

## **INTERNATIONAL INNOVATION**

### **Full Paper**

## **A REGIONAL MODEL FOR INNOVATION AND CULTURAL CHANGE IN THE CONSTRUCTION INDUSTRY**

### **Mr Carl Abbott**

*Centre for Construction Innovation*

[Carl.abbott@ccinw.com](mailto:Carl.abbott@ccinw.com)

### **Dr Han Ching Ong**

*Centre for Construction Innovation*

[hc.ong@ccinw.com](mailto:hc.ong@ccinw.com)

### **Dr William Swan**

*Centre for Construction Innovation*

[will.swan@ccinw.com](mailto:will.swan@ccinw.com)

## **ABSTRACT**

The Northwest Development Agency (NWDA) provides programmes and funding to ensure the sustainable economic development and regeneration of England's Northwest. As such it is a major client of the construction industry both directly, through its estates department (annual spend £320 million), and indirectly as a grant funder with an influence on funding of £1.2 billion. The Centre for Construction Innovation (CCI) is an enterprise centre of the University of Salford, UK. It is also the regional Constructing Excellence centre for the NW of England. As such it is part of a regional and national network of construction and training experts and has recently been awarded a two-year commission from the Northwest Development Agency (NWDA) to deliver a package of training on Rethinking Construction and Better Public Buildings. The project emphasises the NWDA's intention as a client to take the lead in the region in improving the quality and efficiency of the construction industry and shows its commitment to provide better quality buildings and value for money as promoted by the government reports Rethinking Construction and Better Public Buildings. The work involves extensive training and awareness raising, active facilitation of partnering on NWDA strategic sites, auditing of agency projects and assisting in up-dating the approved suppliers' selection criteria.

This paper will show how CCI and the NWDA are determined to use the programme of training to change the way that the industry operates in the region. In order to affect such a cultural change requires involvement and input from staff at all levels from within the NWDA and their strategic partners. To ensure long term change it is vital that the lessons learned becomes the everyday processes of the agency and that a culture of continuous improvement is created. The framework used for this training should be of value to large clients seeking to create a culture of change within their supply-chain.

**Keywords: Innovation; Cultural Change; Construction;**

## **1. INTRODUCTION**

### **1.1 BACKGROUND**

The Centre for Construction Innovation (CCI) is an enterprise centre of the University of Salford, UK. It is also the regional Constructing Excellence centre for the NW of England promoting the strategic objectives of Constructing Excellence. As such CCI is an independent point of reference and advice for organisations and provides assistance in areas such as team integration and partnering; benchmarking, business improvement; and procurement. The Centre brings together a broad range of industry participants in a range of best practice education and training seminars, workshops and in-company events, facilitating change by learning, debate and experience. CCI is a not-for-profit whose goal is to provide the knowledge and tools to create an industry that fosters innovation.

The Northwest Development Agency (NWDA) is a Regional Development Agency (RDA) a Government-sponsored public body set up by the UK Government in 1998. It was established as one of 9 RDAs, to help improve quality of life and economic prosperity across English regions. The NWDA provides programmes and funding to ensure the sustainable economic development and regeneration of England's Northwest. As such it is a major client of the construction industry both directly, through its estates department, and indirectly as a grant funder with an influence on an annual spend of £1.2 billion.

Constructing Excellence was formed in October 2003 by bringing together two unique organisations within the UK construction industry – Rethinking Construction (formed as a result of Egan Report and the Construction Best Practice Programme (Constructing Excellence, 2003). It is funded by the Department of Trade and Industry. It has four main programmes of activity:

- Innovation – identifying and promoting tomorrow's best practice;
- Productivity – improving the competitiveness of the UK construction industry;
- Best Practice Knowledge – creating continuous improvement through the exchange of best practice, and
- Engagement – working with people, business and organisations to change the culture of the industry.

