

Accelerating Change

A report by the
Strategic Forum for Construction
Chaired by Sir John Egan



STRATEGIC FORUM
FOR CONSTRUCTION



Strategic Forum Membership - Chairman Sir John Egan

British Property Federation (BPF)
Commission for Architecture and the Built
Environment (CABE)
Confederation of Construction Clients (CCC)
Construction Confederation (CC)
Construction Industry Council (CIC)
Construction Industry Training Board (CITB)
Construction Products Association (CPA)
Construction Research and Innovation Strategy
Panel (CRISP)
Constructors Liaison Group (CLG)
Department of Trade and Industry (DTI)
Design Build Foundation/Reading Construction
Forum (DBF/RCF)
Health and Safety Executive (HSE)
Housing Forum (HF)
Local Government Task Force (LGTF)
Major Contractors Group (MCG)
Movement for Innovation (M4I)
Office of Government Commerce (OGC)
Rethinking Construction (RC)
Trades Union Congress (TUC)

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“It is unwise to pay too much, but it’s worse to pay too little. When you pay too much, you lose a little money - that is all. When you pay too little, you sometimes lose everything, because the thing you bought was incapable of doing the thing it was bought to do. The common law of business balance prohibits paying a little and getting a lot - it can’t be done. If you deal with the lowest bidder, it is well to add something for the risk you run. And if you do that, you will have enough to pay for something better.”

John Ruskin 1860



Brian Wilson MP, Minister for Construction



My first acts as Minister for Construction were to announce the arrangements for the Strategic Forum for Construction and the extension of the Rethinking Construction programme for a further two years. I have kept closely in touch with the Forum's work and I very much welcome the publication of 'Accelerating Change'.

Construction is a hugely important industry. And not just because it accounts for some 8% of GDP, but because the product of the industry - the built environment - affects us all. Excellence in design can help raise productivity and business competitiveness, as well as improving our quality of life. So I welcome this report with its emphasis on creating a sustainable, customer focussed industry. We must not forget who we are building for - the end users. The industry is judged by the public on the quality of its final projects. We should therefore work together to ensure we can be proud of what we build.

I have seen that the best in the industry, especially the Rethinking Construction demonstration projects, have shown that these Rethinking Construction principles hold good in practice and deliver real tangible returns for clients, contractors, suppliers, consultants and communities.

In seeking to inculcate the principles of Rethinking Construction throughout the industry, the Strategic Forum has rightly identified the importance of client leadership. I am determined, with the help of my ministerial colleagues, to help ensure that the public sector, as the industry's largest client, plays its role in driving forward the change agenda. I want to see that the taxpayer gets value for the money we invest - in schools, hospitals, roads, and so on. Clients want construction projects that embody good whole life value and performance, excellent design and functionality, that are delivered within budget, on time and defect free.

To achieve this clients need an industry that is efficient. An industry that works in a 'joined up' manner, where integrated teams move from project to project, learning as they go, driving out waste, and embracing a culture of continuous improvement.

And to do all this, as the report emphasises, the industry really must respect its people. It needs to

improve its image if it is to recruit and retain the quality people it needs. I want to see concern translated into action to tackle real issues. The industry must improve its health and safety record; its poor working conditions and long hours culture; its excessive use of casual labour and neglect, in some cases, of employment rights.

To become world class the industry must invest in training, in the development of new skills, and in research and development to make the best of new materials and new technologies. Even more importantly it must change its culture and the way it does business, by working more effectively together in a partnership to meet - and exceed - its clients expectations.

I would like to pay tribute to Sir John Egan and the Strategic Forum for this report and the strategic vision it contains. The report clearly sets out what needs to be achieved. We need a vibrant, profitable, productive and competitive industry. I look forward to seeing the industry's response, and the actions being taken to 'accelerate change'.





In my foreword to 'Rethinking Construction', I challenged the construction industry to commit itself to change so that, by working together, a modern industry could be created. 'Accelerating Change' is evidence of the ability of the industry to come together and agree a strategic framework for action.

'Accelerating Change' is not a new initiative, it builds on and reaffirms the principles we set out in 'Rethinking Construction'. The Forum sought to tackle barriers to progress and identify ways to accelerate the rate of change. This report is the culmination of the Forum's first year's work. Independent analysis of the comments made during our consultation exercise showed an overwhelmingly positive response.

Change is already underway. I have been greatly impressed by the industry's efforts to apply 'Rethinking Construction' principles. The demonstration projects clearly show that the targets we set were realistic, and that when achieved the result brings benefit to all. I very much welcome the progress made, and congratulate those who have helped bring it about.

Some of the Forum's proposals seem controversial to some yet common sense to others. The role of the independent client advisor received considerable comment. I wish to see an end to lowest cost tendering as the main procurement tool of this industry and to replace this wasteful and unpredictable process with one where clients procure value for money against world class benchmarks and projects are delivered by integrated teams of experts involved in continuous improvement in customer satisfaction, productivity, safety and value for money. Clearly many clients will need help setting bench marks and assembling a competent integrated team to do their construction and for this I am sure independent advice will be required. Though I would prefer that the industry itself were giving the lead, the construction industry can only really lead when it is able to offer clients projects that are predictable on cost, time and quality; where the industry understands its customer's needs and can deliver products which are predictable in every way including in-use costs.

In the meantime, clients need to improve their understanding of how construction can best meet their

business needs and help lead the process of creating integrated teams. Increased use of partnerships and long term framework agreements will help drive continuous improvement.

Integrated team working is key. Integrated teams deliver greater process efficiency and by working together over time can help drive out the old style adversarial culture, and provide safer projects using a qualified, trained workforce. It is self evident that teams that only construct one project learn on the job at the client's expense and hence will never be as efficient, safe, productive or profitable as those that work repeatedly on similar projects. I want to see expert teams coming together to deliver world class products, based on understanding client needs.

I also passionately believe in the importance of tackling the industry's health and safety problems. Pre-planned, well designed projects, where inherently safe processes have been chosen, which are carried out by companies known to be competent, with trained work forces, will be safe: they will also be good, predictable projects. If we are to succeed in creating a modern, world class industry, the culture of the industry must change. It must value and respect its people, learn to work in integrated teams and deliver value for clients' money.

By continuously improving its performance through the use of integrated teams, the industry will become more successful. This will in turn enable it to attract and retain the quality people it needs, which will enable it profitably to deliver products and services for its clients.

I urge you to respond to the challenge and work together with others to achieve the targets of 'Accelerating Change'

Key Measures to Accelerate Change

Vision

Our vision is for the UK construction industry to realise maximum value for all clients, end users and stakeholders and exceed their expectations through the consistent delivery of world class products and services.

Strategic Targets

By the end of 2004 20% of construction projects by value should be undertaken by integrated teams and supply chains; and, 20% of client activity by value should embrace the principles of the Clients' Charter. By the end of 2007 both these figures should rise to 50%

The Forum is determined to reverse the long-term decline in the industry's ability to attract and retain a quality workforce. To that end its members will develop and implement strategies which will enable the industry to recruit and retain 300,000 qualified people by the end of 2006, and result in a 50% increase in suitable applications to built environment higher and further education courses by 2007.

Future actions by the Forum

The Forum will

- Put in place means of measuring progress towards its targets.
- Ensure a 'Toolkit' is developed by April 2003 to help clients, and individual supply side members, assemble integrated teams, mobilise their value streams and promote effective team working skills and then produce an action plan to promote its use.
- Produce:
 - Models for payment mechanisms by April 2003
 - KPIs for payment within supply chains to help to establish and benchmark best practice by April 2003.
- Ensure a review of people initiatives is undertaken, which results in a cohesive, deliverable strategy by the middle of 2003, and which works in support of the overall vision expressed in this report.
- Develop by the end of 2002 a code of good working practices to be adopted by clients, employers, employees and trade unions.
- Press for a more concerted initiative to be

developed to take forward and make the business case for IIP.

- Develop some robust examples of how changing a people culture can change a business positively.
- Develop a communication plan to spread its message throughout the SME sector; and produce a signposting booklet, pointing the way towards the most relevant and effective people initiatives, and a straightforward summary of Accelerating Change by the end of 2002.

Future actions agreed by others

The Construction Best Practice Programme will

- Develop, collate and share tools and activities specifically targeted towards SMEs to support them in all aspects of their development as part of an integrated supply team.
- The emergence of current best practice in Logistics will be collated and shared with industry through events, training and workshops to accelerate change in this important area of productivity improvement.

The Health and Safety Executive (HSE) will publish in September 2002 a wide ranging Discussion Document exploring various levers to achieve cultural change in the industry to benefit health and safety performance.

Forum recommendations.¹

The Forum recommends that:

- Clients, who wish it, have access to independent, expert advice on all the options for meeting their business or project needs - not just those involving construction activities. Such advice should cover a range of procurement and management options, including environmental performance, operating and whole life costs. The industry, in partnership with government, should promote the value of independent advice to assist clients realise value for money.
- Clients should require the use of integrated teams and long term supply chains and actively participate in their creation.
- A list of basic competencies and a code of conduct should be made available to ensure the adequacy, consistency and independence of the service clients can expect.

¹ Many views and suggestions were expressed during the consultation phase of Accelerating Change and, overwhelmingly, the weight of opinion was in favour of the vision and strategic direction proposed and this is reflected in this final report. While many of the specific ideas do not appear in this final document, they will be taken into account, as detailed programmes are developed to implement the recommendations in this report.



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- Clients should create an environment throughout all stages of the project which delivers excellence in health and safety performance.
 - HSE should consider publishing details of all companies, including clients, associated with sites where fatal accidents occur.
 - Existing process maps should be reviewed and signposted to encourage those who wish to actively participate in integrated teams.
 - The CCC should continue to work with CBI and IOD to ensure that their members adopt the Charter's principles when commissioning construction work.
 - OGC gives its work on developing simple "how to" guides high priority.
 - A package of education and training (meeting the needs of SMEs and small and occasional clients) in supply team integration and collaborative working should be developed by end 2003.
 - HSE include in their Approved Code of Practice reference to a system of 'gateways'. At each gateway there should be a checklist for assessing the relevant health and safety risks associated with critical stages in the planning and design process. At each stage the integrated team should be required to certify that they have - as a team - considered the health and safety risks in order to ensure that the facilities currently developed will be safe to build and safe to maintain and operate.
 - Work to enable corporate competence to be readily assessed and, if necessary, validated should be carried out, and recommendations made, by September 2003.
 - Project insurance products should be made available to underwrite the whole team. The construction industry, supported by its clients, should by end of 2003 present projects suitable for 'project insurance piloting' which should then be evaluated. The results should be analysed and disseminated by the Construction Best Practice Programme.
 - A study, coordinated by the Specialist Engineering Contractors' Group in consultation with the industry and Government, should be carried out to examine the impact of insolvency law and practice on construction supply chains and make recommendations for change by July 2003.
 - There should be widespread use of the Respect for People toolkits.
 - Employers address the issue of pay and conditions in order to attract and retain the very best people in all sectors of the industry.
 - The industry develops closer working relationships with schools, colleges and the Curriculum Centres offering advice and support at both design and delivery stages.
 - All industry sectors identify how to demonstrate that they have a qualified workforce.
 - The professional bodies jointly with the CITB and other training bodies conclude as a matter of urgency issues of professional development for graduates into management roles.
 - Industry whole-heartedly adopts existing S/NVQs at levels 3,4 and 5, supported by programmes such as the CIOB's Site Management Education and Training Scheme, and the CITB's portfolio of management and supervisory training.
 - CIC's forthcoming review includes a requirement to include integrated project team-working in courses achieving accreditation against the common learning outcomes.
 - The industry must take responsibility for the sustainability of its products (from components to the completed structure) as well as its processes.

