



# Profiting From Integration

November 2007



CONSTRUCTION CONFEDERATION





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# 1.0

## Foreword

At its heart, integration is about improving industry efficiency, eliminating waste, raising safety standards and reducing project risk. This Task Group has found substantive evidence to support the view that working across the industry in an integrated fashion delivers discernable and material benefits to each contributing party. There appears therefore to be a sound underlying business case for its active promotion.

To the extent to which it is possible to measure, it is also evident that the uptake of projects operating in an integrated fashion is somewhat slower than had been expected. In the view of the Task Group, there remain some material obstacles, which the industry would do well to address, for example, the proliferation of contracts and a residual clinging to traditional, and some might say, outdated views on risk transfer. [The Strategic Forum is asked to consider giving its collective support to the continuing elimination of these material inefficiencies.](#)

Whilst evident to the group that working in an integrated way may have a variety of interpretations and degrees, it is also felt that there is insufficient promotion of the business case across all sectors of the industry. To be clear, the larger government spending departments and agencies have embraced the concepts, as have a number of the major developers and infrastructure providers, and the supply side of the industry has generally worked hard to respond. The degree to which the benefits can be obtained from smaller scale projects has still to be fully explored, however, integrated working is as much a matter of mindset and attitude as contracts or charters. [The Strategic Forum is asked to consider providing a substantially higher level of collective promotion to the benefits of integrated working, not just to clients but also to all sectors of the industry.](#)

The group has given its endorsement to a number of interesting new initiatives that appear to offer promising lines of investigation, such as the testing of integrated project insurance. In this connection, the group has offered to continue to stand as an independent observer and champion. [The Strategic Forum is asked to consider defining and supporting an ongoing role for the Task Group in monitoring the effectiveness of industry improvements.](#)



I am grateful to colleagues on the Task Group for their commitment of time and energy, and in particular to Rachel Done who has delivered her secretariat role with great diligence, tenacity and tact.

**Martin Nielsen, Chairman**

Integration Task Group, October 2007

# 2.0

## Introduction & Background

### 2.1 Background

Integration was the key discussion item of the Strategic Forum for Construction (SFfC) at its November 2006 meeting, where it was recognised that, whilst considerable progress towards integration has been made over the last ten years, it did not believe that the industry would meet one of the principal Egan targets.

*“...that 20% of construction projects (by value) should be undertaken by integrated teams and supply chains by the end of 2004, rising to 50% by the end of 2007.”*  
— Accelerating Change, Sir John Egan, 2002

Surveys undertaken at the end of 2004 suggested that at least 13% of projects were being undertaken in an “integrated way”. Over three quarters of the clients involved in such projects reported that integration had led to time and cost savings.

In the light of these discussions, the SFfC proposed “to bottom out the business case” for integration. It was intended that this would include case studies to evidence the benefits. The Rt Hon Margaret Hodge MBE MP, the Minister with responsibility for construction during spring 2007, also agreed to review whether, through public sector projects, the step change needed in the number of integrated projects was achievable.

### 2.2 Integration Task Group (ITG)

The Integration Task Group (ITG) was reformed in Spring 2007 under the independent chairmanship of Martin Nielsen. The following organisations were represented:

- Construction Clients Group (CCG);
- Construction Confederation (CC);
- Construction Industry Council (CIC);
- Construction Products Association (CPA);
- Constructing Excellence (CE); and
- The Specialist Engineering Contractors (SEC) Group, including the National Specialist Contractor’s Council (NSCC).

The list of individual representatives and co-options to the Task Force is attached at Appendix 1.

## 2.3 Brief to the Integration Task Group (ITG)

The purpose of the ITG was agreed as to investigate and make recommendations concerning:

- The definition of integration
- The business case for integration, identifying case studies where appropriate
- How the business case can be effectively promoted.

## 2.4 Programme of meetings & attendees

The following meetings were held by the task group:

26 <sup>th</sup> April 2007	Review terms of reference
26 <sup>th</sup> June 2007	Consider the business case
19 <sup>th</sup> July 2007	Consider the barriers to integration
13 <sup>th</sup> Sept 2007	Review the solutions to the barriers
8 <sup>th</sup> Oct 2007	Overview of discussions to date

Attendees at the above meetings are detailed in Appendix 1

# 3.0

## What is Integration?

### 3.1 Understanding across the Industry

It is clear to all that there is little common understanding across the industry of the complete meaning of integration, nor is there a perfect means of measuring the degree to which integration has been achieved. The term – *integration* – can have a variety of business cases according to one’s industry perspective, for example

- The **client** and **end user** may view integrated team working as a means of securing his projects within budget and to time;
- The **consultant** may see integrated working as a means of ensuring that he sits at the same table as both the client and contractor;
- The **contractor** may view integration of a means to securing a long term profitable order book;
- The **subcontractor** or **equipment supplier** might see advantage in securing rewards for innovative ideas or continuity; and
- The **construction products supplier** may value the ability to exert real influence on the choice of materials and specifications.

As companies move increasingly to diversify, they might easily find themselves **adopting a number of these roles** within the same business; for example, a constructor investing in a PFI project may also find it to be both contractor and substantive end user. **Complexity** is added when one considers that **wide degrees of integration prevail**, from the bundling of smaller projects into frameworks through to the full-blown arrangements where, for example, third or fourth tier suppliers may be locked into and benefit from efficiencies obtained by the end-user. The key issues considered by the Task Group are:

- Whether the extent to which integration is already happening is being measured correctly across the industry;
- Whether the business case for integration can be effectively bottomed out; and
- What drivers need to be in place to accelerate the adoption of integrated working.

In consideration of these issues, whilst recognising that industry reform will be gradual, **the importance of a change in industry culture is seen as paramount**. It is also recognised that there already exist **substantive drivers** for change across the industry, notably:

- **Increasing skills shortages** that drive the need for raising efficiency;
- **Client leadership** in both the public and private sector, seeking to raise the certainty of investment cost and delivery; and
- **Proving a “business case”** for change.

It is recommended that a strong business case could provide the most sustainable approach to accelerating change. Measurement and evidence however are crucial, noting that this will take time to collate.

## 3.2 Egan Definition

The task group discussed the Egan definitions below.

### 3.2.1 Integrated Team

*“An integrated team includes the client and those involved in the delivery process who are pivotal in providing solutions that will meet the clients requirements. Thus those involved in asset development, designing, manufacturing, assembling and constructing, proving, operating and maintaining, will have the opportunity to add maximum value by being integrated around common objectives, processes, culture/ values, and reward & risk. An integrated team requires team members to harness the potential of their integrated supply chains.”*

### 3.2.2 Integrated Supply Chain

*“An integrated supply chain is focused on the processes associated with the reduction of the total cost of the supply chain, including, but not limited to, design, procurement, inventory management and product installation. A totally integrated supply-chain enables an end-user to more effectively and cost-efficiently manage manufacturing, inventory and transaction costs. In a true integrated supply relationship, the customer and the integrated supply partner analyse every aspect of the supply-chain process (acquisition, storage, logistics, installation, post-shipment support, information systems, etc.) and then streamline each component, eliminating redundancy of effort and cost, and improving service levels.”*

After careful consideration, it was concluded that little benefit or enhancement would be derived from promoting a new “plain English” version. Accordingly, no change to the Egan definitions was recommended.

### 3.3 The Journey to Integration

Within the discussions, two items in particular generated wider debate, notably:

- Do frameworks constitute an early or first step in integrated working; and
- How far should integration extend down the supply chain?

Both of these matters lead to some confusion about what integration actually means.

The purist might have it that frameworks do not by themselves imply that the parties have tied themselves to collective engagement with project outcomes. However, there can be little denying that the bundling of projects into programmes, and programmes into frameworks do usually provide procurement cost savings, and do facilitate early engagement between the client and his supply chain. Accordingly, whilst accepting that it is perfectly possible to have non-collaborative framework arrangements, it was agreed that the very introduction of frameworks could provide a useful facility for taking the first steps along the journey towards integration.

Frameworks are not an essential pre-cursor to integration, indeed it is important to emphasise that integrated working may be just as beneficial to a one-off investor, such as a hospital trust, as to a regular spending agency.

In looking at the degree to which integration should penetrate the supply chain, the task group considered that this would be determined by the strength of the design element required, and to the scale and complexity of the component parts of the project.

### 3.4 Integration Tool kit

The Strategic Forum's [Integration Toolkit](#), accessible free of charge on [www.strategicforum.org.uk](http://www.strategicforum.org.uk) has an important role to play as a guide to the initiation and the conduct of fully integrated projects. The Task Group's view is that [it needs refreshing, updating, simplifying and promoting](#) – for example, to reference some of the latest exemplar projects and collaborative tools.

### 3.5 'Selecting the Team'

Selecting the Team was produced by the CIC partnering task force as a companion publication to the CIC Guide to Project Team Partnering. In his foreword Sir John Egan wrote "Forming a satisfactory team is a vital step if partnering is to be successful. Selecting the Team will be of great assistance, not only to clients and their advisers, who are embarking on integrated team working for the first time, but will also serve as a standard methodology for those who are more experienced".

The guide provides a process that has been tested on real projects and refined in the light of experience in use. Its adoption is intended to consolidate and accelerate progress already made towards team working as the norm rather than the exception. Advice given is in line with the recommendations of the SFfC in Accelerating Change.

Selecting the Team is part of the suite of partnering guides produced by the CIC that also includes [A guide to Partnering Workshops](#).

[Selecting the Team](#) is compatible with the [Integration Toolkit](#), and [needs further promotion](#), especially as CIC has just announced that it will now similarly be made freely available for use by the industry.

## 3.6 Arguments against Integration

The group has given careful consideration to some of the arguments offered by sections of the industry against working in an integrated fashion. This section identifies some of the counter-arguments and provides commentary by way of response. It was a result of a paper produced by Mark Wakeford for the ITG.

- 1) **Integrating the supply chain through named suppliers.** An argument has been advanced that the out-turn price, where named companies are used, is higher than can be achieved by tender for the same product package.

*Recommendations:*

- *Framework agreements with essential suppliers are awarded on the basis of best whole life value.*
- *Integration through the supply chain should generally only involve the providers of substantial or business critical elements, specifically where the design component is important.*

- 2) **Costs of managing an open book.** Local Authority clients have a fiduciary duty to manage public money appropriately. There is a belief that competitive tendering gives them this security, whilst open book accounting fails to do this. Their concern is that, to be confident that they are only paying for their project costs, they would need to invest heavily in project audits. This would be costly and would negate the key cultural changes required for integrated working.