The training programme for the NWDA is therefore a partnership between the above three organisation. As a public body the NWDA recognises that it needs to adopt the principles of Rethinking Construction, the Egan Report and the Better Public Buildings white paper. On a national scale Constructing Excellence has as its main role, on behalf of the UK government, the promotion of this agenda. On a regional level CCI brings together a team to leading experts from the HE sector and from industry to facilitate the adoption of these principles within the NWDA. The principles of Rethinking Construction and Better Public Buildings are detailed below.

### **1.2 RETHINKING CONSTRUCTION PRINCIPLES**

The Rethinking Construction initiative was launched following the report of the Construction Task Force chaired by Sir John Egan in 1998. The 'Rethinking Construction' report identified seven targets for improvement in construction productivity, profits, defect and accident reduction. They include 10% reductions in capital cost and construction time annually, 20% reduction in defects and accidents,

10% increase in productivity and profitability and 10% increase in predictability of project performance (DTI, 1998). This improvement to be achieved by the adoption of drivers for change, specifically: committed leadership, a focus on the customer, integrating process and team, a quality driven agenda, and commitment to people. The Local Government Task Force was established in March 2000 to encourage and assist local authorities to adopt the principles of Rethinking Construction.

As a result of a consultation exercise ('The National Debate: Rethinking the Construction Clients') held in October and November 2001 Rethinking Construction has produced six key guidelines for public sector clients wishing to embrace the principles of Rethinking Construction. These are:

- Traditional processes of selection should be radically changed because they do not lead to best value.
- An integrated team, which includes the client, should be formed before design and maintained throughout delivery.
- Contracts should lead to mutual benefit for all parties and be based on a target and whole life cost approach.
- Suppliers should be selected in adherence to principles of "Best Value" and not by lowest price: this can be achieved within EC and central government procurement guidelines.
- Performance measurement should be used to underpin continuous improvement within a collaborative working process.
- Culture and processes should be changed so that collaborative rather than confrontational working is achieved.

The principles of Rethinking Construction call for clients to work as members of integrated teams with a culture of performance measurement to underpin continuous improvement within a collaborative working process. More than 100 local authorities and other agencies have Rethinking Construction Demonstration Projects, which illustrate the practical application of these guidelines.

### **1.3 BETTER PUBLIC BUILDINGS**

The Better Public Buildings white paper was published in October 2000 and calls for a change in the quality of building design in the public sector. It provides a checklist of do's and don'ts for local authorities to develop a new approach to design quality of any building type. In August 2001 the initiative was confirmed to continue and is charged by the Commission for Architecture and the Built Environment (CABE). THE UK Prime Minister commented "I am committed to encouraging a new age of good design in our public buildings, so that we match the best of that which we have inherited from previous generations" (Better Public Buildings, September 2001).

There are seven principles of urban good design that are stated in the joint DTLR/CABE publication *By Design* (DTLR/CABE, 2000):

- **Character:** to promote character in townscape and landscape by responding to and reinforcing locally distinctive patterns of development, landscape and culture.
- **Continuity and enclosure:** to promote the continuity of street frontages and the enclosure of space by development, which clearly defines private and public areas.

- **Quality of the public realm:** to promote public spaces and routes that are attractive, safe, uncluttered and work effectively for all in society, including disabled and elderly people.
- **Ease of movement:** to promote accessibility and local permeability by making places that connect with each other and are easy to move through, putting people before traffic and integrating land uses and transport.
- **Legibility:** to promote legibility through development that provides recognisable routes, intersections and landmarks that help people find their way around.
- **Adaptability:** to promote adaptability through development that can respond to changing social, technological and economic conditions.
- **Diversity:** to promote diversity and choice through a mix of compatible developments and uses that work together to create viable places that respond to local needs.