Vision

Our vision is for the UK construction industry to realise maximum value for all clients, end users and stakeholders and exceed their expectations through the consistent delivery of world class products and services.

In order to achieve this the UK construction industry must:

- add value for its customers, whether occasional or experienced, large or small;
- exploit the economic and social value of good design to improve both the functionality and enjoyment for its end users of the environments it creates (for example, hospitals where patients recover more quickly, schools and work places which are more productive and more enjoyable to work in, and housing which raises the spirits and enhances the sense of self worth);
- become more profitable and earn the resources it needs to invest in its future;
- enhance the built environment in a sustainable way and improve the quality of life.

Such an industry will be characterised by:

- A process that helps clients describe their needs so that as a minimum, the project delivers their requirements. (Long term strategic partnering will deliver real savings for clients and bring benefits to all in the supply chain.)
- Clients (experienced or inexperienced) procuring and specifying sustainable construction projects, products and services and a supply side that responds collaboratively to deliver these in a way that enables all in the integrated team to maximise, demonstrate and measure the added value their expertise can deliver.
- Integrated teams, created at the optimal time in the process and using an integrated IT approach, that fully release the contribution each can make and equitably share risk and reward in a non-adversarial way.
- Integrated teams made up of existing integrated supply chains, which once successfully formed are kept together and move from one project to the next taking their experience and a culture of continuous improvement with them. And, wherever possible, established integrated supply teams and supply chains are appointed.

- Strong client/customer focussed integrated teams that work proactively together to:

- minimise risks to health and safety of all those who construct, maintain, refurbish operate and have access to the construction product;
- drive out waste during design, planning, construction, maintenance, refurbishment and operation;
- achieve sustainable construction by recognising that construction represents only a fraction of the cost of the building over its life span;
- ensure a quality of design that enhances the built environment, as well as providing functionality and flexibility for the user.

“Successful delivery of the vision will require more than integration of the supply process. It will require long-term partnerships, performance measurement, continual improvement and fair rewards for the whole supply chain.”

Highways Agency

- Respect for its people, including:
 - Professional relationships and attitudes that result in behaviour based on mutual respect and where people treat others as they would wish to be treated.
 - A positive image that attracts and retains a high quality committed workforce with appropriate skills and competencies.
 - An emphasis on education, training and continuing personal and professional development.
- A culture of continuous improvement based on performance measurement.
- Investment in research and development, driven by innovation, resulting in improved performance and enhanced competitiveness and productivity.



- Consistent and continuously improving performance, and improved profitability, making it highly valued by its stakeholders.

This vision needs to be supported by an education and training process that incorporates best practice and a systematic approach to continuing professional and personal development.

Clearly the mechanisms for achieving the vision may vary, and there will be differing needs for guidance or support. However, the vision and the principles it espouses are applicable to all companies whatever their size, or position in the market.



Rethinking Construction

1.1 Rethinking Construction² set out an approach whereby substantial improvements in quality and efficiency could be made. The Construction Task Force issued a challenge to the construction industry to commit itself to change, so that, working together, a modern industry could be created, ready to face the future. *Accelerating Change*, which is not a new initiative builds on the recommendations in *Rethinking Construction*, which are set out below.

Rethinking Construction - Executive Summary

- The UK construction industry at its best is excellent. Its capability to deliver the most difficult and innovative projects matches that of any other construction industry in the world.
- Nonetheless, there is deep concern that the industry as a whole is under-achieving. It has low profitability and invests too little in capital, research and development and training. Too many of the industry's clients are dissatisfied with its overall performance.
- The Task Force's ambition for construction is informed by our experience of radical change and improvement in other industries, and by our experience of delivering improvements in quality and efficiency within our own construction programmes. We are convinced that these improvements can be spread throughout the construction industry and made available to all its clients.
- We have identified five key drivers of change which need to set the agenda for the construction industry at large: committed leadership, a focus on the customer, integrated processes and teams, a quality driven agenda and commitment to people.
- Our experience tells us that ambitious targets and effective measurement of performance are essential to deliver improvement. We have proposed a series of targets for annual improvement and we would like to see more extensive use of performance data by the industry to inform its clients.
- Our targets are based on our own experience and evidence that we have obtained from projects in the UK and overseas. Our targets include annual reductions of 10% in construction cost and construction time. We also propose that defects in projects should be reduced by 20% per year.
- To achieve these targets the industry will need to make radical changes to the processes through which it delivers its projects. These processes should be explicit and transparent to the industry and its clients. The industry should create an integrated project process around the four key elements of product development, project implementation, partnering the supply chain and production of components. Sustained improvement should then be delivered through use of techniques for eliminating waste and increasing value for the customer.
- If the industry is to achieve its full potential, substantial changes in its culture and structure are also required to support improvement. The industry must provide decent and safe working conditions and improve management and supervisory skills at all levels. The industry must design projects for ease of construction making maximum use of standard components and processes.
- The industry must replace competitive tendering with long term relationships based on clear measurement of performance and sustained improvements in quality and efficiency.
- The Task Force has looked specifically at housebuilding. We believe that the main initial opportunities for improvements in housebuilding performance exist in the social housing sector for the simple reason that most social housing is commissioned by a few major clients. Corporate clients -housing associations and local authorities - can work with the house building industry to improve processes and technologies and develop quality products. We propose that a forum for improving performance in house building is established.
- The Task force has concluded that the major clients of the construction industry must give leadership by implementing projects which will demonstrate the approach that we have described. We want other clients, including those from across the public sector, to join us in sponsoring demonstration projects. We also wish to see the construction industry join us in these projects and devise its own means of making improved performance available to all its clients. Our ambition is to make a start with at least £500 million of demonstration projects.



- In sum, we propose to initiate a movement for change in the construction industry, for radical improvement in the process of construction. This movement will be the means of sustaining improvement and sharing learning.
- We invite the Deputy Prime Minister to turn his Department's Best Practice Programme into a knowledge centre for construction which will give the whole industry and all of its clients access to information and learning from the demonstration projects. There is a real opportunity for the industry to develop independent and objective assessments of completed projects and of the performance of companies.
- The public sector has a vital role to play in leading development of a more sophisticated and demanding customer base for construction. The Task Force invites the Government to commit itself to leading public sector bodies towards the goal of becoming best practice clients seeking improvements in efficiency and quality through the methods that we have proposed.
- The members of the Task Force and other major clients will continue their drive for improved performance, and will focus their efforts on the demonstration projects. We ask the Government and the industry to join with us in rethinking construction.

1.2 These recommendations and the targets contained in the report have been summarised in figure 1. It has become established as the 5:4:7 mantra of Rethinking Construction.

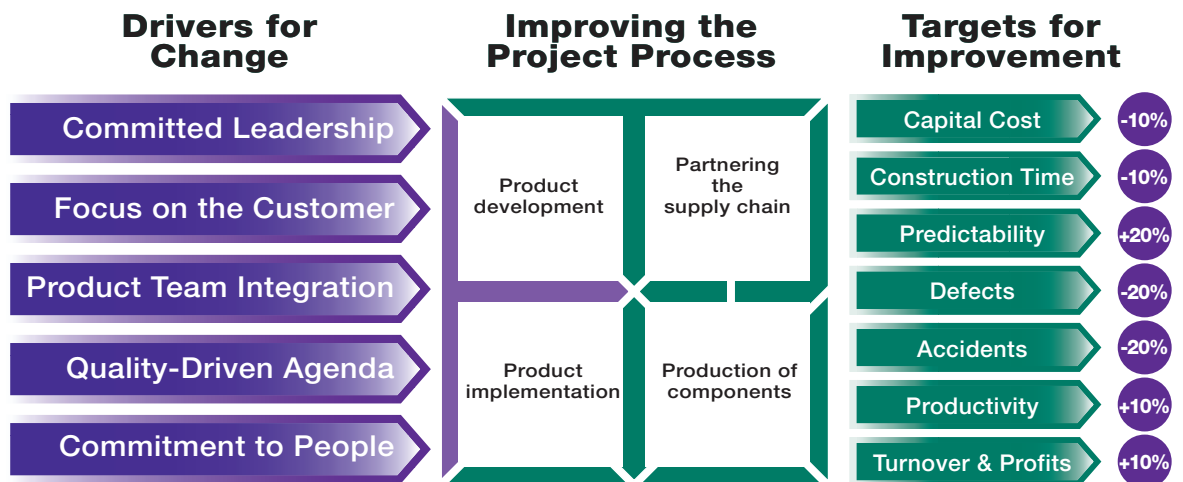


Figure 1

Progress since Rethinking Construction

Rethinking Construction four years on - achievements and outputs

2.1 Rethinking Construction's objectives were, and still are, to achieve radical improvements in the design, quality, sustainability and customer satisfaction of UK construction. And for the industry to be able to recruit and retain a skilled workforce at all levels by improving its employment practices and health and safety performance. In order to achieve this the Egan Task Force proposed not only a series of targets for improvement that underpin *Rethinking Construction*, but the key drivers for change and the initial areas of process to be tackled (figure 1).

Action taken to implement Rethinking Construction

2.2 Since the publication of the report, the *Rethinking Construction* agenda has been taken forward through a dynamic partnership between government, clients and industry. **There are now more than 1,000 construction organisations actively involved in the initiative.**

2.3 Directly following the launch of the *Rethinking Construction* report the **Movement for Innovation³ (M⁴I)** was established by industry with Government to respond to the recommendation in the report for a movement for change. Whilst M⁴I takes the lead in general construction, the **Housing Forum⁴** was established to bring together all those within the house building chain in the movement for change and innovation. Then in March 2000 the **Local Government Task Force⁵** was set up to encourage and assist local authorities to adopt the principles of *Rethinking Construction*. Following some three and a half years of activity, the decision was made in April 2002 to streamline the *Rethinking Construction* initiative by bringing together the streams under the banner of *Rethinking Construction* Ltd which acts as the main point of co-ordination and liaison, whilst maintaining their individual focus.

