Construction creativity casebook

Network of Construction Creativity Clubs
An ARCOM initiative and An EPSRC funded project

www.ce.strath.ac.uk/nccc
Many innovations in the UK construction industry are developing in response to the latest government initiatives based on Sir John Egan's report *Rethinking construction* (1998), which gave recommendations for performance improvements.

The *Construction creativity casebook* provides a background profile of innovations in the UK construction industry through an analysis of the innovations presented within the Network of Construction Creativity Clubs (NCCC). The analysis of collected data shows that significant efforts are being made in the construction industry, academia, professional organisations and through government initiatives to stimulate and achieve improvements. Innovations are taking place in all construction related areas, especially in environmental impact management, contracting and partnering, procurement, and the application of IT. Innovations are related not only to the processes, products and practices of industry, but also to other areas that have an influence on the construction industry.

The NCCC has thus provided not only a forum for direct knowledge transfer on innovations between the construction SMEs and academia, but also it provided information on the conditions and mechanisms which support the innovations. This information is an important feedback mechanism towards better understanding of innovation processes in the construction industry.

The interest of the industry and academia to showcase their innovative work shows that all those involved in the development of the UK construction industry and related areas are making significant efforts to contribute to improvements and to promote their achievements.
A catalogue record for this book is available from the British Library

ISBN: 0 7277 3148 3

© D. Langford and B. Dimitrijević 2002

All rights, including translation, reserved. Except as permitted by the Copyright, Designs and Patents Act 1988, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior written permission of the Publishing Director, Thomas Telford Publishing, Thomas Telford Ltd, 1 Heron Quay, London E14 4JD.

This book is published on the understanding that the authors are solely responsible for the statements made and opinions expressed in it and that its publication does not necessarily imply that such statements and/or opinions are or reflect the views or opinions of the publishers. While every effort has been made to ensure that the statements made and the opinions expressed in this publication provide a safe and accurate guide, no liability or responsibility can be accepted in this respect by the authors or publishers.

Typeset by the authors
1 Executive Summary

This publication provides a background and profile of innovations in the UK construction industry through an analysis of the innovations presented within the Network of Construction Creativity Clubs (NCCC). The NCCC was a one-year project funded by the Engineering and Physical Sciences Research Council (EPSRC) for the period January-December 2000. The Network was initiated by members of the Association of Researchers in Construction Management (ARCOM). Its aim was to provide a mechanism to exchange knowledge and expertise on innovations between the construction industry, small and medium sized enterprises (SMEs), and the academic community.

Through the network of four regional clubs, which comprised 12 universities across the United Kingdom, the NCCC offered opportunities for informal communication between innovators in each region. In the period January-December 2000 the NCCC organised 23 events. The events provided an opportunity for networking, which was also supported through the NCCC web site by publishing the profiles and contact addresses of the companies/organisations which presented their innovations. The NCCC has thus provided not only a forum for direct knowledge transfer on innovations between the construction industry SMEs and academia, but it provided information on the conditions and mechanisms which support the innovations. This information is an important feedback mechanism towards better understanding of innovation processes in the construction industry.

Analysis of innovations, presented by companies and organisations at NCCC events, provides a sample of the current innovative state of the UK construction industry. The analysis of collected data shows that significant efforts are being made in the construction industry, academia, professional organisations and through government initiatives to stimulate and achieve improvements. The sample shows that innovations are taking place in all construction related areas, but especially in environmental impact management, contracting and partnering, procurement, and application of IT. The innovations are related not only to the processes, products and practices of the industry, but to other areas which have an influence on the construction industry (e.g. insurance, marketing).

The interest of the industry and academia to showcase their innovative work, which was notably growing with each NCCC event, shows that all those involved in the development of the UK construction industry and related areas are making significant efforts to contribute to improvements and to promote their achievements. In the period January - December 2000 the NCCC achieved the following:

- organised 23 events
- attracted 80 presentations on innovations
- attracted over 600 attendees at the events
- published over 50 presentations on the web site
- produced one newsletter.
Mr. Guillermo Aranda, University of Reading

Priming Novice Site Operatives Using Navigable Movies

Challenge
A high proportion of British construction activities involve work on existing buildings and structures and this demands hazard perception skills which span new build as well as refurbishment projects. Firms therefore need to ensure that their operatives have a thorough understanding of the characteristics of such working environments.

Innovative approach and solutions
Surrogate travel refers to the ability to manoeuvre through an environment without being physically present. This is achieved by capturing images in a preplanned manner generating a series of virtual nodes linked through sensitive areas so that the trainee can explore a series of settings in a random manner on the screen moving at will in a number of directions.

Implementation
Areas of investigation include ground level access/egress, above ground level access/egress, route links (e.g. crawling boards, bridges, runways and gangways), fragile roofing materials (e.g. roof lights, asbestos, metal liner panel), demarcation, guards and edge protection systems, lighting and signage systems, confined spaces, site house keeping (tidiness, obstructing barriers).

After a walk through production, the operator is then able to control the walk through sequence, with a number of possible directions at any given point (Figure 21.).

Figure 21. A segment of navigable movie

Benefits
The potential for computer-based simulations to be effective training tools have the following benefits:

- They provide a safe environment within which operatives can experience outcomes.
- They allow contractors to develop visual documentation.
- They can be effective tools to support training programs.
- They allow access to cases that would otherwise be very difficult to experience.

Contact presenter: Mr. Guillermo Aranda
University of Reading
Department of Construction Management and Engineering
Whiteknights, P.O. Box 219
Reading RG6 6AW
Fax: 0118 931 3856
E-mail: ker97ga@rdg.ac.uk
Web site: www.rdg.ac.uk