Better Public Buildings is trying to eliminate the widely held belief that good design is a costly luxury. Good design can offer many benefits. According to (CABE survey, 2002), three quarters of people believe that the look and feel of well-designed streets helps reduce crime rates. 70% of English people believe well-designed schools improve children's education. As Sir John Egan's report 'Rethinking Construction' demonstrated, best practice in integrated design and construction delivers, better value for money as well as better buildings particular when attention is paid to the full cost of building over its whole lifetime.

## **2. NWDA TRAINING PROGRAMME**

The purpose of the NWDA training programme is therefore to help it to change its working practices and in doing so derive the benefits of the Rethinking Construction targets whilst producing better quality buildings. The NWDA recognises that it can not achieve change on its own but must work with its partners to achieve this. In order to ensure that the programme is taken forward fully, the agency recognises that a cultural change must not only take place within the Agency and its staff, but also with strategic partners, institutions, professional bodies, developers, landlords and contractors.

### **2.1 PROGRAMME OUTLINE**

The NWDA training programme is far more than a series of training workshops. The programme as a whole consists of the following stages that are intended to effect a cultural change within the agency and it's external partners.

- a) The appointment of a board level project champion to ensure that a clear message is given that the agency is fully committed to change. The formation of an Implementation Team to meet monthly to monitor and ensure progress is made.
- b) Internal and External project launch events to achieve 'buy in' of agency staff and partner organisations
- c) Specific training workshops. Twelve, one day training workshops for agency and partner organisation staff. Each workshop to be delivered three times
- d) Update of NWDA project manuals. Each workshop leader to produce guidance notes for inclusion in the NWDA's project manuals. This ensures

- that the lessons from the workshops become embedded in standard NWDA procedures.
- e) Ongoing external awareness events to communicate with the regional industry the changes in practice that the NWDA are committed to as a result of the programme.
  - f) Auditing. As the training programme unfolds CCI will perform an auditing function on NWDA projects to ensure practices are being successfully adopted
  - g) Assistance on two Strategic Sites. CCI to ensure that two NWDA schemes are fully supported and taken from the initial stage to a fully contracted and partnered development which embraces, in so far as possible, all the areas which take into consideration rethinking construction. These sites to provide a demonstration of good practice within the agency.
  - h) Panel partnering. Assistance for the NWDA in the refreshing and selection of its various supply chains.

Taken as a whole it can be seen that the programme is an ambitious attempt to fully embrace change and to significantly alter the working practices of a major funder and influencer of construction activity. In making this change the agency is consciously putting in place a process to drive change and innovation throughout its partner organisations.

## **2.2 PROJECT TEAM**

A key element in the training and facilitation programme is the way that as a regional centre for a Constructing Excellence, CCI has been able to draw upon a wide range of leading industry and academic experts. The organisation itself is lean but by drawing on its networks it brings together a much larger team. In addition to its own staff CCI have drawn upon experts from Constructing Excellence nationally, regional universities (UMIST/Manchester and Salford), independent consultants and industry experts. This is a strength of an organisation such as CCI that is perceived as a neutral support organisation and could be difficult to replicate by a commercial organisation.

## **2.3 MODULE DESIGN**

The NWDA determined the areas for change based around the Rethinking Construction 5-4-7 model for continuous improvement. Using this as the basis for activity, the required training modules were designed to achieve the goal of putting the client at the centre of a Constructing Excellence Network. Each of the modules is designed to impact one or more of the areas within the Quality Model and address the Constructing Excellence agenda for the NWDA and their supply chain.