2.4 At the heart of the *Rethinking Construction* initiative is the demonstration projects programme. This provides the opportunity for leading edge organisations from whatever part of construction to bring forward projects that demonstrate innovation and change which can be measured and evaluated. These are either site-based projects or organisation change projects.

2.5 At the launch of *Rethinking Construction* Deputy Prime Minister, the Rt. Hon John Prescott MP and Sir John Egan challenged industry and its Clients to bring forward 50 such projects with a total value of £500 million. To date there are more than 400 of these projects in the programme, with a total value of over £6bn. 38% of these are housing projects and 62% represent the rest of the construction industry. They provide examples of off-site fabrication, standardisation, the use of new technology, sustainability, respect for people activities, partnering and supply chain integration and other areas of process improvement.

2.6 The report also exhorted industry to develop a culture of performance measurement - on the basis of if you do not measure how can you demonstrate improvement. An industry wide group developed a set of simple headline Key Performance Indicators (KPIs), based upon the 7 *Rethinking Construction* targets but with the addition of Client Satisfaction measures. In all there are 12 measures. All demonstration projects are required to measure their performance against these KPIs and to report annually. DTI collects data from industry at large, also annually, enabling a comparison to be made between all industry performance and that of the *Rethinking Construction* demonstration projects. The following data, published in May 2002,⁶ illustrate that comparison for the year 2001. Similar results were published in May 2000 and 2001. **Figure 2**

2.7 Taken together, these projects substantially outperform the average of the UK industry against the key indicators. More detailed results can be obtained from the *Rethinking Construction* 2002 report, from the DTI or from the Construction Best Practice Programme (CBPP) who publish them annually. Within the combined portfolio, 197 projects are entirely new build projects, and 66 are refurbishment, repairs and maintenance. The others are mixed projects. A sample of projects provides the following breakdown of projects by client type:

	Public	Private	Mixed	Social
M ⁴ I	46%	43%	11%	-
Housing	15%	9%	4%	72%

2.8 The M⁴I projects include those of a non-housing type from the LGTF, the great majority of the 46% of public projects being from this sector. Whilst

³ Movement for Innovation: www.m4i.org.uk

⁴ The Housing Forum: www.thehousingforum.org.uk

⁵ Local Government Task Force: www.lgtf.org.uk



M4I demonstration project performance compared to all construction for 2001 ⁶				
Headline Key Performance Indicator	Measure	All construction	M4I	M4I Enhancement
Client Satisfaction - Product	Scoring 8/10 or better	73%	85%	+16%
Client Satisfaction - Service	Scoring 8/10 or better	65%	80%	+23%
Defects	Scoring 8/10 or better	58%	86%	+48%
Safety*	Mean accident incidence rate/100K employed	990	495	+100%
Cost Predictability - Design	On target or better	63%	81%	+29%
Cost Predictability - Construction	On target or better	50%	71%	+42%
Time Predictability - Design	On target or better	46%	81%	+76%
Time Predictability - Construction	On target or better	61%	70%	+15%
Profitability	Median profit on turnover	5.6%	7.6%	+2% <small>percentage points</small>
Productivity	Median value added/employee (£000)	28	34	+21%
Cost	Change compared to 1 year ago	+2%	-2%	+4%
Time	Change compared to 1 year ago	+4%	-8%	+12%

* M4I safety data are project based while All Construction data are company based

Figure 2

Government as industry sponsor and the Office of Government Commerce (OGC) have been total in their commitment to and support of *Rethinking Construction*, Government as Client needs more encouragement to become actively involved. More demonstration projects from them would be particularly welcome.

From the outset the achievements of these projects compared with the industry average have been remarkable. They have clearly demonstrated that the application of *Rethinking Construction* principles leads rapidly to:

- significant improvement in predictability of time and cost;
- enhanced quality and reduction in defects;
- marked increases in productivity and profitability;
- clear evidence that efficiently run design and construction projects are significantly safer and healthier;
- greater client satisfaction; and
- more repeat business.

2.9 Indeed, these and previous years results show that the demonstration projects are consistently exceeding the targets in *Rethinking Construction*. And more importantly, for the first time there is evidence of improvement in overall industry performance.

⁶ Data source: Industry Progress report 2002 - contained in Construction Industry Key performance Indicator Pack 2002 Published by CBPP

Demonstration Projects' performance	Rethinking Construction Demonstration Projects (£6bn)	Construction Industry, as a whole (£64bn)
Profitability Rethinking Construction projects achieve 2 percentage points more profit than the industry average	Increased profit from Demonstration Projects = £120m	Increased profit if one-third of industry take up = £420m
Construction Cost Demonstration project costs are 4.0% lower than industry average	Reduced construction costs from Demonstration Projects = £240m	Reduced costs if one-third of industry take up = £840m
Safety Demonstration project accidents are 50% lower than industry average. Estimates put accidents costs across the industry at 8.5% of turnover (see Rethinking Construction Report 'People - our biggest asset')	Reduced costs of accidents from Demonstration Projects = £255m	Reduced costs if one-third of industry take up = £638m

Figure 3

2.10 Based on these results, estimates have been prepared for the savings that have occurred and also the size of the savings open to the wider industry if they pursued the approaches trail-blazed by the Demonstration Projects. The table below is compiled from data collected from the *Rethinking Construction* Demonstration Projects in March 2002, and published by the Construction Best Practice Programme in the Industry Progress Report. **Figure 3 above**

2.11 Recent independent research reviewing the impact of the Demonstration Projects among participants has concluded that:

- more than two-thirds reported improved partnering, procurement or supply change management skills in their organisation;
- more than half report that their organisations have made changes in eight specific areas of their business as a result; and
- more than two-thirds of participating individuals felt that they had been at the cutting edge of construction innovation and learned new skills.

2.12 The lessons drawn from these demonstration projects have been used to encourage others in the industry to embark on a process of radical change. These lessons have been published in a variety of case studies, progress reports and themed reports available on the following websites: www.m4i.org.uk and www.thehousingforum.org.uk. The Construction Best

Practice Programme⁷ provides details of tools and training to enable these lessons to be shared. Through these sources of material the business case for change is made very clearly indeed.

Other ways in which Rethinking Construction operates

2.13 Because of the varied nature of the industry and its products, there are a number of other streams of activity within the *Rethinking Construction* initiative. These include:

The Respect for People Steering Group.

2.14 M4I published its report "A Commitment to People - Our Biggest Asset"⁸ along with a set of tools that formed the basis of a trial programme. A set of KPIs to promote the image and performance of the industry in this vital area has recently been published. These trials included both demonstration projects and demonstration companies and have been concluded.

A final set of toolkits will be made available to industry to help improve recruitment, retention and health and safety.

Sustainability Working Group

2.15 The launch in 2001 of the project based Environmental Performance Indicators (EPIs) has provided a key tool to drive improved sustainability in design and working practices.

⁷ Construction Best Practice Programme: www.cbpp.org.uk/cbpp

⁸ A Commitment to People - "Our Biggest Asset" - A report from the Movement for Innovation's working group on Respect for People, November 2000 (www.rethinkingconstruction.org/index2.htm).



Design Quality Indicators

2.16 From the outset it has been clear that quality in design and construction have to be treated as one. M⁴I requested that the Construction Industry Council, supported by a DTI research grant, develop measurement tools for this crucial area; these were launched at the beginning of July 2002.

A Triple Bottom Line Case Study

Author The Construction Best Practice Programme

Beach replenishment schemes are competing increasingly with gravel extractors for a share of the UK's reserves of sand and shingle. Halcrow helped its client, a borough council, negotiate successfully with a port operator, to realise significant cost savings.

By using dredged shingle key benefits resulted from:

- One project's waste materials became another project's essential resources;
- No demand upon expensive and limited supply of licensed sand and shingle reserves;
- Port operator's requirement to dispose of dredged material at sea was reduced;
- Environmental impact of dumping gravel at sea was reduced;
- Replenishment material obtained at an estimated cost saving of £2.6 million.

The Construction Best Practice Programme

2.17 CBPP is the main dissemination arm for *Rethinking Construction* and in addition to it's programme directed primarily to SME's on today's best practice, it publishes the case studies generated by the demonstration projects on tomorrow's best practice.

Rethinking Construction in 2002

2.18 Because of the progress being made, the *Rethinking Construction* initiative was given continuing financial support by the Department of Trade and Industry for a further two years from April 2002, and is being solidly backed through the direct engagement of hundreds of companies and industry organisations, as well as other government departments. More organisations are getting involved with *Rethinking Construction* as the impact of the work gathers momentum.

2.19 Increasingly, enlightened clients are seeking to work with people who are committed to and practitioners of this agenda. At the same time government is requiring the principles of *Rethinking Construction* to guide clients' procurement practices in both central and local government.

2.20 In order to embed *Rethinking Construction* across the UK a network of 10 Regional Co-ordinators has been established to manage the Demonstration Project Programme and to work with other local organisations to promote the principles of *Rethinking Construction* to the widest possible audience. These Co-ordinators are working with the industry to develop integrated *Rethinking Construction* Centres. Centres in Wales and Northern Ireland have already been launched and others will follow over the next few months in England and Scotland. The active involvement with the Regional Development Agencies (RDAs) and of Small and Medium Sized Enterprises (SMEs) will be critical to their success.

2.21 For *Rethinking Construction* the four key objectives remain as:

- 1 Proving and selling the business case for change** - Through effective monitoring and evaluation of Demonstration Projects and the collection of KPIs, continue to deliver clear evidence to the industry that continuous business improvement is achieved by following the principles and targets of *Rethinking Construction*; with particular emphasis on clients, integrated supply teams and respect for people issues.
- 2 Engage clients in driving change** - Encourage clients to promote *Rethinking Construction* through involvement in demonstrations and commitment to the Clients' Charter.

3 Involve all aspects of the industry - Ensure that every sector of the industry is represented by active demonstration of the '*Rethinking Construction*' principles.

4 Create a self-sustaining framework for change
- Ensure that the industry takes responsibility for developing and maintaining continuous improvement, nationally and regionally.

All this will continue to be underpinned by the programme of dissemination, support and advice provided by the Construction Best Practice Programme.

2.22 The *Rethinking Construction* initiative and movement has, we believe, already made a difference in the UK construction Industry. There is clear evidence of a mood for change, the substantial beginnings of the needed culture change, improved performance. But there is much more still to do - a need to accelerate the process of change.

Strategic Direction

3.1 The Strategic Forum identified three main drivers to accelerate change and secure a culture of continuous improvement:

- The need for client leadership
- The need for integrated teams and supply chains
- The need to address 'people issues', especially health and safety.