*Recommendation:*

- *The type of selection process chosen should ensure that the right organisations are appointed, in terms of culture.*

- 3) **Input Management Cost v Value of Outputs.** Generally, companies in the supply chain are supportive of the idea of early involvement as they are aware of the benefits that can accrue. However, there is also an evident self-interest in securing a secure supply position, particularly if the position attracts guaranteed financial returns. In these circumstances, there is a risk that the value of early contractor involvement is outweighed by the cost of their appointment/retention.

*Recommendations:*

- *Competent project management with realistic budgeting should allay these concerns;*

- 4) **Framework Apathy.** There is a suggestion that framework prices have increased above the general rate of construction inflation which, if corroborated, could frustrate efforts to encourage clients to adopt integrated principles.

*Recommendations:*

- *Benefits in 'softer' issues, such as safety, defects, certainty of out turn price and speed of delivery, can offset this increase; and*
- *Frameworks are not necessarily 'integration'. An appropriate response to this argument is a concession that 'frameworks' sometimes fail to live up to expectations in terms of elimination of waste, continuity of employment or repeatability.*

# 4.0

## The Business Case for Integration

### 4.1 Case Histories

The task group has examined in depth both the recorded and anecdotal evidence that is readily available to the industry. In particular, the group has sought to construct a business case for integration based around tangible benefits.

Constructing Excellence (CE) holds a rich and current record of case studies. These have been re-examined with the aim of identifying material and tangible benefits from working in an integrated fashion, and are summarised in the table opposite.

Fuller details of these case studies [can be found at Appendix 2](#). The ITG notes that CE studies are invariably written up from the client's point of view, as a result of which, key information such as, for example, the impact of integrated working on supply chain profit margins is often missing. In an attempt to balance this, the group has provided supplementary case studies to balance the perspective with views from the different elements of the supply chain. Key issues highlighted from this case history workshop can be found in [Appendix 3](#).

An interesting point arising from this exercise is to note how PFI-based projects have introduced an interchanging role of the client and supplier, and the drive towards increased collaborative working that this procurement route has injected.

Case Study	Benefits/Evidence
Macclesfield Bus Interchange	<ul style="list-style-type: none"> <li>• High quality construction – zero snags at the end of the defect liability period</li> <li>• Increased cost certainty – final cost was close to estimate (with just 4% over)</li> <li>• Increased speed of construction - overall construction period was 4 months shorter than by traditional procurement methods estimated time</li> </ul>
Redlands Primary School	<ul style="list-style-type: none"> <li>• The project was delivered more quickly and with better control of the design and on-site construction than procuring the three phases separately using traditional methods.</li> <li>• The collaboration also helped drive forward NCC's strategy for sustainable development ( included use of materials that minimise the embodied energy of the buildings, use of rainwater harvesting, power generated from wind turbine, use of passive ventilation to enhance teaching environment, and minimisation of site waste.)</li> </ul>
Coventry City Council Primelines and Highways contract	<ul style="list-style-type: none"> <li>• Coventry City Council achieved tremendous results delivering projects in the first year 3.2% lower than targeted (a saving in excess of £100k) and in year two 12.4% lower (a saving of £1.3m).</li> <li>• With the predictability of cost and budget assurance, Coventry City Council was able to add work to their initial brief adding value to the project at the most efficient and cost effective time and earlier than envisaged.</li> </ul>
Porth Relief Road	<ul style="list-style-type: none"> <li>• One of the major benefits of integrated working in this project was the avoidance of the diversion of the local river which contributed to the reduction of the initial budget by £18m</li> </ul>
Upperton Road Viaduct	<ul style="list-style-type: none"> <li>• An improved programme response negotiated - time saving of 8-10 week was achieved.</li> <li>• Whilst upfront costs were initially higher due to the early involvement of the contractor, the overall saving for the whole project life cost was predicted to be £1.5m.</li> <li>• Construction knowledge was brought into the design process. This ensured early resolution of buildability issues, and a reduction in the need for changes during the construction phase. A resulting four week time saving on-site and a predicted cost saving of £50,000 – £60,000 was hoped to be achieved, due to a reduction in risk. As a result, quality has been significantly improved, with structured planning reducing the need for last minute decisions.</li> </ul>
Chilton Primary School and Community College, Durham County Council	<ul style="list-style-type: none"> <li>• Customer satisfaction - satisfaction with the finished product and service from the consultancy team scored a respectable 8/10; the service from the contractor rated even better at 9/10. Value for money (quite a subjective indicator if used without comparative data) rated 7/10. The client's impression was marred by some defects that had an impact on operations. The project scored well with 9/10 for environmental impact of materials and processes and also waste, noise and dust control.</li> <li>• Cost savings – under the pain/gain agreement, the client and contractor shared savings from the adjusted target cost. The gain due to the client and contractor was 10% of the target cost, shared equally. Had the cost exceeded the target, the client had the comfort of a guaranteed maximum price.</li> <li>• Design costs – Design costs are about 25% less than budgeted, despite the need to have several design reviews. The savings arose from involving the supply chain in design development</li> </ul>
The Pavement Team	<ul style="list-style-type: none"> <li>• Capital cost is on course to fall by 30% over five years.</li> <li>• Construction time has fallen dramatically.</li> <li>• Predictability is a big bonus for the contractors.</li> <li>• Productivity has risen substantially, mainly due to a continuing workload that reduces learning curves and enables continuous improvement to be achieved.</li> </ul>

## 4.2 The Business Case

The group has been persuaded by the weight of evidence that material benefits have arisen in almost every instance where the parties have taken active and purposeful steps to collaborate. The benefits appear in any number of ways – lower capital or operating costs, improved safety, higher margins, and adherence to programme, for example – but can almost always be categorised as a reduction in the seemingly inherent inefficiencies that have categorise the UK construction industry over the years.

The average **client** that practices an integrated approach appears to do it because he knows that it works, and has no need to demonstrate it. In the case of central government departments, the Common Minimum Standards for the Procurement of Built Environments **mandate** this approach, and the Office for Government Commerce (OGC) provides written guidance and support based on experience and feedback covering project delivery via integrated project teams. That approach has yet to fully penetrate the local government sector.

The average **contractor** is benefiting from integrated working through early appointment to the team, resulting in lower process through value engineering, increased programme security, effective cover for risk especially control over interfaces, and more assurance over materials and increasingly scarce resources.

Early involvement enables the average **sub-contractor** to inject specialist knowledge at a point in the process where they can exert a material influence, and be rewarded for their specialist inputs. For him, long term relationships and modern collaborative forms of contract provide a better-planned and more secure business future.

The average **product manufacturer** identifies inputs to more appropriate product specification, improved stock management and logistics as its contribution to improving industry efficiency through collaboration.

Integrated working allows the average **consultant** to obtain more influence over securing a holistic solution and over effective project budgeting. Collaborative forms of contract are starting to produce a more equitable balance of risk between industry partners.

### 4.3 Constructing Excellence (CE) Project Benchmarking

As the principal holder of data on integration within the industry, CE has re-examined its research findings on Project Benchmarking over the last three years. By analysing and grouping the responses from individual stakeholder groups to questions regarding perceptions of the degree of integration, it is possible to detect a steadily increasing take-up across the industry.

The results of this exercise are shown in appendix 4, which records the percentage of respondents who believe that:

- a) more than 80% of their projects are being procured through integrated team processes; and
- b) more than 80% of their projects are being delivered through integrated supply chains.

The trends demonstrate that [project team integration is generally increasing](#) across all stakeholders, but perhaps starting to plateau.

In addition, [Supply chain integration is improving](#) across the majority of stakeholders.

[The feedback from the specialist contractors](#), notably from the building services industry, appears to suggest that integrated project teams are delivering fewer of its projects. There is no ready explanation for this, so, in response to this feedback, a sub-group has been convened by the ITG to examine this anomaly. Representatives from the product supply side have been invited to participate. Amongst other matters, the sub-group will examine the extent to which the industry has moved from the nomination by clients of sub-contractors and product suppliers to the establishment of supply chains by the prime contractors.

Overall however, this is a promising picture and is illustrative of improving integration across the industry.

## 4.4 Additional Research

### 4.4.1 Measurement

With BERR (DTI) funding its development, the CE 'tracker' tool aims to provide a diagnostic mechanism to capture key project elements affecting integration, sustainability etc. The tool has been further developed to map progress against the 2012 Construction Commitments and the revised construction clients' charter.

### 4.4.2 BERR Demonstration Programme

BERR has secured agreement to participate in a new programme of demonstration projects from government departments covering Communities and Local Government, Health, Children Schools and Families, Olympic Delivery Authority and Defence Estates. A project to run the BERR programme has been let to Constructing Excellence (CE) and will run along the following lines:

- Ten live demonstration projects and five retrospective examples will be identified;
- Five case studies (from retrospective examples) will be produced;
- Once accepted onto the 'programme', the contractor will work with each demonstration project to capture and disseminate the knowledge found within;
- The projects will collect and share KPI data to demonstrate the business case for change;
- Key players will be interviewed from across the supply chain in order to get their perspective on the success of otherwise of the project;
- Further case studies will be written up;
- A final report/best practice guide will be produced; and
- A presentation will be made to the Strategic Forum and the Public Sector Construction Clients Forum.

This programme will be key to the promotion of the benefits of integration across the industry. The selection of a variety of size of projects and at an early stage are seen as the key by the task group in using this programme as a major part of 'bottoming out' the business case.

### 4.4.3 Office of Government Commerce (OGC)

Achieving excellence is a cornerstone of integration. In some areas, the Highways Agency, MOD and the education sector have already taken on this agenda. The OGC has undertaken a number of further initiatives including:

- The setting of common minimum standards for Government departments;
- The establishment of the Public Sector Construction Clients Forum (PSCCF);
- The whole life value agenda; and
- A series of working groups and study groups looking at specifics, such as project insurance and project forms;

The Public Sector Construction Clients Forum (PSCCF) - specifically Working Group 5 - is looking at procurement strategies by central government clients and the wider impact on integration of PFI, D&B and Prime Contracts. In addition, Working Group 5 intends to produce a decision matrix for clients contemplating the early stages of projects prior to OJEU, and is reviewing examples of good and bad practice in the pre-qualification and tendering processes.