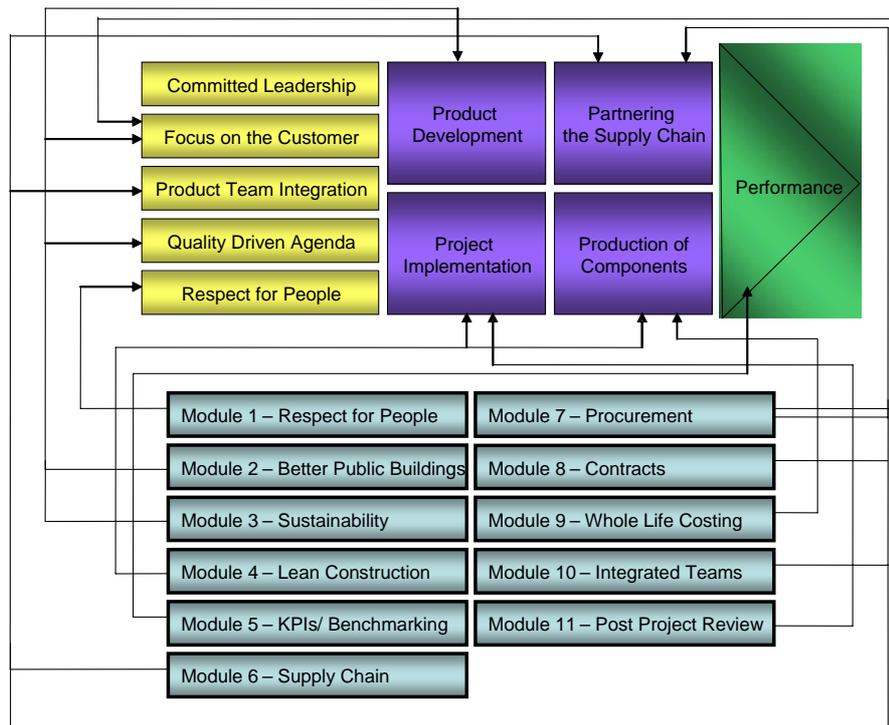


Figure 2.1.1 Mapping of NWDA Training Modules with Constructing Excellence Agenda

## 2.4 MODULE DELIVERY

Each training event is held over one day with the day is divided into two sections:

**Awareness Session** – the awareness session is designed to give those individuals who need a broad understanding of the subject matter, but may not be engaged in the day-to-day implementation of the issues. It covers the main principles of the issues, policy drivers and some practical examples of the issues within a real life context.

**Workshop Session** – the workshop session is designed to give a more hands-on approach to the subject matter. These interactive sessions allow delegates to gain experience in the tools and techniques of the specific subject area.

A list of the workshops and an outline of their content is given below.

Table 2.1.1. Rationale for Each Training Module

Module	Rationale
Respect for People	Respect for People drives the ability of firms to retain and develop staff as well as attract the best new employees into the sector.
Better Public Buildings	Effective projects deliver value to the wider community, and this is driven through an effective and inclusive design process.
Sustainability	Projects must take into consideration issues of

	sustainable construction and communities.
Lean Construction	Project should be delivered as effectively and efficiently as possible, looking to eliminate wasteful processes.
Key Performance Indicators	Performance measurement is vital to drive continuous improvement in construction.
Supply Chain Management	The NWDA is looking for an industry that has sustainable and integrated supply chains.
Procurement	Procurement serves as a driver for many of the issues that Constructing Excellence is promoting. Effective procurement drives good projects.
Contractual Arrangements	New procurement approaches will need new contractual mechanisms to support them.
Whole Life Costing	When considering projects we must understand that the capital cost of a building only represents a fraction of its actual cost. WLC allows us to look at projects through their life cycle.
Integrated Teams	Construction requires teams to be rapidly assembled. We need to understand the drivers for team building within the special context of construction.
Post Project Review	Any effort to drive continuous improvement will review learning to be gathered from previous projects to be applied to future projects.

A training needs analysis was undertaken for the NWDA staff by their Human Resources department. This identified staff internally for specified training. After this an awareness raising event was held to inform all relevant staff, about 150 in total, the change goals of the NWDA and communicate the content of the training in short 10 minute presentations for each of the modules. It was identified that internal staff should account for approximately 30% of the total places at the workshops. To cover the demand for the training and to ensure that both internal staff and partner organisations can participate each workshop is delivered three times. The audience is composed of a large number of disparate stakeholders. This reflects the wide number of organisations that the NWDA deal with through both direct development (NWDA lead projects) and grant aided projects (externally lead projects). In addition, these projects will be split on functional lines based around roles on projects.