3.2 These embrace customer focus; supply side integration; and respect for people. These issues are strategically linked. Progress on one cannot be made at the expense of another. Clients are the starting point of the process and more must commit to procuring on the principles of best value not lowest price. The industry must respond to give impartial advice, become more customer focussed and deliver the value such clients expect.

3.3 Delivery of the vision requires collaboration between the following:

- The whole of the supply team, including clients and manufacturers;
- Government (in terms of regulation, general economic climate and as a client);
- The finance and insurance sector (recognising and acknowledging the reduced risk involved in better practice);
- Schools, further and higher education, Careers Services, national and regional funding agencies, Sector Skills Councils and the Construction Industry Training Board (CITB)⁹ (to get the right sort of people with the right blend of skills and competencies);
- Research institutions;
- Professional bodies, Institutions and trade associations;
- Legal profession and contract writing bodies (preventing an adversarial approach).

3.4 This report is tantamount to a manifesto for change. The Strategic Forum looks to all who work in, or represent, these sectors to commit to the recommendations contained in this report and to participate actively in achieving the key strategic targets.

Strategic Targets

3.5 **By the end of 2004 20% of construction projects by value should be undertaken by integrated teams and supply chains; and, 20% of client activity by value should embrace the principles of the Clients' Charter. By the end of 2007 both these figures should rise to 50%.**

3.6 **The Forum is determined to reverse the long-term decline in the industry's ability to attract and retain a quality workforce. To that end its members will develop and implement strategies which will enable the industry to recruit and retain an additional 300,000 qualified people by the end of 2006, and result in a 50% increase in suitable applications to built environment higher and further education courses by 2007.**

3.7 **The Forum will put in place means of measuring progress towards its targets.** A significant *Rethinking Construction* benchmarking survey of the industry has been commissioned which will provide a sound basis for the measurement of change. The survey includes public and private sector clients, contractors, consultants and other suppliers totalling 1300 respondents.

⁹ Construction Industry Training Board: www.citb.co.uk/citb_home.htm

Chapter 4

Accelerating Client Leadership

TARGET

20% of construction projects (by value) should be procured by clients that embrace the principles of the Clients' Charter¹⁰ by end 2004, rising to 50% by end 2007

Those clients that adopt the Clients' Charter should achieve an annual 10% improvement in performance.

The Forum will develop a systematic basis for measurement to establish a baseline by the end of 2002.

“The leadership that clients should give is through making their main project requirements fully transparent and creating the right environment for the supply-side to meet those requirements in the most effective way.”

Confederation of Construction Clients

Achieving Client Leadership

4.1 It should be self-evident that, for a successful outcome, clients should enter the construction process with a clear understanding of their 'business' needs and their environmental and social responsibilities and hence the functionality they require from the finished product. They should also understand what value means for them. Without clarity at the outset, there are likely to be changes throughout the delivery process resulting in waste, duplication, poor design and dissatisfaction for everyone involved.

4.2 Many large, repeat clients have in-house teams and processes which ensure they establish this crucial development information at the outset, before the decision to build or engage with the industry is taken. However for one-off or very occasional clients this is not usually the case. Clients, specifically small and occasional clients, should have access to relevant, simple guidance on practical steps to take when considering commissioning a construction project and how this can be made more sustainable. To help inexperienced clients draw on the knowledge of more experienced clients a generic process map has been developed and is set out in **Figure 4 and annex 2**.

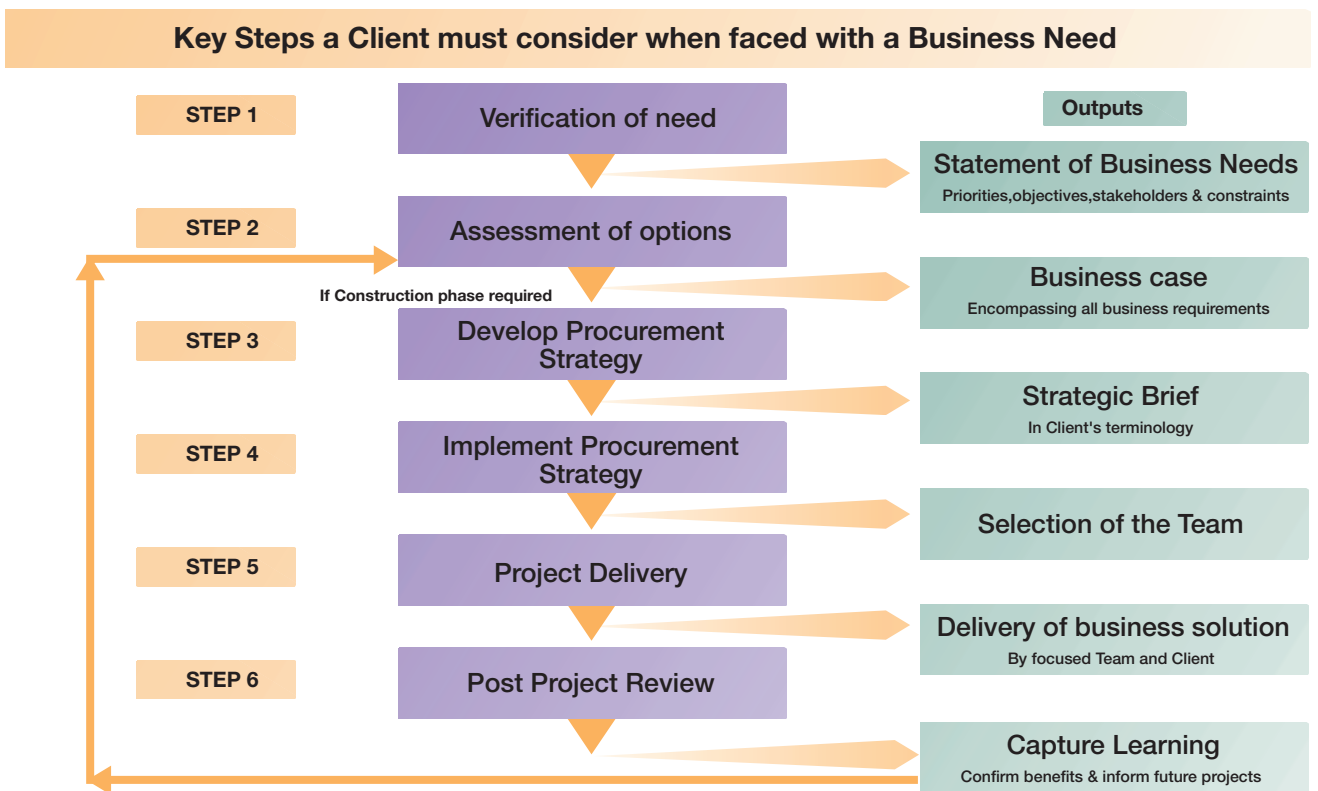


Figure 4



4.3 While all steps in the process are important the Strategic Forum believes that, to date, inexperienced clients do not invest sufficiently in the first two, which are vital if a successful business solution is to be achieved. This process map should be promoted on the basis that a client should seek independent advice for any of the tasks they do not feel confident in undertaking themselves. If and when required, clients in need of assistance should be able to access independent advice, which meets the principles of *Rethinking Construction*, with confidence that it is given without vested interest in the solution proposed. The Forum does not see the need for, nor does it recommend, the establishment of a new profession for the delivery of this advice. Annex 1 gives further information.

“We've seen the success of projects using independent advisors for clients, in a client representative role focussing on non-adversarial approaches. [And] we've seen a 30% reduction in fees and a 10% reduction in prelims as a direct result of well-integrated and co-ordinated teams.”

Senior project manager

4.4 The Forum therefore recommends that:

- clients, who wish it, have access to independent, expert advice on all the options for meeting their business or project needs - not just those involving construction activities. Such advice should cover a range of procurement and management options, including environmental performance, operating and whole life costs. This is vital if clients are to receive better solutions which meet their needs.
- Whatever the procurement option, achieving maximum integration of the team at the optimal time should be seen as essential in order to make the best use of all available expertise, and central to the delivery of best whole life performance and maximising client value from construction. Clients should require the use of integrated teams and long

term supply chains and actively participate in their creation.

- To ensure the adequacy, consistency and independence of the service clients can expect a list of basic competencies and a code of conduct should be made available. Numerous codes of practice and codes of conduct already exist in the construction sector that can help shape this work.

Health and Safety Performance

4.5 Clients should create an environment throughout all stages of the project which delivers excellence in health and safety performance. There are good business and ethical reasons to do this. Even though some clients may wrongly seek to distance themselves from health and safety during the construction process they cannot take the same attitude to the safety of the finished product, which will be used by their employees or members of the public.

4.6 Increasingly clients will be judged by their customers and by financial analysts on their ethical stance in relation to safety in the same way as is already happening for environmental performance and sustainability. Such issues have an important impact on corporate image, and on how local communities and stakeholders view them. In direct business terms,

Case Study: Confederation of Construction Clients

The Directorate of Estate Management of Cambridge University started, in 1999, to require their contractors to have 60% of their appropriate staff on site registered to CSCS or equivalent. This percentage has subsequently increased by over 10% annually so that now new contracts worth over £1million utilise over 80% of appropriate staff registered for CSCS or equivalent. The Directorate has found that particularly in recent months, contractors (and specialists) have encouraged all relevant staff, including management, to have CSCS equivalent, and will increasingly require this for access to site.

accidents on site may involve client liability and will lead to delays. Unhappy workers produce defective work.

Poor health and safety performance of the building when in use will result in the ineffective delivery of business objectives. Clients pay the price for all this avoidable waste.

4.7 Clients should deliver excellence in health and safety performance and thereby enhance their own corporate reputations by:

- Setting the requirements for healthy, safe working;
- Making health and safety of their customers, staff, and everyone they work with, or for, a business priority at the forefront of their agenda when commissioning construction;
- Using integrated supply teams to ensure the effective contribution of the entire supply chain to delivering a safe site and a safe product; and regular measurement of the extent of integration throughout the supply chain;
- Using the discipline of a "gateway" (explained in Annex 1) process to ensure they meet all their obligations to achieve a safe, efficient project. One that is more likely to be delivered on time and on budget.

4.8 The Forum recommends that, to concentrate minds further, HSE should consider publishing details of all companies, including clients, associated with sites where fatal accidents occur.

4.9 Emphasis should also be placed squarely on the training of project teams to ensure that clients, consultants, constructors and specialists are all aware of the demonstrable business, efficiency and safety benefits of integrating teams and processes. Too many organisations continue to believe that partnering and integrated procurement are experimental techniques and that the majority of their mainstream projects can still be effectively procured through traditional arrangements. Training combined with the application of that training on live projects, including the benchmarking of achievements and the sharing of lessons learned, is essential.