This work will further support the business case.

#### **4.4.4 Information gathering**

##### **a) Client Questionnaire**

The CCG conducted a questionnaire during October/November 2007, gathering information on the business case for integration, and on barriers. The research findings are included in appendix 5.

Respondents to this survey appear to be split evenly across the public and private sectors, and from a diverse range of client types. The consensus views are that

- 1) early involvement is seen as the key factor to success when working with consultants and contractors, whereas selection by best value was viewed as critical when working with specialist contractors and product suppliers;
- 2) consultants and contractors are most commonly introduced into project teams at inception stage, whereas specialist contractors and product suppliers would be introduced at the design stage; and
- 3) clients routinely conduct benchmarking and reviews for respectively 70% and 80% of their projects.

##### **b) Industry questionnaire**

The Task Group has also conducted questionnaire during October/November 2007. The research findings are included as appendix 6.

The conclusions emerging from this survey suggest that

- 1) many examples exist of projects delivered by integrated processes, and that integrated project teams and supply chains are effective and viable;
- 2) one of the principal barriers to integration is seen as entrenched behaviour, coupled with a cultural familiarity with traditional methods of delivery; and
- 3) all parts of the supply chain must address this behavioural issue if integrated teams are to become the norm.

##### **c) Other Reports**

The business case for frameworks was investigated by the Local Government Task Force (LGTF), who produced a 'top ten' lessons learnt report for local government. The LGTF report has looked at the impact of frameworks and the barriers to entry for smaller enterprises, and provided guidance on how they might be assisted in gaining access to new opportunities.

The SFfC SME Task Group has reported to the SFfC on "The Impact of Public Sector Procurement on SME Construction Companies".

# 5.0

## Overcoming the Barriers to Integration

### 5.1 General Approach

The Task Group has reviewed the barriers to integration and looked at how these barriers might be removed. The outcomes from the task group are to be promoted industry-wide. This should stimulate the adoption of integrated working practices. Whilst the group recognises that cultural change and experienced leadership are both required, it will be the promotion of the business case, supported by working practises and management tools, that will ultimately increase the extent of integrated working across the industry.

### 5.2 Assessment of Principal Barriers

The key obstacles to integration were examined in depth by the group and summarised in the table below.

Barrier	Examples
Industry Culture	<ul style="list-style-type: none"><li>• Mixed level of competence in the industry</li><li>• Reluctance to adopt new ideas</li><li>• Focus on low prices and costs</li><li>• Reform is gradual without radical threat</li><li>• Easier to tender – firms have a long history of conventional tendering practices</li><li>• Reluctance to communicate cost information so as to protect margins</li></ul>
Industry Capabilities & Capacity	<ul style="list-style-type: none"><li>• An intelligent client is a pre-requisite to integration</li><li>• Separation or invisibility of CAPEX from OPEX in funding</li><li>• Failure within management to recognise and realise the value of earlier involvement of the supply chain</li></ul>
Procurement, Contracts & Payments	<ul style="list-style-type: none"><li>• Proliferation of bespoke contracts and the extraordinary waste that results</li><li>• Inappropriate use of standard, often amended contract forms</li><li>• Ample work available using traditional procurement routes</li><li>• Best value not always lowest price</li><li>• Whole life costs, both the specification and performance not taken in to account</li><li>• Contracts between team members having gaps or poorly defined services</li><li>• Buyer pressure to accept unlimited liability</li><li>• Buyer pressure to accept inappropriate commercial risk</li></ul>
Engagement with the Supply Chain	<ul style="list-style-type: none"><li>• Lack of early engagement of contractor, subcontractor and key suppliers</li><li>• Inappropriately detailed specifications stifling innovation</li><li>• Supply chains not always established by principal suppliers</li></ul>
Understanding the balance between Cost, Value & Risk	<ul style="list-style-type: none"><li>• Lack of awareness and understanding of benefits and risks specific to integrated working</li><li>• Lack of understanding of the significance of proportionate liability</li><li>• Whole life cost – lack of awareness</li></ul>

### 5.3 Overcoming Barriers across the Industry

The following four generic headings were agreed as pivotal to the removal of barriers to integration, see the table below.

Within these headings there are specific elements that the ITG believes either need further research or will need to be revisited as part of the promotion of working practices.

The ITG has proposed a series of sub-groups to direct and respond to the actions detailed below.

Solution	Action
Promotion & Marketing	<ul style="list-style-type: none"> <li>• Accelerate promotion of the business case across all stakeholders</li> <li>• Make wider use of CIC guidance on Selecting the Team</li> <li>• Provide highest profile for industry champions such as “Gang of Ten”</li> </ul>
Procurement & Contracts	<ul style="list-style-type: none"> <li>• Massively reduce the number of contract forms in circulation and eliminate bespoke contracts</li> <li>• Insist on the use of appropriate contract forms that align interests and provide mutual benefits</li> <li>• Improve the understanding of how collaborative principles are embodied in contracts</li> <li>• Secure the early participation of key suppliers</li> <li>• Provide fair and prompt payment arrangements</li> </ul>
New Commercial Levers	<ul style="list-style-type: none"> <li>• Increase the pressure on local government funded and on co-funded public-private projects, where possible through conditionality</li> <li>• Secure industry support for legal reform on proportionate liability and liability caps</li> <li>• Insist on wider use of open book forms with pain and gain linked to outcomes</li> </ul>
Training & Coaching	<ul style="list-style-type: none"> <li>• Update undergraduate and young professional training programmes focussing on the benefits of collaborative working</li> <li>• Target mid-career coaching of professionals in integrated working</li> <li>• Encourage role for Project Integrators</li> </ul>

## 5.4 Recent Developments

The Fair Payment Charter (Appendix 7) and associated guidance agreed by the Public Sector Construction Clients' Forum (PSCCF) in December will be implemented by all public sector clients throughout their supply chains by 1 January 2008.

## 5.5 Current Research Activities

Research is currently underway looking at:

Research	Lead Organisation	Details
Project Bank Accounts	SEC Group	See appendix 8
Integrated Project Insurance	SEC Group	See appendix 8
The Three Pillars Value Work	Constructing Excellence	The Three Pillars Value Work refers to CE's original report on value (Be Valuable) and subsequent research activity under the heading of 3 Pillars – briefing paper attached as appendix 9
Survey of Integration	Constructing Excellence	Constructing Excellence Survey of Integration refers to the CW Champions survey. It is a tracking 'panel' of opinion of a subset of CE members who are particularly keen on collaborative working
Clients Survey	Construction Clients Group	As referred to in item 4.4.4
Industry Survey	SFFC Integration Task Group	As referred to in item 4.4.4

Evidence will need to be reviewed before specific proposals can be included within the promotional strategy.

## 6.0

# Accelerating & Promoting the Business Case

### 6.1 Approach to Recommendations

There were a number of recommendations made by the previous Integration Task Group, which have been revisited. The one that appears to offer most merit is the idea of a “Gang of Ten” – a team of high profile industry individuals who would champion the benefits of integrated working. This is consistent with the request by BERR for the Task Group to act as a steering group for the new BERR programme.

The group strongly supports far greater promotion of integrated working. The main promotion drive should be based on the business case supported by case studies. The promotional means should encompass training at undergraduate, professional and mid-career levels, mentoring, working with clients from all sectors.

There will further be promotion opportunities that develop from the reporting on the Egan Targets in the spring of 2008. It is widely anticipated that the Strategic Forum will report that this particular target has not been achieved at the end of 2007, and this will require a need to respond with new relevant targets, new practical methods of measuring these targets and a clearer understanding of what integrated working means in practice in the industry.

*“...that 20% of construction projects (by value) should be undertaken by integrated teams and supply chains by the end of 2004, rising to 50% by the end of 2007.”*  
– Accelerating Change, Sir John Egan, 2002

### 6.2 Immediate Priorities

The following specific immediate initiatives are proposed to further raise the profile of integration in the industry:

- Promotional and PR opportunities which will arise from the task group’s initial findings, incorporating any survey results, and the review of current case studies
- The need to address the confusion between frameworks and integration
- Close monitoring of potentially promising current initiatives such as integrated project insurance and the development of related contract forms
- Wide publicity to the continuing industry inefficiencies associated with contracts covering such issues as (a) the fundamental differences between traditional and collaborative forms (b) the waste introduced by bespoke forms (c) the inappropriateness of traditional purchaser pressures introduced by unlimited liability contracts, for example, to a modern efficient industry

- Action to secure industry wide support for a change in the law on proportionate liability, to address the barriers associated with this issue that were first highlighted by Latham in “Constructing the Team”
- Update and simplification of the Integration Toolkit, followed by a high profile re-launch
- A joint SFfC and BERR launch of the new demonstration project programme
- PR to promote the free distribution of the CIC ‘Selecting the Team’ document
- Assistance from the CCG to push the benefits of integration to its members incorporating survey findings.

### 6.3 Medium Term Actions

The following actions will need to be considered by SFfC in the medium term

- Addressing the anticipated failure to meet the 2007 Egan Target on integration and issue new targets and means of measurement
- The findings of the task group’s report will form a training package to be an integral part of next years Constructing Excellence roadshows
- A ‘Gang of Ten’ senior industry champions to be identified to promote the benefits of integration around the regions, especially targeted at local authorities, private clients, regional contractors and local suppliers
- Adoption of an Annual “Integrated Project” Awards programme specifically targeted at projects delivered through an integrated team, sponsored by the Strategic Forum for Construction. This could be a stand-alone award or possibly added to an existing high profile award, such as The Prime Minister’s Members Better Public Building Awards or the British Construction Industry Awards
- Publicity opportunity around the BERR demonstration programme as the results of case studies become available and the programme moves into wider implementation.

## 6.4 On-going Role for the Task Group

It is clear that the work of the group to date has uncovered a rich canvas on issues that need to be tackled. In the few meetings that have taken place, the group has inevitably been required to grapple with the charge of vested interest, and to acquire or present instead objective opinions that are formed in a consensual manner. The group has expressed a wish to continue in some productive capacity, and the following suggestions are offered for consideration;

- The Task Group could take on the role of a steering group for the BERR programme, overseeing monitoring activity and providing ongoing peer review. This would broadly follow the Constructing Excellence model.
- The Task Group members could continue to act as industry mentors for specific projects to help in particular the inexperienced client through any part of the process that is likely to be challenging.
- Subject to agreement from the participating bodies, the Task Group should continue in its role, focussing on managing the use of new research to ensure that it (a) supports the business case and (b) effectively promotes integration across the industry. If this were to be accepted, the group would wish to see a higher level of participation from the client group, with representation from different client groups drawn from the public and private sectors.

