases studies (using framework) in individual countries and Collate and synthesis case studies
- Joint CIB conference with TG71 in 2012
- Completion of final Task Group report.

External Relations

Within CIB the Task Group will cooperate especially with Working Commission W065 on Organisation and Management of Construction and with Task Group TG71 on Research and Innovation Transfer.

Additional Information

For additional information about the CIB TG76 meetings please contact the Coordinators: Carl Abbott c.abbott@salford.ac.uk and Andrew Dainty a.r.j.dainty@lboro.ac.uk.

You can find more information on the activities of CIB TG76 at www.cibworld.nl - Databases - select "Go to Database" – in the shown search engine: type TG76 in the field "Commission number".

Introducing the Coordinators

Mr. Carl Abbott



Carl Abbott is a Senior Research Fellow at the University of Salford where he is the Manager of the Salford Centre for Research & Innovation (SCRI). Carl initially qualified as an electronic design engineer with British Aerospace and was a lecturer in electronics specialising in Computer Aided Engineering. He changed career when he joined the University of Salford in 1999 to research IT in construction at Construct IT during which time he was the author of six 'How to' guides on the best use of IT in construction.

Current Positions

2004-Present Salford Centre for Research & Innovation (SCRI)

2000-2004 Centre for Construction Innovation (University of Salford) Manchester, UK

Past Positions

1991-2000 North Trafford College, Manchester, UK as Lecturer in Electrical & Electronic Engineering

1984-1991 British Aerospace (Dynamics), Bolton, UK as System- and Electronic Engineer

1984-1988 British Aerospace (Dynamics), Hattfield, UK as System Engineer

1984-1986 Director, Housing Division, Fukuoka Prefecture, Fukuoka, Japan

1991-1993 Deputy-Director, Urban Development Division, National Land Agency, Tokyo

Prof. Dr. Andrew Dainty



Current Position

Andrew Dainty is Professor of Construction Sociology and Director of Research at Loughborough University's Department of Civil and Building Engineering. His research has been supported by research grants from the research councils, government and industry totalling over £5m. Andrew currently supervises a team of 20 research staff, many of whom are based within leading contracting and professional service organizations.

Past Positions

For the past 15 years his research has focused on human social action within construction and other project-based sectors and particularly the social rules and processes that affect people working as members of project teams. A concurrent stream of work has developed new approaches to managing people within the construction sector, and for integrating human resource management practices with business objectives.

He has published over 200 papers in leading both academic and industry journals and is co-author/editor

of many of the leading textbooks in the field including HRM in Construction Projects (2003), Communication in Construction (2006), People and Culture in Construction (2007), Corporate Social Responsibility: Challenging Construction (2008) and Employee Resourcing in the Construction Industry (2009). Andrew is also co-editor of the leading research journal Construction Management and Economics and Chair of the Association of Researchers in Construction Management (ARCOM).

Annex: Systems View on Innovation in Construction

Innovation in construction takes place across the design, production and use phases. Barrett, et al. (2007) have proposed three types of innovation: 'sector-level', 'business-level' and 'project-level' innovation. Sector-level is the most visible type of innovation and project-level is the most hidden. These are described below.

▪ *Sector-level innovation*

Sector-level innovation is very visible and often produces radical or step change. It is driven by two distinct sets of influences. First, regulations and standards can drive new sector-wide product or material attributes (for example, structural integrity) or new behaviours (for example, health and safety regulation) forces 'compliance' innovation (see Sexton and Barrett, 2005). A current example of this within the UK is the new Code for Sustainable Homes www.planningportal.gov.uk/ which is a phased regulatory framework to 'force' the industry to build 'zero carbon' homes by 2016. David Nuggett, a Director of Crest Nicholson PLC (a major UK house-builder), recently reported that this requirement will require radical innovation in all aspects of the design and production process (Nuggett, 2007). Second, dominant construction clients drive radical innovation at a sector level, as well as for their particular needs. British Airways Authority, for example, took a leading role in driving the development and implementation of partnering for Terminal 5, which became the bedrock of the influential sector-wide Egan agenda.

▪ *Business-level innovation*

Business-level innovation tends to be more obscure than sector-level, and can produce either radical or incremental innovation. The innovation focus is on general resource and capability development, rather than being project specific. There are two key types of business-level innovation. First, explicit research and development activity, which produces either radically new, or incrementally improved, materials, products or subsystems. This activity produces 'potential value' (i.e. it still needs to be commercially exploited) and is highly visible in the national accounts (see section below). Second, is the general organisational development activity, which generates, for instance radically new or incrementally improved supply chain arrangements, human resource management strategies, business processes or practices.

▪ *Project-level innovation*

Project-level innovation activity is the most hidden, but arguably has the greatest impact on sector performance, and is generally incremental in nature. The co-production of novel design solutions between different parts of the design team (architectural,

structural engineer, mechanical engineer, and so on) builds upon their respective knowledge and experience. Similarly, the day-to-day problem solving on site during the production phase is very much grounded in participants' tacit knowledge and 'learning by doing.' The cumulated impact of incremental innovation over time is significant, both at firm and aggregated sector level, although this is rarely formally captured.

So, how does this all come together? Figure 1 shows a speculation on the split between Sector, Business and Project level innovation.

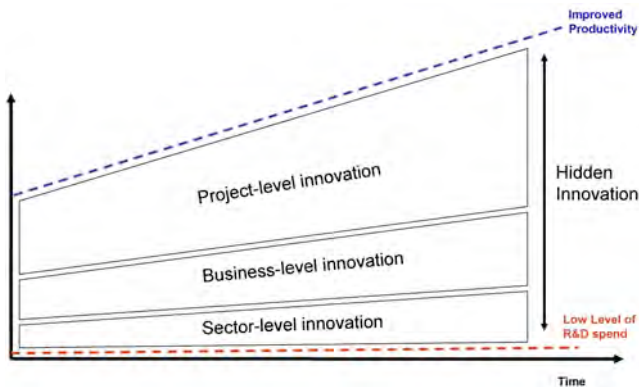


Figure 1: 'Hidden' Innovation in the Construction Sector

It is proposed, for long-term, progressive improvement through innovation, that all three elements are needed. Then, taking a systems view, the innovation ecosystem will be generally enhanced by more conducive structural conditions, more capable companies and improved innovation at the project level, leading to greater confidence for key stakeholders to innovate, so creating a virtuous cycle. This continuous improvement view is consistent with the CIB Revaluing Construction agenda (see Figure 2), which has a holistic view of construction (Barrett, 2007).



Figure 2: CIB Revaluing Construction agenda

'Hidden innovation' implies that much of the innovative activity in an economy or sector is invisible to conventional measures that are usually based on traditional, linear models of innovation. Thus, understanding how innovation actually occurs within a sector, and recognising it as such, is essential to the measurement and representation of the true level of innovative activity. It is also key to exploiting innovation and for the development of policies at a company, sector or national level intended to promote innovation. The purpose of this Task Group will therefore be to better understand, recognise, capture and measure the hidden innovation in construction at all of these levels.