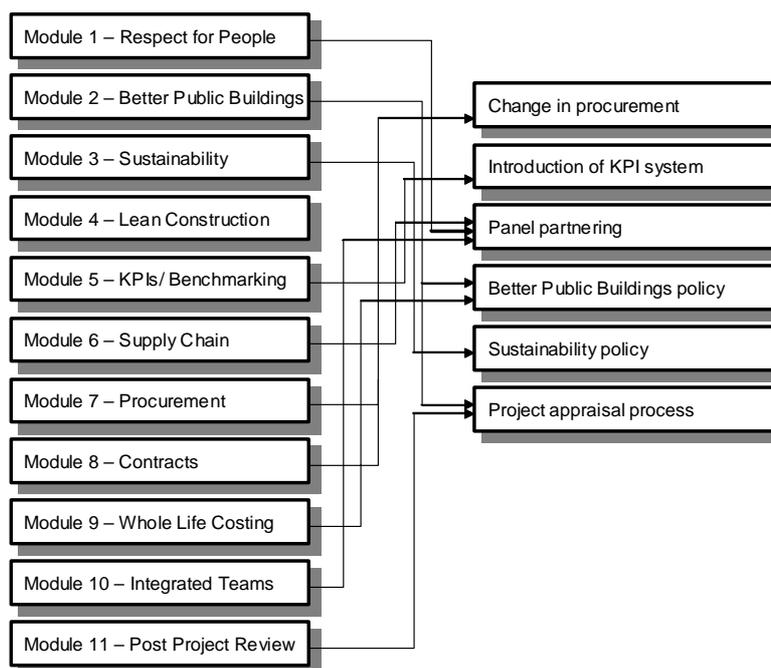
Table 2 – Organisations/ Functional Boundaries

<b>Organisations</b>	<b>Functions</b>
NWDA	Project Managers
North West Local Authorities	Designers
Special Development Organisations	Cost Consultants/ Managers
Contractors	Grant Appraisers
Consultants	Grant Holders
Supply Chain Members	
Other Organisations	

A feedback process has been put in place to allow the delivery teams to assess if any changes are required to the modules. Generally, this model leads to minor changes in the programme to take account of the variable experiences within the audience.

### 3. IMPLEMENTING CHANGE

The NWDA is not seeking a training programme as such, rather it is seeking the adoption of new practices that increase productivity and produce better quality buildings. A change management approach was therefore adopted from the outset. This started with the championing of the project at the highest levels of the agency to provide the drive to ensure that changes are implemented. As already stated, Initial awareness raising sessions were held with agency staff to ensure that they were all aware of the aims and benefits of the programme. The participation of the Chief Executive of the Agency in this awareness raising was key to establishing the credibility of the programme amongst staff. A project Implementation Team meets monthly to discuss the programme and to ensure that its lessons are being adopted in everyday practice. Within the NWDA the training has so far led changes in procurement practices as well as associated changes to process this has impacted. Each of the modules was designed to be tied to an internal activity to change the NWDA to a Constructing Excellence organisation. Module deliverers are also tasked with producing internal guidance to be included in the NWDA's project manuals. The diagram below shows how the training modules are designed to directly lead to change in NWDA activity.



It is also important to realise that the training modules as such are only one part of the overall change programme for the NWDA. As these lessons are adopted the programme also includes active facilitation for the adoption of these principles on two of the NWDA's flagship strategic sites, auditing of agency projects and assisting in up-dating the approved suppliers' selection criteria. These are key activities that go far beyond the normal approach of training delivery with no follow on support. It requires CCI staff to work in partnership with the agency and to fully understand the day to day working of the agency. The anticipation is that initially the support required from CCI on these projects would be high but as the training takes root the support required will reduce.