# Appendix 1

## Integration Task Group Members

### Chair

Martin Nielsen

### Members

Martin Davis (SEC Group/ NSCC representative)

Peter Sheaves (CIC representative)

Gren Tipper (CCG representative)

Jaz Vilkhū, (Construction Products Association representative)

Mark Wakeford (CC representative)

### Co-options

Peter Cunningham, CCG (Co-option)

John Ioannau, OGC (Co-option)

Kevin Thomas, Visionality (Co-option)

Tony Mulcahy, DTI (Co-option)

Don Ward, CE (Co-option)

Graham Watts, CIC (Co-option)

### Secretariat

Rachel Done (CIC)

### Attendance

ITG member	26.4.2007	26.6.2007	19.7.2007	13.9.2007	8.10.2007
Martin Nielsen	●	●	●	●	●
Martin Davis	●	●	●	●	●
Peter Sheaves	●	●		●	●
Gren Tipper			●	●	
Jaz Vilkhū	●	●	○	●	●
Mark Wakeford	●	●	●	●	●
Peter Cunningham		●		●	
John Ioannau	●	●	●	●	
Tony Mulcahy	●	●			○
Don Ward	●	●			
Graham Watts	●	●	●	●	
Kevin Thomas	●		●	●	

● attendance      ○ alternative representative attended

# Appendix 2

## Benefits of Integration and Collaborative Working Constructing Excellence Case Studies

### Case Study

#### Macclesfield Bus Interchange

The £4m project awarded by Cheshire County Council involved the construction of a new bus interchange and improved access to the railway station in Macclesfield. A contractor was appointed early in the design programme and open-book accounting was adopted during construction. This was the first time Cheshire County Council had adopted the principles of Rethinking Construction in any substantial way.

Before	After
Traditional design – tender – construct	Early contractor selection – contractor involvement in design
Contractor selection on price only	Selection by 80% quality criteria, 20% cost criteria
ICE 5th edition	NEC Option C Target Cost Contract + Option X 12 for partnering
Complete separation of council's and contractor staff	Co-location of key contractor staff within council's office
Closed contractor's accounts	Open-book accounts

The council's project management team wanted high quality construction, increased cost certainty, and increased speed of construction. By the end of the project, there were zero snags at the end of the defect liability period; the final cost was close to estimate with just 4% over, and the overall construction period was 4 months shorter than by traditional procurement methods estimated time.

## Case Study

### Redlands Primary School

The project, completed in March 2005, involved the construction of a Keystage2 extension to a primary school with value of £1.7m and a New Opportunities Funded (NOF) table tennis centre with a value of £300k

The project involved a collaborative working relationship between the Client, the school (Head, staff and governors), Nottinghamshire County Council design services, Wilmot Dixon and the external funding organisation (NOF). The project was delivered more quickly and with better control of the design and on-site construction than procuring the three phases separately using traditional methods. The collaboration also helped drive forward NCC's strategy for sustainable development which includes use of materials that minimise the embodied energy of the buildings, use of rainwater harvesting, power generated from wind turbine, use of passive ventilation to enhance teaching environment, and minimisation of site waste.

## Case Study

### Coventry City Council Primelines and Highways contract

The Primelines contract is part of an integrated transport programme and an innovative step by Coventry City council to provide delineated bus routes with safe, comfortable and easy access for all its passengers. It involves specific individual projects from construction of new bus shelters and disabled access routes to major road widenings.

In April 2004 Coventry City Council let their Primelines and Highways Programme under the NEC Professional Services Contract and the NEC Engineering and Construction Contract option C, including open-book costing and target costing with pain/gain incentivisation. Contracts were awarded to three contractors and one designer/project manager.

The tables illustrate a selection of project examples from the first two years of operation indicating the original construction budget cost based initially on Coventry City Council historic costs, the final adjusted construction target price and the actual construction cost. Table 2 summarises all the projects for both the years. Coventry City Council has achieved tremendous results delivering projects in the first year 3.2% lower than

targeted (a saving in excess of £100k) and in year two 12.4% lower (a saving of £1.3m). With the predictability of cost and budget assurance, Coventry City Council was able to add work to their initial brief adding value to the project at the most efficient and cost effective time and earlier than envisaged.

#### **Case Study** **Porth Relief Road**

The Porth Relief Road provides 7km of new road through a long established urban area with severe topographical and environmental constraints. Sponsored by Rhondda Cynon Taf County Borough Council, and with funding from the Welsh Assembly Government, it was the largest Local Authority highways scheme in the UK in 2005, Contract value being £59m.

The collaborative approach employed by the whole supply chain, involving Early Contractor Involvement (ECI) and the use of the New Engineering Contract, was at the heart of procurement and vital to the success of the project. ECI ensured the establishment of an integrated team from the start involving the client, designer, main contractor and cost management team. The team was established as a relationship of equals with a philosophy of 'everything on the table' and 'no surprises' with team leaders emphasizing collaboration, group problem solving, accountability, openness and honesty. Priorities were conveyed through the simple mission statement, "Safe and on time!" and difficult issues were addressed through facilitated workshops.

One of the major benefits of integrated working in this project was the avoidance of the diversion of the local river which contributed to the reduction of the initial budget by £18m.

#### **Case Study** **Upperton Road Viaduct**

The replacement of Upperton Road Viaduct was identified as a major scheme within the bridge maintenance and strengthening section of Leicester City's Local Transport Plan (2001-2006). Upperton Road is a key East West link in the City of Leicester and of

strategic importance to the transport network. The £19.1m scheme was procured with and ethos of partnership and collaborative working. Early involvement of the contractor established strong working relationships and an improved programme response was negotiated. This resulted in a time saving of 8-10 weeks. Whilst upfront costs were initially higher due to the early involvement of the contractor, the overall saving for the whole project life cost was predicted to be £1.5m.

The contractor and design consultant worked together from the outset to ensure that construction knowledge was brought into the design process. This ensured early resolution of buildability issues, and a reduction in the need for changes during the construction phase. A resulting four week time saving on-site and a predicted cost saving of £50,000 – £60,000 was hoped to be achieved, due to a reduction in risk. As a result, quality has been significantly improved, with structured planning reducing the need for last minute decisions.

## Case Study

### **Chilton Primary School and Community College, Durham County Council**

The objective, instigated by the council's Elimination of Surplus Places scheme, was to amalgamate Chilton Junior/Community College and Chilton Infants (in a nearby Victorian building) into one primary school. It would potentially accommodate up to 420 children and reduce running costs.

The main budgets were time limited and the scheme needed to be implemented within the budget period.

Due to the collaborative relationship between the school, contractor and the designers, the project was delivered on time.

Customer satisfaction – The head teacher's assessment could be rated 'tough but fair'. Satisfaction with the finished product and service from the consultancy team scored a respectable 8/10; the service from the contractor rated even better at 9/10. Value for money (quite a subjective indicator if used without comparative data) rated 7/10. The client's impression was marred by some defects that had an impact on operations. The project scored well with 9/10 for environmental impact of materials and processes and also waste, noise and dust control.

Cost savings – Under the pain/gain agreement, the client and contractor shared savings from the adjusted target cost. The gain due to the client and contractor was 10% of the target cost, shared equally. Had the cost exceeded the target, the client had the comfort of a guaranteed maximum price.

Design costs – Design costs are about 25% less than budgeted, despite the need to have several design reviews. The savings arose from involving the supply chain in design development, simplified communications within the team and avoidance of confrontation.

# Appendix 3

## Benefits of Integrated working through the Supply Chain

### 1. Clients

The average client that practices an integrated approach does it because he knows it works; and has no need to demonstrate it.

### 2. The Contractor

The business case was reviewed as follows:

The **early appointment** of a key supplier to the team led to:

- Lower price through value engineering;
- Secured programme and erection resource; and better control over price increases of raw materials.

The obstacles were:

- Time and resource demanding; and
- Poor incentivisation of the designers

The savings were:

- **2.5% of the value of the order**; and
- Significantly reduced construction risk

Integrated d+c cluster for the **external envelope** led to:

- Assured programme, adequately resourced by subcontractors;
- Design issues and interfaces all resolved prior to construction; and Air integrity leading to up to a **25% design** saving on energy use.

The obstacles were:

- Time, resource demanding by all stakeholders; and
- Cost of CLIP engineer.

The savings were:

- There were no identifiable cash saving, but “opportunity loss” saved was considerable on this critical programme element

Integrated d+c cluster for the **fixtures and fittings** led to:

- Assured (faster) programme with negligible re-work; and
- Zero defects on handover.

The obstacles were:

- Time and resource demanding on all stakeholders;
- Initial lack of confidence in benefits; and
- Competent facilitator required.

The savings were:

- Building handed over early; and
- Reputation enhanced

### 3. The Product Manufacturers

Early involvement was key for suppliers to ensure an influence on design. This led to innovation with reduced costs and waste. Key issues included:

- An understanding that the product installation was also important – involvement in selection of sub contractor;
- An increased understanding, on the client's part, of the suppliers' facilities and capability; and
- Sharing of project management tool – development of an IT tool for scheduling which was CAD based and included bar codes.

### 4. Specialist sub contractors

The following were seen as important:

- Early involvement – 'paid for' input from specialists;
- Selection by value – (as per the CIC Selecting the Team document);
- Common processes and tools (e.g. co-location, extranets etc.);
- Measurement of performance – client focused KPI's;
- Long term relationships – frameworks, standing supply chain; and
- Modern commercial arrangements – collaborative form of contract, project insurance etc.

### 5. Consultants

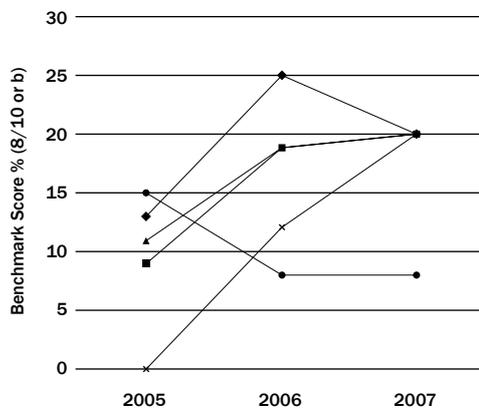
Key issues included:

- The ability to work with good companies;
- Putting together realistic and robust budgets;
- Making sure that contracts co-relate, without significant gaps;
- Ensuring 'no fault' project insurance was in place;
- Client awareness (of what is achievable);
- Agreeing a programme; and
- Commitment on the part of all parties to do the job for which they were contracted.