The Public Sector as a Client

4.10 Representing 40% of construction orders, the public sector can make a substantial difference to the widespread adoption of *Rethinking Construction*

principles. It has a significant vested interest in getting best whole life value from construction if it is to demonstrate that it is spending taxpayers' money effectively and efficiently. It is important that the public sector demonstrates that it is a best practice client which consistently secures the best whole life performance that the construction industry can offer. The public sector can be helped to achieve this by:

- a financial and audit regime which supports best practice, further encouraging movement away from short-termism that places lowest initial cost ahead of whole life performance;
- removing the divide between capital and revenue expenditure in local government projects to help realise value for money as opposed to lowest price;
- linking government funding of construction projects to the application of *Rethinking Construction* principles;
- audit processes attached to such expenditure to evaluate the extent to which value and whole life performance, are used as the basis of procurement;
- providing a lead in the procurement of sustainable construction.

4.11 Some clients are concerned that the principles of integrated teams moving from project to project in order to maximise knowledge and efficiency may appear to conflict with EU and UK government procurement rules on open competition. However, the National Audit Office (NAO) addressed this issue in its report *Modernising Construction*¹¹ and concluded that provided it was undertaken in an open and transparent way with adequate measurement in place to ensure best value was in fact being delivered then this method of procurement did comply. Extensive guidance already exists to help delivery teams determine their positions within the rules and this can be found on the Office for Government Commerce's website: www.ogc.gov.uk. The guidance also emphasises whole life value. In addition, the existing process maps should be reviewed for the Forum, by the Confederation of Construction Clients (CCC), and signposted to encourage those who wish to participate actively in integrated teams. Design champions within public sector bodies will have an increasingly important role and must have an understanding of how to ensure *Rethinking Construction* is used to ensure a high quality final product.



Private Sector Clients

4.12 Private sector clients, especially those who are not experienced customers of the construction industry, should understand how their construction projects can best be carried out if they are going to fulfil their business needs. This is a key message that business organisations, and in particular the Confederation of British Industry (CBI) and the Institute of Directors (IOD), should be conveying to their members. The CCC is currently developing a 'Starter' Charter aimed at this audience. The CCC should continue to work with these business organisations to ensure that their members adopt the Charter's principles when commissioning construction work.

Client Guidance

4.13 Given the widely varying experience of clients it is clear that in developing guidance one-size does not fit all. Yet the need for simple, relevant guidance exists and must be addressed.

4.14 The Office of Government Commerce (OGC)¹² has issued a series of guidance notes for central civil government clients¹³. The OGC's 'gateway' process offers a highly relevant straightforward way to ensure that government clients are helped through the procurement process at all stages and that the principles of *Rethinking Construction* underpin this. The Forum congratulates the OGC for taking the lead in this way. The Forum urges OGC to give its work on developing simple "how to" guides high priority. The Forum will look to incorporate the gateway approach into any tools they develop.

4.15 Process maps and 'awareness raising' guidance should be developed for use by clients even before they get to the point of deciding that they need to undertake a construction project to meet their business needs. Simple awareness raising pamphlets have a role to play in getting across the message to small and occasional clients that 'there is a better way to build'. However, they should form part of the Forum's continuous long-term communications strategy that first creates awareness of effective procurement methods, and second directs clients to independent advice. In the longer term the best source of information for such prospective clients may be the independent advisers. The industry, in partnership with government, should promote the value of independent advice to assist clients to realise value for money.

4.16 The Forum welcomes the similar guidance for local authority clients that is being prepared by the Local Government Task Force to assist local authorities to maximise the value of construction procurement.

4.17 In the private sector the review currently being undertaken by the CCC of existing process maps should continue, and the resulting products made available through an easily accessible website presented to suit general client groupings, i.e. small/occasional/repeat.

4.18 Client action must also support the development of long-term integrated supply chains to increase productivity, reduce time, increase cash-flow efficiency and minimise risk. These actions need to be backed up by leadership in the construction industry to make long-term integrated supply chains the 'norm' rather than the exception.

4.19 Clients need to avail themselves of the expertise of product manufacturers and suppliers. Their input to project design can offer the potential for considerable savings through identification of standard products and detailed design solutions that are practical to implement and reliable in operation.

¹² Office of Government Commerce: www.ogc.gov.uk

¹³ Office of Government Commerce Guidance Notes 1-10: <http://porch.ccta.gov.uk/treasury/reports.nsf>

Accelerating Supply Side Integration and Integr

TARGET

20% of construction projects (by value) should be undertaken by integrated teams and supply chains by end of 2004, rising to 50% by end 2007.

The Forum will develop a systematic basis for measurement to establish a baseline by the end of 2002.

5.1 Supply side integration has a crucial part to play in increasing quality and productivity, reducing project times, increasing cash-flow efficiency and thus minimising risk, whether in terms of the reduced costs from 'getting it right first time', or added value through ensuring that people work within 'process,' not least so that health and safety risks are 'designed out' at source. Supply side integration delivers benefits during initial project delivery and by securing best value throughout subsequent use of the completed project. Moreover, supply side integration will maximise opportunities for sustainable solutions. For example, the integration of the processes of planning, design, construction installations, products and materials selection and facilities management/maintenance will result in a substantial reduction in construction costs. It is generally accepted that, at present, the number of projects delivered by integrated teams is less than

10%. This report looks forward to the time when the industry can offer a full integrated service to their clients, which will deliver predicted results in all areas. And then clients can truly be treated as customers.

Creating Value through Integration

5.2 Just as client action must support the development of integrated teams, and their supply chains, to achieve maximum value and optimum performance, the creation of value should be a focussed objective of integrated teams.

5.3 An integrated supply team includes the client, as well as those involved in the delivery process who are pivotal in providing solutions that will meet client 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 and risk.

5.4 Members of integrated teams should only be appointed if they have established integrated supply chains to support them, the expertise of which will be drawn upon in offering solutions to clients. Supply chains can reach from clients right through to those manufacturers who are not otherwise part of the integrated team. However, key manufacturers must be part of the integrated team.

5.5 Product manufacturers, suppliers and specialists can develop solutions that involve less site processing, increased standardisation, pre-assembly and pre-fabrication, which takes work off the site, reduces health and safety risks, and improves quality and reliability. They can also advise on availability of new products, and innovative solutions which, when linked closely to design and installation, can bring real benefits. By engaging in integrated teams their research and development expertise can be unlocked and deployed to deliver value and enhance the finished project. The early involvement of trade unions can also help realise the benefits the workforce can offer to team working. There needs to be significant investment in education and training to emphasise not just to industry new-entrants, but to existing managers through continuing personal and professional development, the importance of team working. For small and occasional clients who are uncertain how to build integrated

OGC recommends the adoption of forms of contract that encourage team integration. These are PFI, Prime Contracting and Design and Build. From 1 June 2000 all Central Government clients were advised to limit their procurement strategies for the delivery of new works to PFI, Design and Build and Prime Contracting and from 1 June 2002 these procurement strategies should be applied to all refurbishment and maintenance contracts. Traditional non-integrated strategies will only be used where it can be clearly shown that they offer the best value for money which means in practice they will seldom be used. This policy was referred to in NAO's report Modernising Construction (HC87 Session 2000-2001: 11 January 2001) when they said (paragraph 1.13) that "all...initiatives are having an impact in improving construction performance".

Office of Government Commerce



Integrated Teams

teams the independent client adviser would be a valuable resource.

5.6 A package of education and training (meeting the needs of SMEs and small and occasional clients) in supply team integration and collaborative working should be developed by end 2003. The integration toolkit (see below) should determine the content of the required education and training. The Forum welcomes The Design Build Foundation's offer to develop this work in liaison with the Specialist Engineering Contractors' Group, the Construction Products Association and others.

5.7 The Construction Best Practice Programme will develop, collate and share tools and activities specifically targeted towards SMEs to support them in all aspects of their development as part of an integrated supply team.

5.9 A Contractor's ability to deliver an effective service to the client can be greatly enhanced if it coordinates operations that encompass design, manufacture, delivery as well as construction.

Integration Toolkit

5.10 While integrated working is an under-utilised concept in the construction industry, clients - especially small and occasional clients - may have difficulty in understanding the benefits of, and the added value provided by, integrated working. And there are benefits for companies in the supply chain too; by acting together they are able to create a new capability, which they would not be able to do if they acted independently. Moreover integrated teams will help to develop and optimize supply chain processes that, in turn, will drive change within business organisations.

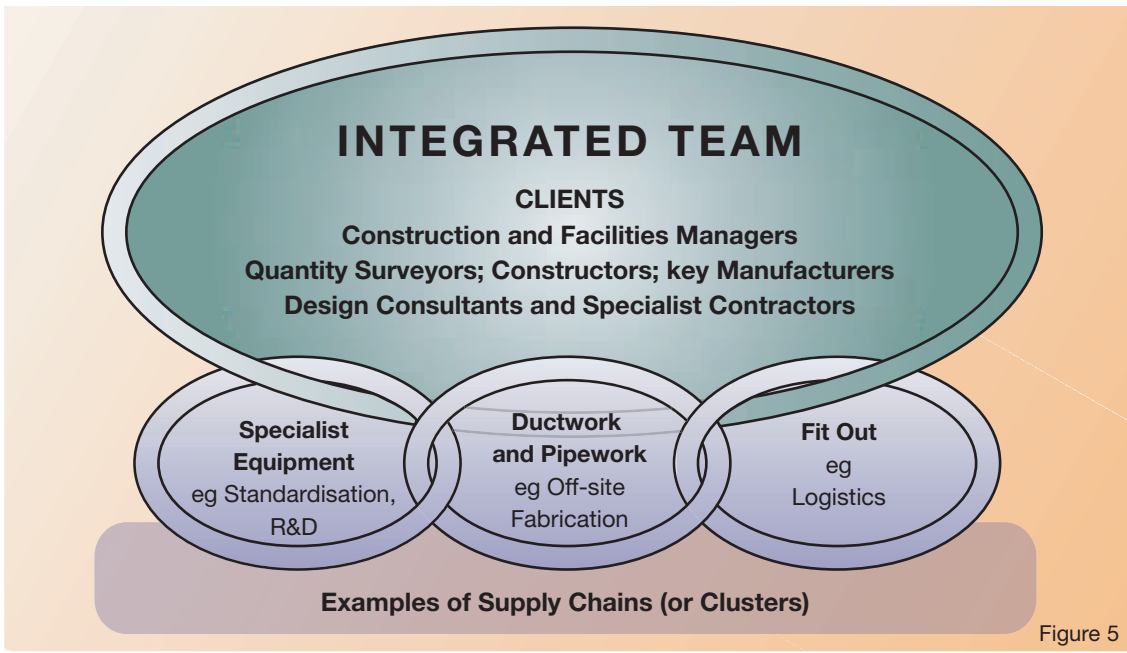


Figure 5

5.8 The major long-term benefit from integrated team working is the potential for relationship continuity. Integrated teams should be based, wherever possible, on strategic partnering. Knowledge and expertise can then be transferred more effectively from one project to the next. Whilst this is clearly of benefit to repeat clients, the benefits to one-off clients should not be ignored, as such teams will be better placed to offer them an improved service based on past experience, the ability to innovate, and through the development of a culture of continuous improvement.