### **3.1 OUTCOMES AND FEEDBACK**

The programme of training began in November 2003 with the Respect for People module. This suffered from low attendance both internally and externally meaning targets were not met by some 50%. 'No shows' were common at these events and so measures were introduced to ensure that both internal and external partners attended after having booked. For the next module, Better Public Buildings in January 2004, 70% of the targets were hit, while Sustainability in February 2004 met expectations. By the end of the third module over 250 people had received some form of training.. A policy of overbooking was adopted based on the numbers of individuals who cancelled or did not attend the event, despite previously booking.

Initially, a pre and post-assessment model was used in order to assess the modules. However, it was felt that the level of training and its associated complexities, did not lend itself well to a simple assessment model. To this end, more reliance was placed on the level of interactivity of the workshop and the use of feedback from the participants. As with all Continuous Professional Development (CPD) events, attendance was determined as sufficient to merit an award. The level of attendance for both the awareness sessions and the workshop sessions was closely monitored and fed back into the training database. This data was used as the basis for the issue of CPD certificates.

## **4. CONCLUSIONS**

It is still early days in the training programme, which at the time of writing is 30% complete, with 4 of the 11 modules delivered. The wider implications of the project have yet to be felt, but the high level of the commitment from the NWDA has demonstrated their intention to change.

At the process level, procurement routes are already changing as is the performance measurement regime. These changes are closely tied into the delivery of the modules. The impact that this has on the wider construction community in the NW is that increasingly procurement is being done on the basis of quality not cost. This is a radical change for the industry in the region. Currently, the performance measurement regime is being developed alongside the KPI and Benchmarking Module for delivery. This will be the next major change in agency practice.

The programme is, in some respects to be viewed as a two-way process. Often, in the discussion and consideration of issues within the mixed NWDA and external partner groupings, it becomes apparent that there is a gap of understanding between the two groups. This creates an opportunity for dialogue around the issues. This process has informed the further development of both Better Public Buildings and Sustainability policies.

At this early stage the measurement of the impact of the project has yet to be fully undertaken. The implementation of a performance measurement regime against Constructing Excellence Key Performance Indicators will give an excellent picture of the impact of the training. It is envisaged that the KPIs will allow teams to discuss the impact of the training directly on their own projects, while giving the NWDA a broad picture of the portfolio of activity that they are currently engaged with. These performance measures will look at project management issues, such as time and

cost as well as more complex issues of sustainability, design and community involvement.

There is evidence that the training is meeting not just the requirements of the NWDA, but also the wider client base. The programme has been an excellent opportunity for NWDA staff to engage with their partners in a non-project environment. This has helped them assess the gap between reality and perception in terms of their partners understanding of expectations, especially in the workshop context. A large number of attendees are from client organisations such as local authorities, who have a wider remit to bring their construction projects under the Constructing Excellence Agenda and are initiating a change process in their organisation as a result of the training programme.

## 5. REFERENCES

Department for Culture, Media and Sport. (October 2000) *Better Public Buildings: A Proud Legacy for the Future*. London.

Centre for Construction Innovation (2004) [Online], [Accessed May 2004]. Available from World Wide Web: <http://www.ccinw.com/>

Constructing Excellence (2003). *A Strategy for the Future Prospectus 2004 – 2006*. London: Construction Excellence.

Constructing Excellence (2004) [Online], [Accessed May 2004]. Available from World Wide Web: <http://www.constructingexcellence.org.uk/>

Department of Trade and Industry (1998). *Rethinking Construction*. United Kingdom: Construction Task Force.

DTLR/CABE (2000). *By Design. Urban design in the planning system: towards better practice* London: Thomas Telford Ltd. Prepared by the Department of the Environment, Transport and the Regions in partnership with the Commission for Architecture and the Built Environment

Northwest Regional Development Agency (2004) [Online], [Accessed May 2004]. Available from World Wide Web: <<http://www.nwda.co.uk>>