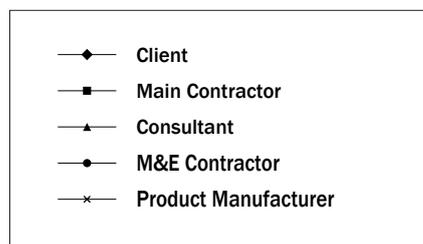
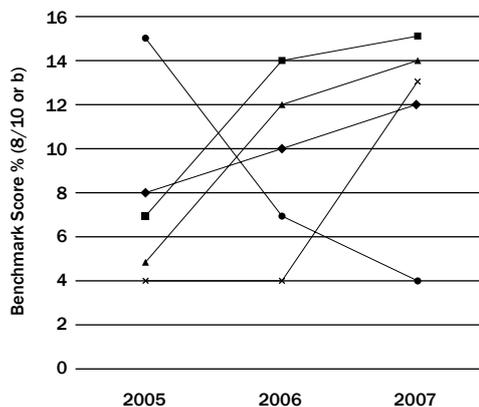
# Appendix 4

	Project Team			Supply Chain		
	2005	2006	2007	2005	2006	2007
Client	13	25	20	8	10	12
Main Contractor	9	19	20	7	14	15
Consultant	11	19	20	5	12	14
M&E Contractor	15	8	8	15	7	4
Product Manufacturer	0	12	20	4	4	13

## Project Team Integration



## Supply Chain Integration



# Appendix 5

## **Construction Clients' Group**

Client Survey on Project Team and Supply  
Chain Integration: Data and Analysis

February 2008

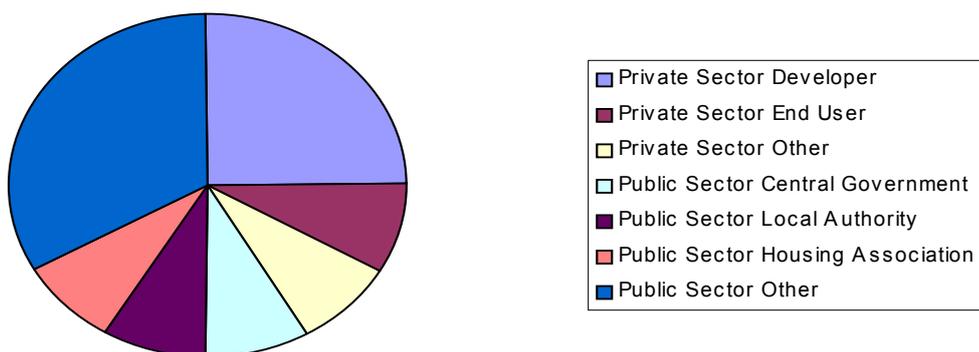


# About the respondents' organisations

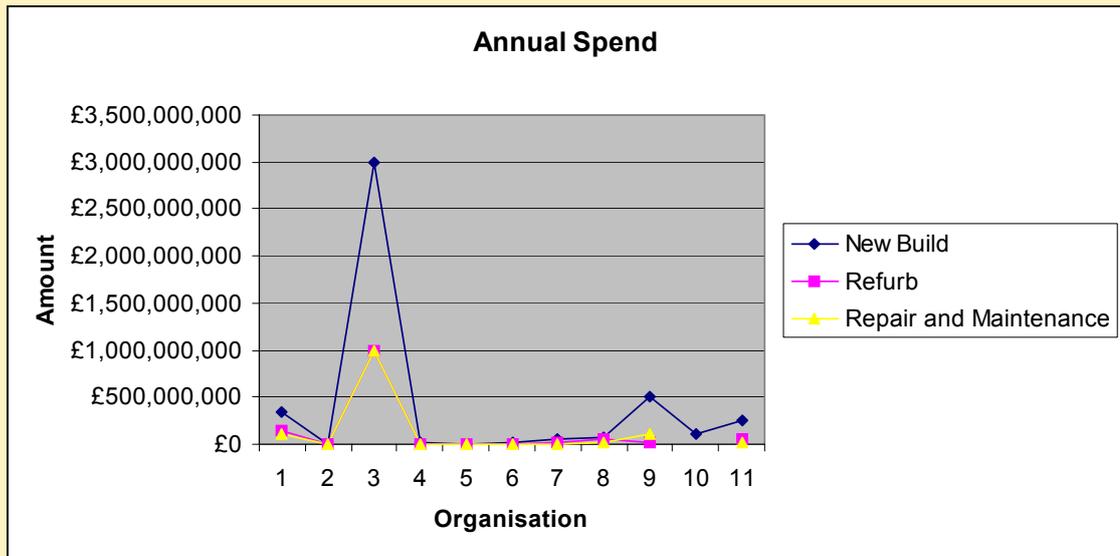


## Respondent type

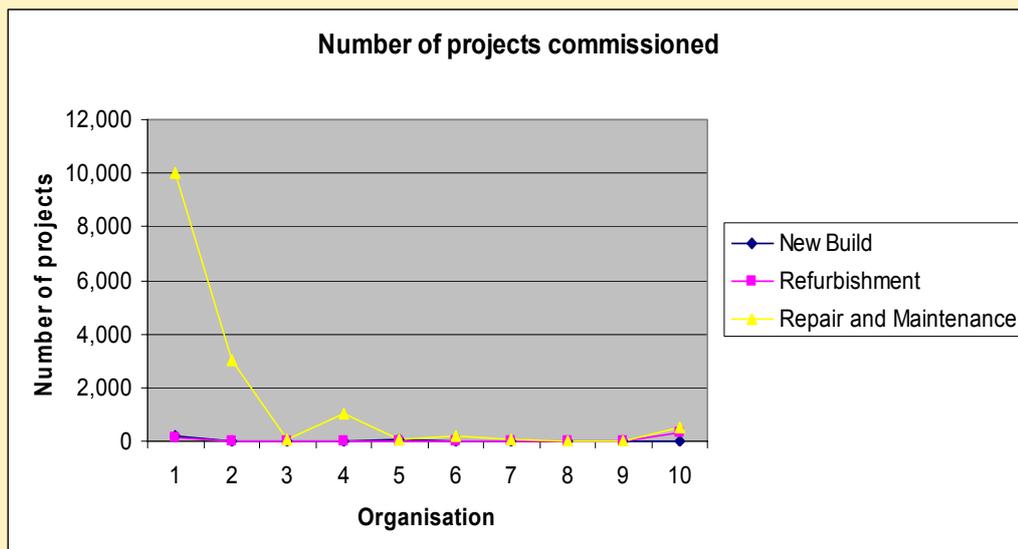
What Type of Organisation are you?



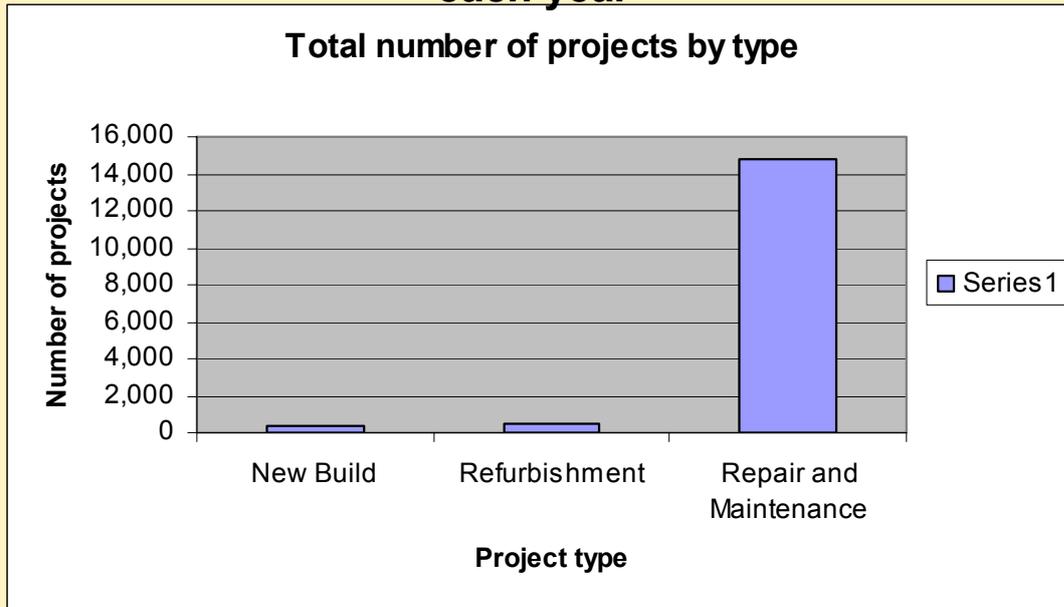
## Organisation spend (per annum)