5.11 The Strategic Forum will ensure that a 'Toolkit' is developed by April 2003 to help clients, and individual supply side members, assemble integrated teams, mobilise their value streams and promote effective team working skills. An action plan will be produced to promote its use. Such a toolkit will enable the full potential of the teams to be realised for the benefit of the client and should emphasise that supply team integration is relevant to small and occasional clients as well as to SMEs in the industry and can be applied to most projects (both in terms of value and type).

“Good luck! There is a role for lawyers to act as facilitators and advisors in promoting these changes. The will is there! Few realise what a sea-change there has been as a result of Latham/Egan.”

Construction Lawyer

5.12 The 'toolkit' should address:

- the meaning of integrated teams and integrated supply chains;
- education and training in the value of long term integrated supply chains;
- the level of integration required;
- types of supply teams;
- the appropriate mechanisms for assembling the teams;¹⁴
- the benefits of project pre-planning to allow proper identification and involvement of team members;
- assembling appropriate teams that reflect the varied nature of projects;
- defining output/delivery of the team to ensure zero defects;
- identification of improvements that support greater integration;
- identification of value streams for customers, clients and suppliers;
- sustainable construction;
- measuring performance of clients and the supply teams;
- incentivisation;
- advantages of maintaining the team in place to gain the benefits of continuity for other projects;
- benefits of integrated teams (improved performance, cost saving, reduction in waste, reduced whole life costs); and
- modern payment practices.

5.13 The Toolkit should be structured to include:

- what an integrated team is;
- the principles that are required for collaborative working in an integrated team environment (i.e. leadership, processes and culture/values, trained and competent workforces, involvement of trade unions as representatives of the workforce);
- signposting from principles to real best practice examples;
- benefits and responsibilities;
- effective team working processes and team competence; and
- contract conditions that encourage team working.

“Designers must involve the contractors, specialist sub-contractors and key manufacturers as soon as possible. In order to interpret and develop a functional brief it is essential that designers (including specialist sub-contractors and key manufacturers) are able to get close to clients. Many contractors do not allow this to happen and this needs to change. Once the project is designed the advantages that can be offered by these specialists are missed.”

Institution of Civil Engineers

Revisions to the Construction (Design and Management) Regulations 1994 (CDM)

5.14 The Construction (Design and Management) Regulations 1994 (CDM)¹⁵, and accompanying Approved Code of Practice, are powerful tools to bring about accelerated progress towards integrated teams by encouraging the early appointment of the 'delivery team'.

5.15 The Health and Safety Executive (HSE)¹⁶ will publish in September 2002 a wide ranging Discussion

¹⁴ Such mechanisms should be acceptable to both the public sector (i.e. the National Audit Office) and the private sector. The industry and its customers should have access to data for the different facilities that reflect world-class performance. The assembled teams should be committed to exceeding these levels.

¹⁵ Construction (Design and Management) Regulations 1994: www.hmso.gov.uk/si/si1994/Uksi_19943140_en_1.htm

¹⁶ Health and Safety Executive: www.hse.gov.uk



“We agree that the initiatives covered in this section will help deliver continual improvement. In addition to examination by CSCS, there will need to be good training, good example set and acquisition of ‘life-skills’, in order for culture change to happen.”

Institution for Occupational Safety and Health

Document exploring various levers to achieve cultural change in the industry to benefit health and safety performance. It will explicitly raise the role that CDM can play in securing better communication and co-operation between parties in the process. Subject to comments, the Health and Safety Commission (HSC) is then likely to publish a formal consultation document in 2003 proposing specific amendments to CDM. It should be noted, however, that vires of the Health and Safety at Work etc. Act 1974 is a legal constraint. Changes to legal requirements do not of themselves produce cultural change, but HSE wants CDM to support and encourage other non-legislative initiatives. The Forum would like to see regulations encourage the maximum integration of the team at the optimal time, and that improve the balance of responsibilities between the parties in such a way that all share legal responsibility for health and safety, and all are therefore aware of the benefits of integrated working

5.16 To help deliver this, the Forum requests HSE to include in their Approved Code of Practice reference to a system of 'gateways'. At each gateway there should be a checklist for assessing the relevant health and safety risks associated with critical stages in the planning and design process. At each stage the integrated team should be required to certify that they have - as a team - considered the health and safety risks in order to ensure that the facilities currently developed will be safe to build and safe to maintain and operate. The players within an integrated team may change over the life of a contract and each team member could only certify those aspects over which they have influence or control. Such an approach would complement and extend application of the OGC gateway reviews, see Annex 2, which are applied in the public sector.

5.17 Corporate competence is a vital adjunct to the requirement to engage competent workers. The forum recommends that work to enable corporate competence to be readily assessed and, if necessary, validated should be carried out, and recommendations made, by September 2003. All firms and their workforce within integrated teams should be qualified and competent.

Project Insurance

5.18 Integrated teams enable risk management issues to be fully addressed by the whole team in an open and transparent manner. Insurance is an aspect of risk management. 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. Collateral insurance policies that provide cover to clients for work carried out by ongoing strategic teams already exist at manufacturer/sub-contractor level (in conjunction with a contractor licensing scheme) and should be explored further.

5.19 In spite of the current difficulties in the insurance market leading insurers are supportive of this proposal in principle. The construction industry, supported by its clients, should by end of 2003 present projects suitable for 'project insurance piloting' which should then be evaluated. The results should be analysed and disseminated by the Construction Best Practice Programme.

Case Study - BAA

Establishing integrated supply teams to develop its Terminal 5 project at Heathrow has allowed British Airports Authority to take out an all-embracing project insurance covering both professional indemnity insurance and contractor's all risks. This has significantly reduced the cost of the premiums by removing overlapping cover and introducing a non-confrontational approach which is focused around remedying the immediate event rather than trying to identify where the fault lies.

Supply Chain Management and Logistics

5.20 A considerable amount of waste is incurred in the industry as a result of poor logistics. There should be greater focus on supply chain management and logistics to facilitate integrated working and the elimination of waste. Supply chain management is the process by which one optimises the flow of goods and materials from supplier to the point of use and logistics is the process used to manage the flow of goods and materials, equipment, services and people through the supply chain.

5.21 Designers, constructors and product suppliers should examine logistics principles and how they can be applied to facilitate integration. In particular they should consider:

- the logistics of supply and delivery of goods and materials to site; and
- the tracking of goods and materials through the supply chain (manufacture to the point of use).

Both these themes have potential to deliver:

- productivity improvements;
- waste reduction;
- sustainability (energy saving);
- improvement to health and safety; and
- promotion of wider use of IT.

5.22 The emergence of current best practice in Logistics will be collated by the Construction Best Practice Programme in conjunction with the Construction Products Association and shared with industry through events, training and workshops to accelerate change in this important area of productivity improvement.

Payment Security

5.23 Payment practices should be reformed to facilitate and enhance collaborative working.

5.24 Lengthy payment periods and delays in payments severely damage construction businesses, especially small and medium sized firms. In a relationship of collective responsibility, responsible behaviour and mutual interest, as characterised by integrated teams, payment delays and retentions cease to be a significant issue. By striving to integrate the team, the industry has

the opportunity to tackle a major problem that has dogged small and medium sized companies for many years. Insurance-backed, supply & fix, collateral warranties have been found to be one answer at manufacturer/sub-contractor level. With independent auditing by the underwriter the client is assured of a quality, defect-free job, whilst retentions held against the contractor are unnecessary. These should be encouraged.

5.25 The Forum will produce:

- **Models for payment mechanisms by April 2003**
- **KPIs for payment within supply chains to help to establish and benchmark best practice by April 2003.**

5.26 The forum recommends that a study, coordinated by the Specialist Engineering Contractors' Group in consultation with the industry and Government, should be carried out to examine the impact of insolvency law and practice on construction supply chains and make recommendations for change by July 2003.

5.27 These proposals do not cut across the Construction Act¹⁷; rather they are designed to provide the trust necessary to reinforce collaborative working.

5.28 The UK construction industry must adopt supply chain management techniques currently in use in the manufacturing industry to increase productivity, reduce time, increase cash-flow efficiency and thus minimise risk.

Case Study: MoD

Citex on its Ministry of Defence prime contract in Andover has instituted a fully transparent banking system whereby all contractors on the project are paid through a single bank account

TARGET

The Forum is determined to reverse the long-term decline in the industry's ability to attract and retain a quality workforce. To that end its members will develop and implement strategies which will enable the industry to recruit and retain 300,000 qualified people by the end of 2006, and result in a 50% increase in suitable applications to built environment higher and further education courses by 2007.

To achieve a workforce certificated as fully trained, qualified and competent on all projects no later than 2010.

Recruitment and retention.

6.1 For many years now the construction industry has lost out to other sectors in attracting the very best people. This has been partly because of economic circumstances - boom and bust cycles have denied the industry the opportunity to train and provide long term careers for its workforce. The consequence is that we now have an aging workforce and too few people entering the industry. We need at least 300,000 over the next 5 years merely to tread water. The stable economic environment of the past 5 years has meant that we have never had a better opportunity to address the issue.

6.2 This chapter sets out some of the steps needed to turn matters round. To achieve this it must be an industry whose workforce is properly valued; able to work in healthy and safe conditions; are appropriately skilled and qualified and are developed through a systematic programme of continuing personal and professional development.

Image

6.3 How the industry attracts and retains its most valuable asset, its workforce, is critically dependent on its external image. All too often the construction industry is perceived as being a dirty, low skilled, accident prone working environment that fails to respect its people in terms of investment and development. Those with the vocational aptitude for construction industry professions and crafts are often put off by this negative image and seek careers elsewhere. This is not sustainable for the industry and it is not sustainable for the built environment of the UK. Yet this image is not entirely deserved given the large

amount of work that has already been undertaken in recent years to address these issues.

6.4 A good number of initiatives have been set in train and one of the problems is that the industry is experiencing initiative overload. Too many initiatives also means that limited resources are being spread too thinly.

6.5 The Forum believes that it is now time for the industry to take a step back and carry out a full review of all the various initiatives that are currently underway and assess the real value they are adding to making the industry an attractive sector to be employed in.

6.6 The Forum will ensure this review is undertaken and results in a cohesive, deliverable strategy, by the middle of 2003 that works in support of the overall vision expressed in this report. The Strategy should reflect the key issues in this chapter and the actions that are being proposed to help accelerate change.

Respect for People

6.7 Understanding how the industry is perceived by its workforce, and placing their concerns at the heart of the industry's agenda is a prerequisite to change. Through *Rethinking Construction* ten key performance indicators have been published¹⁸ producing construction industry performance benchmarks on, amongst other things, employee satisfaction, Investor in People (IiP), staff turnover rate, sickness, absence, pay, safety and working hours. The Strategic Forum endorses these KPI's and will promote them within the industry. They provide a mechanism for establishing how the industry responds to the call to respect its workforce and will help build up an agenda for future action.

6.8 '*Rethinking Construction*' has also produced a series of eight toolkits to help managers evaluate their performance. They encourage engagement with the workforce by collecting intelligence on their actual experience of their conditions and environment and also support better business and project performance. This directly involves the workforce in the decision making process, and will supplement the industrial relations framework already established in the industry. Widespread use of the Respect for People toolkits is recommended by the Forum.

¹⁸ These are available from www.cbpp.org.uk or www.rethinkingconstruction.org/respect

The Respect for People Toolkits

Following two years extensive construction industry trialling the revised toolkits will be available in Oct 2002. Designed to help managers, clients, designers and project teams involved in construction projects the eight toolkits have been shown to support key approaches to development of better performance including Investors in People, The Clients Charter and Business Excellence Model and focus on the following areas:

- Workforce Satisfaction;
- Personal Working Environment;
- Safety;
- Health;
- Work in Occupied Premises;
- Training;
- Working Environment; and
- Equality & Diversity

Each toolkit comprises a simple checklist that helps evaluate appropriate items during the planning, design and construction phases of projects and supports focussed improvement action. They also direct users to first points of help and guidance on the subject under consideration.

Health and Safety

6.9 Contractors, clients and all those associated with construction can no longer simply accept the high levels of accidents and fatalities identified with this industry. Potential recruits are voting with their feet and staying away from a perceived dangerous environment. At the Construction Health and Safety summit in February 2001, the industry set itself clear targets for reducing the incidence of fatal and major accidents, ill health and working days lost as a consequence of such events. Action plans were agreed to start delivering such improvements. The Forum welcomes the Major Contractors Group's target to achieve a fully certificated workforce by the end of 2003, the Civil Engineering Contractors Association's target to achieve a workforce that is fully certified as being qualified by the end of 2007, with the remainder of the industry following no later than 2010. As has been demonstrated in other industries this will have a major

impact on the number of avoidable accidents caused by a basic lack of site awareness that comes from proper training and education.

6.10 Through integration of the supply team, pre-planning can allow "designing in" for health and safety and designing out certain risks, (e.g. falls from height). Designers, whether they be architects or engineers who are designing temporary works or scaffolding, need to become more aware of the opportunities they have to minimise risks on a whole life cycle, as well as their responsibilities under the CDM Regulation and associated ACOP. The CIC, CIRIA, RIBA, RICS, ICE and other professional bodies have each produced guidance (booklets, videos, CD-Roms) to designers to enable effective implementation of the CDM Regulations in terms of designing out risks. The CIC is also committed to providing a designated construction professional who will be a health & safety 'champion' for every Higher and Further Education College offering construction courses.

6.11 Further actions that can contribute to reducing risk in this critical area include:

- using the CSCS¹⁹ scheme to ensure that those people who work at height are competent to do so i.e. developing a specific test to evaluate their preparedness;
- maximising the opportunities to develop solutions that involve less site processing and more pre-assembly and prefabrications;
- developing transportation and materials distribution processes that reduce risk to personnel on site;
- developing an occupational health scheme for the industry. HSE is planning a pilot scheme. The pilot and work towards the wider scheme should be progressed as quickly as possible; and
- ensuring that the workforce is consulted on health and safety matters. The Major Contractors' Group is implementing a multi-step approach to workforce communication; and HSE is currently undertaking a worker safety adviser pilot. The opportunity to learn from and build on these and similar initiatives should be grasped.

Site conditions

6.12 The decisions made when projects are pre-planned will directly impact on site conditions. Construction sites are the shop window of the industry,



yet they are often perceived as being adversarial places in which to work, leading to lower productivity as well as a poor industry image. To address this issue, **the Forum will develop by the end of the year a code of good working practices to be adopted by clients, employers, employees and trade unions.**

6.13 The Considerate Constructors Scheme already helps contractors to maintain tidy, safe sites, which cause minimum disruption to the local community. The Construction Confederation's consultation kit on health and safety issues also touches on site conditions. Both of these initiatives are vehicles for promoting the proposed code of good working practice as is the *Rethinking Construction* network of demonstration projects.

Pay and Conditions

6.14 There is a clear need to offer pay and conditions which make construction an attractive industry in which to work especially at site level. Basic craft pay rates have already increased by 60% over the past six years. New apprenticeship rates have also just been agreed for England and Wales (they already existed in Scotland). However, pay rates in the industry agreements do not reflect pay rates on many sites. Further progress needs to be made to establish credible pay rates for the industry that value the existing workforce and attract new entrants. Two further issues need to be tackled to make the industry more attractive to new recruits. There is a long hours culture. Over the past five years the average working week has been 46.5 hours with over half the workforce in receipt of overtime payments. This is not healthy for the industry's employees and is costly for employers and their clients. Holiday and Pension arrangements are also relatively unattractive. Employer contributions to the industry's new stakeholder pension are relatively low and it still has to embrace all operatives in the industry. The Forum urges employers to address the issue of pay and conditions in order to attract and retain the very best people in all sectors of the industry.

Investors in People (IiP)

6.15 There is a very low take-up of IiP within construction (15% of the industry), despite its business benefits. A number of training organisations, trade associations and *Rethinking Construction* have been working to increase the take-up, but more can be done. The Forum will press for a more concerted initiative to

be developed to take this forward and in make the business case for IiP. As part of the proposed 'people issues' strategy, a full action programme together with relevant signposted guidance to large companies and SMEs will be developed to increase the uptake of IiP. CITB and the Small Business Service will work in partnership to improve the impact of initiatives to encourage small companies to embrace the Investors in People standard as a route to business improvement.

Diversity

6.16 The industry needs to widen its recruitment and attract more women and more people from minority groups, which are currently very under-represented. As well as the actions endorsed under Respect of People there is a need to improve opportunities for adult learning. Women and ethnic minorities often find it more attractive to join the industry at a slightly older age. Funding for adult training and work experience needs to provide adequate support for achieving the necessary vocational qualifications.

A Qualified Workforce

6.17 It is estimated that the construction industry needs to recruit 300,000 people over the next four years to meet its needs. Getting the right people with the right skills is a priority for the industry, but so too is updating and enhancing the skills and, where applicable, management abilities of its existing staff.

6.18 If staff at all levels are to play their full part in realising value through the integration of supply chains and teams, they must be cognisant of the potential value creation opportunities and be able to identify and extract them. Delivering value for money to clients in a way that allows teams to develop efficiencies and new ways of working that can become transferable from project to project is tantamount to delivering value to the supply team.

6.19 Teachers and parents need to be made aware of the great contribution of the construction industry to improving the quality and prosperity of life and the considerable technical and creative challenges the industry offers at all levels.

Vocational Education

6.20 Tomorrow's craftsmen and women need to be getting their grounding in basic vocational skills now. Yet the national curriculum appears to work against this

and steers our young people away from developing vocational skills, principally because the system is designed to set a high premium on academic success. If the industry's needs are to be addressed properly more attention and resources need to be targeted on vocational education and improving the take up of National Vocational Qualifications (NVQs) at all levels and across all sectors of the built environment.

6.21 Initiatives such as the introduction of vocational GCSEs and other similar measures proposed in the Government's Green Paper '14-19: extending opportunities, raising standards' are a step in the direction of redressing the balance. However changed structures will only work if they are accompanied by changed perceptions as to parity of esteem of academic and vocational study. Valuable work is already being undertaken through CITB's 121 Curriculum Centres working in partnership with schools and colleges. To maximise the potential offered by the new qualifications requires the industry must develop closer working relationships with schools, colleges and the Curriculum Centres offering advice and support at both design and delivery stages. This includes offering real opportunities for work-based learning supported by the industry and properly funded by the appropriate government agencies.

6.22 The promotion of role models by programmes such as the CITB Young Presenter scheme provides young people with a real insight into the wide range of career opportunities that exist within the construction industry. The industry must support CITB in its plans to increase the impact and reach of the scheme.

Graduate Entry

6.23 There has been increasing concern at the rapidly decreasing numbers applying for places on engineering and construction courses in higher education. The key issues are to ensure that:

- there are sufficient numbers of quality people entering higher education to meet the projected demand; and
- those emerging are suitably equipped with the skills, knowledge and understanding to meet the challenges of a rapidly changing industry e.g. risk management for project engineers, designing for health and safety and sustainability.

6.24 A joint initiative 'Making Connections', sponsored by DTI, CITB and CIC²⁰, is seeking to address both of these issues through an agreed set of actions involving government, employers, higher education institutions and professional bodies. These must be supported by changes to the working experience of our best advocate - the current workforce. Commitment from all four stakeholder communities to deliver on these actions is urgently needed if the industry is to have the graduate population and skills it requires to achieve the radical improvement in performance promoted in '*Rethinking Construction*'.

Qualifying the Workforce

6.25 An "all qualified workforce" goes far beyond simple health and safety knowledge. The industry needs to build a professional industry, improving its image and helping to change the way the workforce views itself. The quality standard being developed through expansion of, and affiliation to, the CSCS card scheme, or equivalent schemes, is an important element of the Quality Mark Scheme. It should also be in individual client assessments advocated by the Confederation of Construction Clients. All industry sectors should identify how to demonstrate that they have a qualified workforce. Achieving targets will require significant investment both in developing the necessary network of assessors and in supporting On-site Assessment and Training (OSAT) and off-site training. This will require further support from employers to develop work-based recorders and assessors, and from the Learning and Skills Council and their counterparts in Scotland and Wales, in funding adult learning.

6.26 Continuing Personal/Professional Development (CPD)²¹ is also relevant to all workers in the industry including designers and managers - not least because the existing workforce also needs to keep up to speed with the changes being proposed in this report.

²⁰ CIC - Construction Industry Council www.cic.org.uk

²¹ See Annex 1



Management and Supervisory Training

6.27 *Rethinking Construction* identified the need to improve management and supervisory skills in the drive for performance improvement. Significant shortages of supervisors and managers are anticipated and the industry remains grossly under-qualified. Long-term recruitment into industry from higher education needs to address issues of professional development for graduates into management roles, a matter for the professional bodies jointly with the CITB and other training bodies to conclude as a matter of urgency.