## Number and type of projects commissioned each year by organisation



## Overall number and type of projects commissioned each year

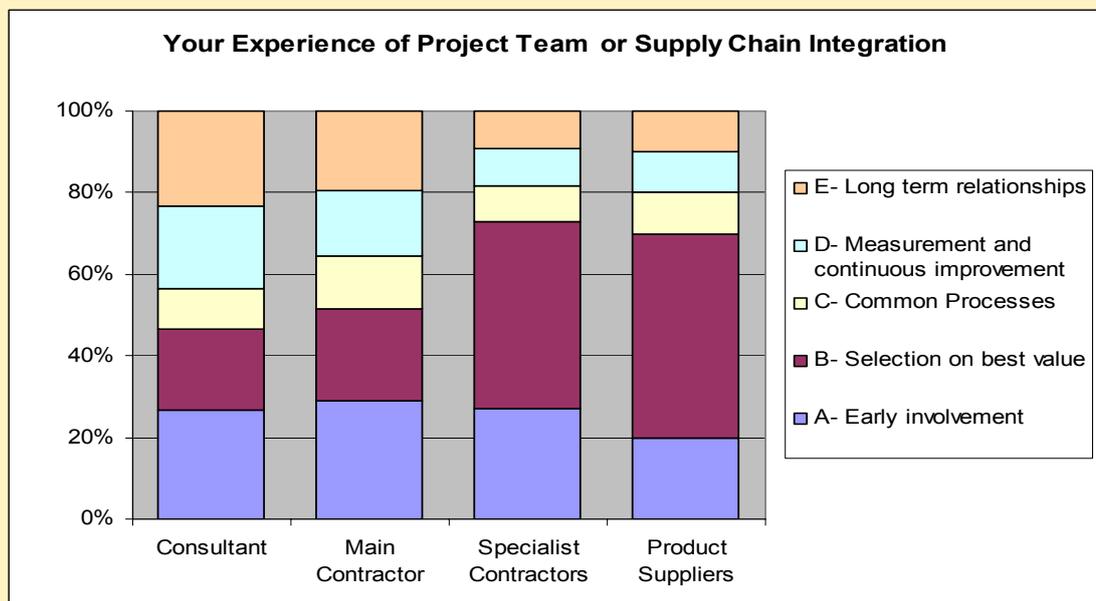


## Summary

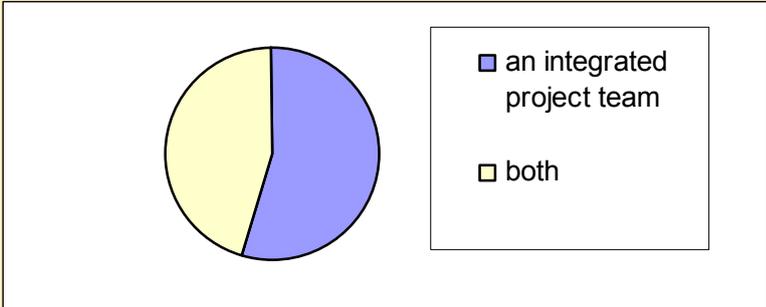
- The respondents are split across the public and private sector and are from a diverse range of client “types”.
- The average spend per organisation varied widely between organisations
- The majority of projects are in refurbishment and repair and maintenance rather new build.



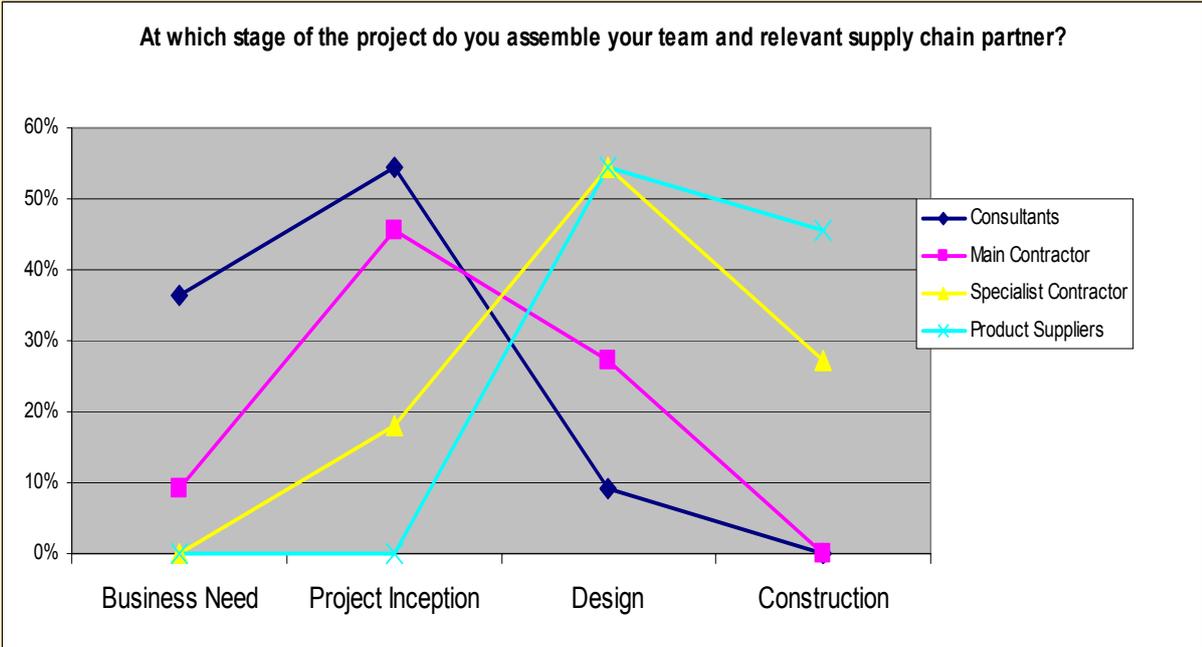
# Respondents' perspective on integration



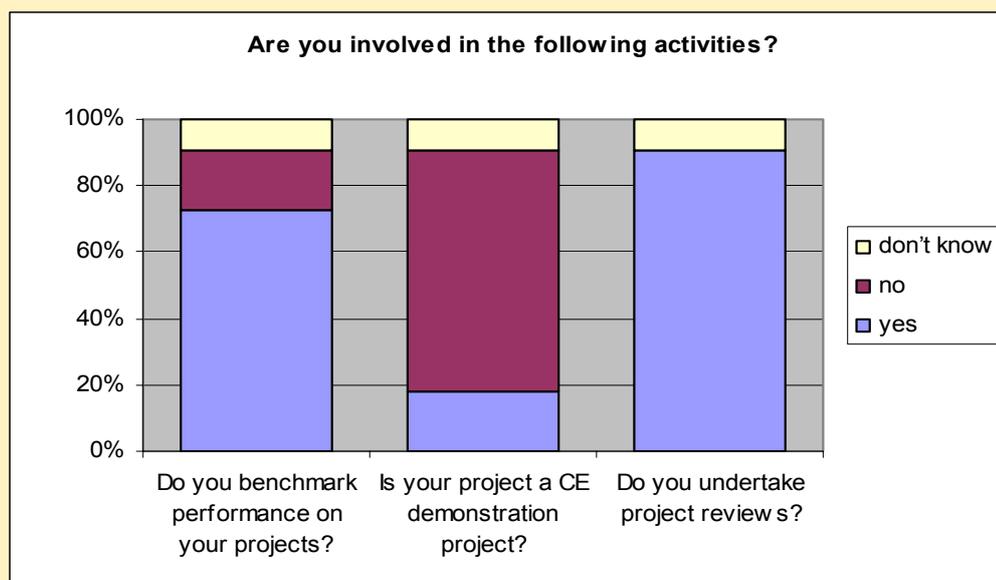
# Did you participate in an integrated project team, an integrated supply chain or both?



# Project stage when the team and relevant supply chain partner are assembled



## Measurement and review



## Summary of data

- **Early involvement** is seen as the key factor to success regarding working with **Consultants** and **Main Contractors** whereas **Selection on Best Value** is seen as the key success criteria for working with **Specialist Contractors** and **Product Suppliers**.
- **Consultants** and **Main Contractors** are most commonly brought into to the project team at **Project Inception** whereas **Specialist Contractors** and **Product Suppliers** are most commonly brought into the project team at the **Design** stage.
- **Benchmarking** and **Project Reviews** are carried out for the majority of projects (70% and 80% respectively).



## Additional feedback/information



### How do you ensure that you're getting best value from your construction procurements?

1. By segmenting our approach and allocating risk where it can be best controlled
2. Through a rigorous selection process to align suppliers' offers against a set of evaluation criteria established before the tender process.
3. Theoretically through a process of Risk Management, Value Engineering, Whole Life principles, open book accounting, partnering and trust, but this is a difficult thing to measure in the current climate of construction inflation.
4. Through a mixture of benchmarking and consultant validation, which is reviewed with customer feedback.
5. Research of similar projects, open book procurement, occasional competitive tendering



## How do you ensure that you're getting best value from your construction procurements? – cont.

6. Through measuring the performance out project out-turn against early defined project criteria at feasibility stage.
7. Despite the theory and good intentions, it usually comes down to tendering, often 2-stage tenders and not necessarily lowest-price. People and innovation play a large part in our decisions. For some procurements, frameworks are the normal method of procurement, but demonstrating year-on-year improvements can be difficult.
8. Compare Industry standards.
9. Early integration. Complete 80-90% of the design before start on site.
10. Costs are contained below indices increases. Projects are delivered within budget and timescales in the majority of cases. Project gestation through all stages are being reduced leading to quicker delivery time.



## How do you ensure that your integration principles are driven throughout the supply chain?

1. We are a hands on client that insists on seeing evidence of integration at all levels. We also look for back to back agreements between supplier partners
2. We don't know - yet. But Adrian Blumenthal is going to tell us soon.
3. The contractor has to drive the key performance indicators through the supply chain and also states key partners up front (not just the consultant)
4. Meetings with the project team and/or supply chain team at an early stage.
5. open book procurement and liaison with project participants



## How do you ensure that your integration principles are driven throughout the supply chain? – cont.

6. By sharing our expectations with the project team members. Everyone buys into our defined requirements and key drivers to ensure they are met and the project is delivered successfully
7. We try to lead by example and supplement our own in-house team with external consultants and contractors as appropriate. We tend to use lead consultants who have experience in working as part of an integrated team, both client team and suppliers.
8. Leadership
9. By early engagement of the design and construction team.
10. It is very difficult below the first and partially the second tier . Will look forward to better outcomes in the future!



# Appendix 6

## Constructing Excellence

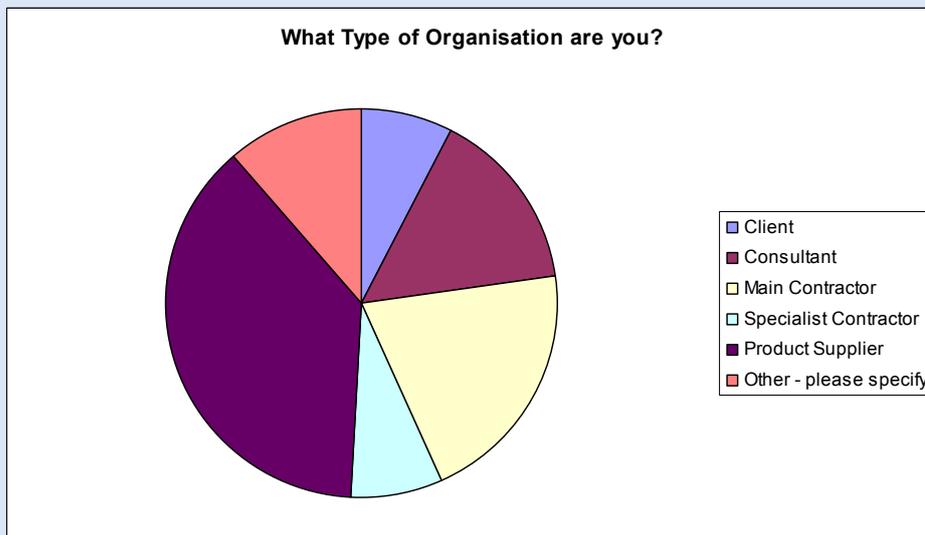
### Barriers to Project Team Integration and Supply Chain Integration: Data and analysis

**February 2008**

# About the respondents' organisations



## Respondent type



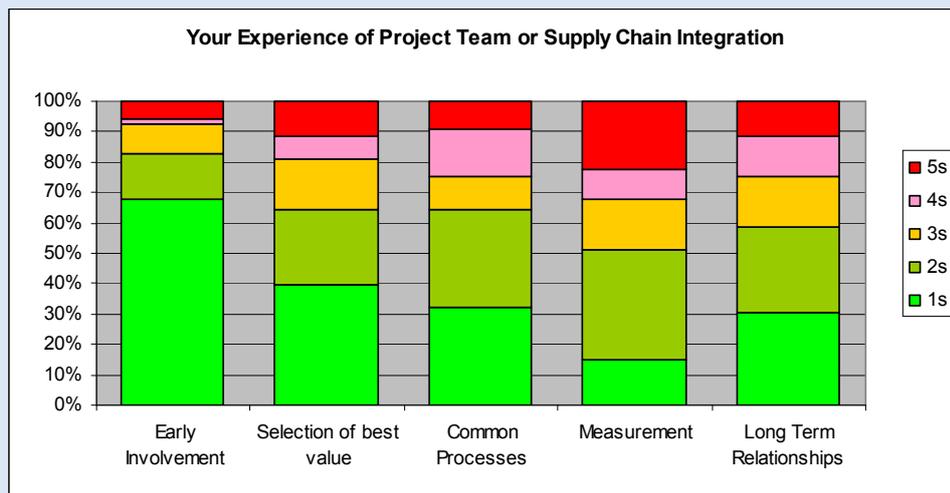
The respondents are split across the supply chain, however the largest number of respondents are from the Product Supplier group.



# Experience of and barriers to Supply Chain/Project Team Integration



## Experience of Project Team or Supply Chain Integration



***Key 1=most important and 5=least important***

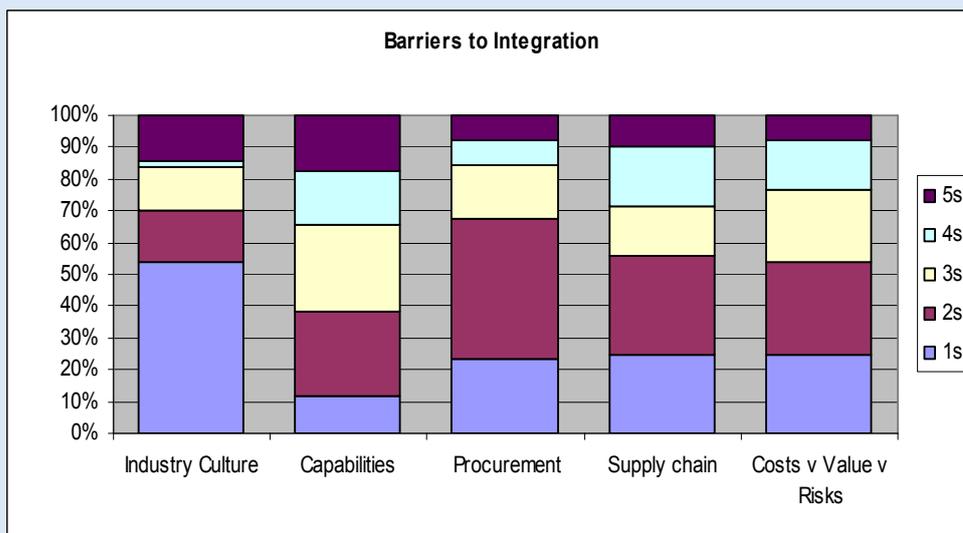


# Experience of Project Team or Supply Chain Integration

- **Early Involvement** and **Selection on Best Value** are ranked overall as most important in terms on delivering an integrated projects.
- **Measurement** is seen as the least important



## Barriers to Integration



Key 1=most important and 5=least important



## Barriers to Integration

- **Industry Culture**, followed by **Procurement** are seen as the key barriers to an integrated supply chain.
- There is no clear cut area seen as having the least impact on barriers to an integrated supply chain.



## The other barriers that exist

Wide ranging and detailed feedback was given regarding other barriers to integration. These included:

- **Behavioural** (lack of client engagement, lack of trust with the project team/supply chain, weak leadership)
- **Process driven** (Management of risk is “pushed down the supply chain and with it has gone so much specialist knowledge”)
- **Capabilities/communication** (“Can be easy to gain senior management support. More difficult down the chain. Need to spend time on education”; “many people just can’t grasp the concept”)



## Case Studies/ Examples where Integration has worked



### Behavioural changes to working practices producing results

- **AMP3 of Welsh Water Alliance:** change of people changed attitudes in AMP 4.
- From a construction components manufacturers' point of view, cases where specifications have been discussed, agreed and informed at all levels and a 'belief' that the specification is truly the optimum way to carry out the work rather than the most expensive.



## **Improved education/skills produces results**

- A case of a large project where the architect led the team of consultants to invest in and implement a virtual design process worked towards the integrated practice solution.



## **Process driven changes to working practices producing results**

- The Power Supply Upgrade project on the Southern Region for Network Rail, bought in on time and under budget. Some involvement of Value Management interventions and strong project management but close links with the infrastructure contractors was paramount to the success of this project.



## Overall summary of data gathered

- Barriers to integration are seen as **behavioural** (Industry Culture) and process driven.
- All levels of the supply chain must address this issue if integrated project teams/supply chains are to become the norm.
- Real examples of success are out there and integrated project teams and supply chains are an effective a viable



# Appendix 7

## Fair Payment Charter

- Companies have the right to receive correct full payment as and when due. Deliberate late payment or unjustifiable withholding of payment is ethically not acceptable.
- “Fair payment” will apply equally between the client and lead contractor and throughout the supply chain.
- The process will be transparent in order that they have certainty of how much and when they will be paid.
- Companies will consider, where appropriate, operating relevant contracts on an open book basis.
- The correct payment will represent the work properly carried out, or products supplied, in accordance with the contract. Any client arrangements for retention will be replicated on the same contract terms throughout the supply chain. Any withholding of payment due to defects or non-delivery will be proportionate and demonstrably justified in line with arrangements made at the time of contract.
- To ensure effective and equitable cashflow for all those involved, all contracts will provide for regular payments and have payment periods not exceeding 30 days.
- In order to avoid payment delays, the client and all supply chain members will agree payment procedures at the outset of their contracts. Payment will be through electronic BACS transfer and will apply throughout the supply chain.
- Monitoring and auditing and problem resolution procedures will be agreed between the parties. Will all contribute towards improving the integration of contractors on construction projects a key target of the Strategic Forum for Construction?

# Appendix 8

## Project Bank Accounts (“PBA’s”)

### Project Bank Accounts (“PBA’s”)

- 1) Accelerating Change recommended (5.23) that payment practices should be reformed to facilitate and enhance collaborative working, and cited the MOD Andover project where Citex “instituted a fully transparent banking system whereby all contractors on the project are paid through a single bank account”
- 2) SEC Group has led the drive to achieve a Fair Payment Charter for construction, including the institution of PBA’s, supported by OGC. The research and development has however been carried out by various interested parties:
  - In its report “Improving Public Services through better construction” (March 2005, paragraph 3.33) the NAO recommended the use of PBA’s to provide specialist small and medium-sized suppliers with greater certainty that they will be paid on time to reinforce the trust that should exist between all parties for collaborative working to operate effectively.
  - A survey in 2006 carried out by SEC Group and audited by Davis Langdon identified the impact on costs caused by delays and uncertainties of payment to the supply chain.
  - Another survey carried out in 2006 by the Federation of Plastering and Dry Lining Contractors separately corroborated the severity of these wasted costs.
  - Bucknall Austin (now Rider Levett Bucknall) was commissioned by OGC to carry out independent research (by a combination of a survey and interviews) into the quantum of these costs, and to develop a best practice guide for fair payment. Its report was accepted by the PSCCF on the recommendation of Working Group 4, and in September 2007 the OGC obtained Industry endorsement of its “Guide to best Fair Payment practices” – which indicated that PBA’s should save an average overall 2½% on project costs.
  - In parallel Heriot-Watt University has carried out research into “Rethinking Construction Using Payment Systems” (“RECOUPS”) to improve performance, and has incorporated its findings on “cause and effect” into software to help the Industry choose payment systems to facilitate the desired performance.
  - It is also known that PBA’s are regularly used in the international context by banks, particularly in third world countries so as to ensure that their funds reach those for whom they are intended.
  - After due research and consideration both Barclays Bank and the Bank of Scotland have approved the business case for supporting PBA’s.

## Integrated Project Insurance (“IPI”)

- 3) Accelerating Change observed that integrated teams enable risk management issues to be fully addressed by the whole team in an open and transparent manner, and that insurance is an aspect of risk management. It recommended: “Project insurance products should be made available to underwrite the whole team to facilitate integrated working. Such policies should embrace Professional Indemnity Insurance, and works contract insurance and perhaps aspects of Product Liability Insurance”.
- 4) Project Insurance (embracing Professional Indemnity and Contractors’ All Risks Insurances) has been instituted in various forms on major projects such as MOD Andover and BAA Terminal 5, and as long ago as 1999 the Movement for Innovation recognised the importance of a “no blame/ no liability” insurance solution for “Virtual Company” or integrated projects.
- 5) Since 1999 research and development work has continued in order to create an innovative “insurance product” that would underpin integrated collaborative projects. This initiative has been led by SEC Group with the support of OGC, and would not have been possible without the pro bono contributions of members of the “product team” representing a “partnership” between movers and shakers in the construction and insurance industries (see appendix 1).
- 6) In its report “Improving Public Services through better construction” (March 2005, paragraph 3.25) the NAO recommended public sector departments to “seek opportunities to pursue the case for project-wide insurance, not only to reduce costs through better buying, but also to align behaviours with the principles of integrated team working”.
- 7) The following particular development work has combined to create the particular brand of project insurance that is now known as “Integrated Project Insurance”:
  - Investigation by representatives of both the construction and insurance industries into the long established but voluntary system of “technical assurance” of integrated teams in Belgium. This has been associated with greater construction efficiency and more cost effective insurance premiums. Independent “technical risk assurance” is therefore an integral part of IPI.
  - The development by leading insurance brokers and insurers of the concept of insuring, not the cause or the liability, but the financial effect. This enables the door to be closed to the blame and liability culture, provided that the client and all other members of the integrated project team agree to waive their rights to claim against each other except in the case of bad faith. Over 2/3rd of insurance premiums are spent on legal and forensic costs, and should be avoided with IPI.

- The introduction of “financial risk assurance” to give the insurers (as well as the client) independent corroboration that the cost plan is soundly based and has appropriate allowances for risk. Interests are furthermore aligned by equating collective pain-share with the main excess under the IPI policy, so that both the client and the rest of the integrated project team have an interest in common with insurers to maximise delivery of the project objectives with minimum risk exposure.
  - In addition, a special study was carried out in 2006 by the product team to identify the full cost that is currently being paid for Professional Indemnity, Contractors’ All Risks, and Product/Public Liability throughout the supply chain on traditional contracts. This analysis revealed that, on “normal” risks and taking no account of allowances for excesses, the cost of these insurances ranges between 2% and 2½% and can be much higher.
- 8) Following a recommendation from the Strategic Forum’s Joint Construction Industry/ Insurance Industry Working Group in November 2004, support in principle by the Chief Secretary to the Treasury in December 2004, and endorsement by the PSCCF in June 2006 pilot projects are now being initiated to test IPI in practice. The first such project has started at Southport General Infirmary, and a Steering Group comprising the client and the product team is currently developing practical details by way of “applied research” as the project proceeds.
- 9) The overriding objective of IPI is to underpin integrated collaborative working, and thereby at last unlock throughout the supply chain the improvements in performance and efficiency predicted some ten years ago by Latham and Egan.

**MKD**

23 October 2007

# Appendix 8a

## The “product team” for the pilot projects

### 1) Insurance Brokers

- Griffiths & Armour - Stephen Bamforth, Group Chief Executive
- Tyser & Co Ltd – Graham De Roy, Director

### 2) The Insurance Panel

- Norwich Union
- Royal & Sun Alliance
- Zurich Global Corporate UK
- AXA Corporate Solutions UK
- ACE Insurance SA NV

### 3) Independent Assurance

- Technical: SECO (from Belgium) - Yves Pianet, Director General (and with the support of local partners)
- Cost: Davis Langdon – David Ainsley and Simon Rawlinson, Partners

### 4) Support available

#### **Leadership of development**

Martin Davis, Consultant to OGC and Member of the Strategic Forum’s Integration Task Group

#### **Collaboration and leadership of pilots:**

Kevin Thomas, Visionality

#### **Policy and legal agreements:**

David Race and Matthew Smith, K& L Gates

#### **Measurement of benefits:**

- a) Research Graduates seconded from local university, with shared funding orchestrated through ACBEE
- b) Practitioners from Constructing Excellence

# Appendix 9

## Constructing Excellence Three Pillars Initiative

### 1) Background

In CE we define the construction sector as covering the whole lifecycle from planning, design, manufacture, assembly/construction and commissioning of built facilities to their operation, maintenance, refurbishment, deconstruction and re-use. A more accurate description than “construction” is the “built environment” sector, of which sub-sectors include housing, property, buildings and estates, and infrastructure, and as such a case can be made that the built environment industry accounts for almost 20% of Gross Domestic Product compared with the 6-7% usually quoted for ‘construction’ output.

However, a major problem in the sector is the widespread failure of the industry [and its stakeholders](#) (eg investors, clients, suppliers) to take account of this whole lifecycle of built facilities and hence understand and respond to [how the industry adds value for its customers](#) – which by definition is predominantly in the use of built facilities, not their construction. They find value in the availability of serviced space, developed and run to support their business or social service. Construction is only an occasional input to meet that need. For Example, Prof. Bryan Lawson and Dr Michael Phiri, University of Sheffield, carried out evaluations for the South Downs Health NHS Trust, Poole Hospital NHS trust and NHS estates, of two hospitals, both involving new and improved accommodation. The findings showed positive outcomes.[see ISBN-0-11-322480-X]. In the case of Brighton, the patient treatment time savings exceeded annual capital charges by 46%. At Poole, the revenue costs exceeded the capital costs in the second year of operation and at Brighton, this happened in the first year of operation.

The quality of buildings substantially determines the operating performance of the economy and the quality of life for people. Examples of such performance linked to built environment investment are not easy to come by, but there are enough examples from overseas (eg USA) to support this vision. We are working with others, including the Commission for Architecture in the Built Environment (CABE), to understand cases such as:

- Productivity in workplaces related to the ability of the occupants to use the latest equipment and layout thinking and to enjoy a healthy indoor climate.
- Competitiveness of retail and leisure investments based on their attractiveness to tenants and customers, accessibility and operating economy.
- Speed and effectiveness of hospital treatment, given a cleanable and attractive environment under patient control.
- High achieving educational establishments in buildings which support effective regimes and build morale.

In other words, how can the industry exploit the economic and social benefits of good design and manage for value optimisation rather than cost minimisation?

Making a difference in this area is not easy. Most of those involved in the design and construction of buildings are too remote from their customers' experience – they have long left before the occupiers start to experience the building. Apart from a very few regular customers of construction, there is scant client understanding of how the quality of real estate and facilities brings value to their business, and requirements statements are therefore typically too general. However, if customers and suppliers for the built environment sought long-term value in this way, the prizes would be huge for all: customers could expect their performance to rise in value-based facilities; the industry could expect value-linked reward to exceed that based on current margins; the public could benefit from a rise in the quality of life and the sustainability of their lifestyle. There are two main strands of work required to make progress towards this vision:

We need to understand the relative ratio of building cost and business value. The initial capital costs of a construction project, the maintenance and building operating costs, and the business operating costs (salaries, IT etc) of the organisation occupying the building are easily identified. For the economy as a whole over twenty years, research by University College London has shown that these figures might have the ratio 1:3:30, but ratios as high as 1:5:200 have been suggested by others. Add in two more figures, the project design and management cost, typically 10% of the capital cost, and the value added (earned) by the occupier organisation, perhaps 33% more than the business operating costs, and we find the gearing of design input, where what is to be built is defined, to value for the business could be of the order of 1:400.

## **2) CE's Three Pillars Initiative: A supply chain led initiative by CE members**

We agreed to work with our industry members to bring together and exploit, at project level, three inter-related activities which will enable a value-driven process:

- a) **post-occupancy continuous evaluation** – finding out on an on-going basis how well a new or refurbished actually performs, how it affects those who use it, and how it meets the operational needs of the organisation on an on-going basis, is notable for its usual absence.
- b) **evidence-based design** – recording, understanding and cataloguing for use by others, design solutions which work particularly well, is largely unheard of and would be considered by many to be eccentric.
- c) **briefing** – this process is notable for the wide variation in its quality, which is hardly surprising without (a) above as how can the process be based on an understanding of how buildings work in use and therefore their strategic impact on the client's operation?

We are engaged in a supply chain led project designed to bring together (i) post occupancy continuous evaluation, (ii) evidence based design and (iii) briefing, through a number of working groups each addressing one building type.

### **3) The Work**

We have set up three groups addressing Three Pillars in the construction project worlds – new build and refurbishment – for residential, schools and offices projects. We also plan to address universities, healthcare infrastructure and urban planning and space. We are exploring what benefits might follow from developing processes which enable, for each building type, these three sets of data on briefing, post occupancy evaluation, and evidence based design, to be brought together at project level and interconnected so that we create the basis of a virtuous spiral of continuous improvement in our products and services, based on action, evaluation and feedback. We are working jointly with our lead academic partners at the University of Salford, as well as with the Universities of Reading and Loughborough, and with the Open University Business School.

#### **3.1) Residential Working Group Workshop**

On September 13 2007 we are holding a 3 Pillars Residential Working Group Workshop. The basic proposition is that the housing industry is besieged with demands to produce more homes, at higher density, to higher environmental standards and yet to address the increasing problem of affordability. There is information overload and yet little clarity on how all these sometimes conflicting requirements can be met and where the priorities should be.

The 3 Pillars Residential Working Group has come up with an embryonic concept for a web based portal which is aimed at steering stakeholders through the Three Pillars process by improving process and product and achieving better outcomes in terms of value, which may be defined in a number of ways.

The portal concept could therefore become any or all of the following:

- A process map
- A knowledge base
- A project management tool
- A data collection and feedback resource

The overall aims of the workshop are therefore:

- To initiate a process of involving all the relevant players from the housing sector in working out how the portal should be shaped to enable the sector to meet the challenges it is facing,
- To explore what other kinds of initiatives may be needed alongside the portal.

The workshop will:

- Assess the state of current practice in briefing, evidence-based design and post-occupancy evaluation
- Receive presentations from leading industry figures on how Briefing, Evidence Based Design and Post Occupancy Evaluation need to develop
- Inform a wider audience about the current thinking and progress of the 3 Pillars Residential Working Group
- Test proposals for the Portal to see whether they will engender support, and identify how they can be developed further
- Provide an opportunity for individuals and organisations to explore how they want to be involved in taking these ideas forward

The workshop is intended to involve 70 participants from different parts of the sector, including clients, designers and house builders. Prior to the event, all participants will be asked to complete a brief survey of current practices in briefing, design and post-occupancy evaluation. The results will be fed back on the day.

### **3.2) Workshops schools and offices and roundup**

If the residential workshop is productive, we propose to repeat the workshop with the 3 Pillars Offices and Schools Working Groups. The outcomes from all three workshops would then be reviewed and a fourth concluding workshop would be held to review feedback, agree and pull together the learning to inform the development of the 3 Pillars work, its outcomes and deliverables.

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