6.28 For a step change, large enough to raise the quality of supervision and management in the shorter term, industry needs to whole-heartedly adopt existing S/NVQs at levels 3,4 and 5, supported by programmes such as the CIOB's²² Site Management Education and Training Scheme, and the CITB's portfolio of management and supervisory training.

Integrated Teams and Supply Chains

6.29 The creation of integrated teams and supply chains is fundamental to the success of *Rethinking Construction*. Unless there is a consistency of approach to training such teams they will not be aligned or have similar levels of competency in the necessary skills. At present the large players in the field probably provide a range of training that might cover these skills but as the smaller companies enter the supply chain it becomes less and less likely that their personnel will have been formally trained in such skills. Integrated teams need integrated training. In the same way as this document suggests that 'project insurance products should be made available to underwrite the whole team' so should appropriate training be made available to the integrated team. This would ensure that there is no disparity in the basic skill sets of the members of the integrated team (including the client).

6.30 CIC has developed Common Learning Outcomes for implementation across all university degree curricula in the built environment, with the support of 16 of the major professional institutions. These are now due for imminent review. The CIC is committed to enhance the degree of interdisciplinary working required to achieve the common learning outcomes. The Forum recommends that CIC's forthcoming review includes a requirement to include integrated project team-working

in courses achieving accreditation against the common learning outcomes.

Involving SMEs

6.31 Two things have been clear in looking at people culture issues.

- First, SMEs are not as active in this area as they might be. Some are paying attention - largely because their clients are telling them to - but most do not see there is a good business case for tackling the issues, that it can create higher productivity, increase profits and significantly improve a company's image as a potential employer.
- Second, SMEs are confused and struggling to decide what to do first. There are simply too many initiatives about. Companies are confused by the conflicting initiatives and jargon and have no idea what is best for them.

The Forum has therefore identified two specific actions:

- with the help of "*Rethinking Construction*" and the Construction Best Practice Programme (CBPP) **the Forum will develop some robust examples of how changing a people culture (whether it be for example, investment in training, diversity initiatives or good health and safety performance) can change a business positively.**
- **The Forum will then develop a communication plan to spread its message throughout the SME sector; and to help those SMEs wanting to address the issue the Strategic Forum will ensure the production of a single signposting booklet pointing the way towards the most relevant and effective people initiatives by the end of 2002.**

Enablers for change

6.32 Action in and by the construction industry to raise standards in all areas of its performance will help to achieve the vision set out in this report. Nevertheless, there are some areas where external action can help to accelerate change. Two such areas are:

The role of clients

6.33 How partners in the supply chain behave towards one another is important in developing the relationship

²² CIOB - Chartered Institute of Building: www.ciob.org.uk

of trust that underpins successful integrated teams. Clients have an important role to play by selecting designers and contractors who honour recognized working rule agreements, who have excellent health and safety records, and who train their workforce. By doing so they will help to achieve the strategic vision of excellent performance and whole life value. The developments of initiatives such as "Constructionline" and "Quality Mark"²³ provide tools to help clients select the best contractors. As the industry's single most important client, the government has a role to play in leading the way on best practice.

The Informal Construction Economy

6.34 The informal construction economy acts as a brake on achieving the vision set out in this report. In many cases, it is the most visible and unacceptable face of the construction sector to the general public. Shrinking it is an immediate priority, but there is no question that the ultimate objective should be its elimination. Its estimated value is £4.5 billion. An independent report commissioned by UCATT²⁴ also suggests that the number of false self-employed workers in the industry is between 300-400,000. Those companies who flout tax and employment legislation provide unfair competition for the respectable law abiding firms. They are also encouraged by those clients who seek lowest possible prices regardless of the costs. It is in this sector where there is most concern about health and safety and where "people" issues are ignored. The prize for eliminating it is an industry that can compete fairly, provide security of employment for its workers and invest in its people. DTI has released a discussion document on employment status in relation to statutory employment rights²⁵ which is seeking views on the effects of extending employment rights to categories of working people who may be excluded from them.

²³ For more details on Quality Mark : www.qualitymark.org.uk

²⁴ Dr Mark Harvey, "Undermining Construction, The Corrosive Effect of False Self-Employment", Institute of Employment Rights, published November 2001

²⁵ www.dti.gov.uk/er/individual/statusdiscuss.pdf

7.1 While client leadership, integrated teams and tackling 'people issues' are drivers for change, there are a number of other cross-cutting issues that can act as enablers or barriers to change. Some of these are covered below, but the list is by no means exhaustive. Nevertheless, the Forum considers that, if properly managed and developed, the issues dealt with here offer considerable opportunity to impact on the pace of change.

Sustainability

7.2 The Sustainable Construction Task Group, chaired by Sir Martin Laing, reported on the business case for sustainability in the UK property sector²⁶. It rightly emphasised the importance of whole life performance in securing enduring value through productivity in use. We embrace its conclusions as being entirely consistent with the aims of Accelerating Change.

“Sustainability is probably the most important cross-cutting issue. A construction industry that has properly embraced sustainability will be a safer industry and one that is less wasteful.”

UCATT

7.3 Sustainability in its broader sense of corporate social responsibility, is also a driver for change. In line with the Secretary of State for Trade and Industry's call for Trade Associations to address environmental and social impacts - alongside environmental issues - several sector organisations relating to the construction industry are developing and implementing sustainable development strategies. The strategic contribution of sustainability is integral to all aspects of this report and is therefore interwoven with the identified key issues.²⁷

7.4 Sustainability did not feature as a core issue in *Rethinking Construction*, primarily because it was important at that stage to focus on the fundamental flaws in the construction procurement and delivery process. The ability to pre-plan a project through from start to finish is a prerequisite to designing in sustainability. Through pre-planning a project we can achieve the triple bottom line of sustainable

development by maximising economic and social value and minimising environmental impacts.

7.5 Every link of the supply chain has a critical contribution to make towards sustainable construction and development. A poorly specified brief perpetuates waste and increased costs; without integrated teams the ability to pre-plan is lost, thereby running the risk of even greater inefficiencies and potential accidents; an undervalued and under-trained workforce make mistakes which result in financial, environmental and, all too often, human cost. The construction industry must not accept this avoidable risk and instead it must plan for sustainability. Properly qualified and competent people working as an integrated team with those who specify the project and those who can supply its needs in the most efficient way possible can better manage the risks and minimise impacts. Integration of supply process can play an important part in sustainable construction, but it also requires a step change in the culture of the industry which will be characterised by:

- clients (experienced or inexperienced) procuring and specifying sustainable construction projects, products and services; and
- a supply side that responds collaboratively to deliver these in a way that enables all in the integrated supply team to maximise the added value their expertise can deliver.

Case Study: Peabody Trust

The Beddington Zero Energy Development in south London demonstrates how to create a truly sustainable mixed-use development in a zero carbon environment with significantly reduced utility bills for all the residents. The development focuses on the specification of low embodied energy products and a reduction in the need for individual car use. It highlights how the construction industry can provide for more sustainable lifestyles.

²⁶ Reputation, Risk & Reward - the business case for sustainability in the UK property sector': The Report of the Sustainable Construction Task Group, 2002 (<http://projects.bre.co.uk/rrr/RRR.pdf>)

²⁷ Pioneering: the strategic route to sector sustainability, Sustainable development Commission

7.6 The industry must take responsibility for the sustainability of its products (from components to the completed structure) as well as its processes. Higher quality buildings will increase the value of the industry, improve its standing in society, and generally produce structures that are cheaper to run and maintain, and more pleasant to be in or use. Design quality and more sustainable processes and products should not be added onto the end; they are achievable but only if well integrated from the very beginning of the construction process. And increasingly other industries are being asked to take responsibility for products from cradle to grave, construction, too, must think about the end of life of buildings and components and the potential for recycling and reuse.

Design Quality

7.7 Investment in high quality design, by an integrated team, is crucial to the success of any construction project. It is at the outset of a project that the vast majority of value can be created through design and integration. Integrated, high quality design should always lead to a lower cost over the lifetime of a building or structure. It will also contribute to improved safety and reduced defects. To improve design standards, the industry should adopt the use of the

“At present, the industry is still making basic mistakes regarding the construction process, and ease with which construction can achieve quality. Why is the timber window industry still manufacturing components which do not relate to brick sizes?”

Architect

Design Quality Indicator evaluation tool²⁸, being developed by the CIC, CABE and others. Design has a crucial role to play in delivering that part of the vision statement that refers to eliminating risks to health and safety of those who construct, maintain, refurbish, operate and have access to the construction product.

IT and the Internet

7.8 IT and E-business, as enablers, have already radically transformed many operations in the construction sector and there is still a vast potential for more. IT can deliver significant benefits for designers, constructors and building operators. Deriving the maximum benefit from introducing IT solutions will not, however, be easy. There is the potential to drastically reduce infrastructure cost behind the tendering side of the industry by adopting the wider use of the Internet and e-procurement specifically.

7.9 The widespread adoption of e-business and virtual prototyping requires the construction industry to transform its traditional methods of working and its business relationships. Key barriers to this transformation include organisational and cultural inertia, scale, awareness of the potential and knowledge of the benefits, skills, perceptions of cost and risk, legal issues and standards. Weighed against this, the potential benefits are:

- Efficiencies and skills development from knowledge management
- Economy and speed of construction;
- Improved business relationships;
- Product and process improvement; and
- Technology and entrepreneurship.

R&D and Innovation

7.10 Investment in research and development (R&D) is essential to underpin innovation and continuous improvement. This provides value to clients, improves profitability and the ability to compete and win in overseas markets. Sir John Fairclough's review of Government R&D Policies and Practices, *Rethinking Construction* Innovation and Research²⁹, endorses the view that the Strategic Forum should take the pivotal role in setting a strategic vision for the industry. This will require the support of a dedicated organisation which, when compared to the current Construction Research and Innovation Strategy Panel (CRISP)³⁰, will have an expanded role and resources. The new CRISP will help to identify important issues for the industry and develop research strategies to address them. The Forum feels that an immediate priority is to focus research effort on filling the industry's knowledge gap

²⁸ Design Quality Indicator : www.dqi.org.uk

²⁹ 'Rethinking Construction, Innovation and Research': A Review of Government R&D Policies and Practices, Sir John Fairclough, 2002 (www.dti.gov.uk/construction/main.htm)

³⁰ Construction Research and Innovation Strategy Panel: www.crisp-uk.org.uk/



in the development of integrated supply teams and mechanisms to support them to deliver of their best, such as logistics.

mechanisms that are being developed to measure progress in the use of integrated supply teams and payment practices.

Planning System

7.11 The Forum welcomes the Government's recent 'Green Papers'³¹ on possible reforms to the planning system. A planning system that is fair, transparent, timely and consistent will help drive out waste and costs and promote responsible development.

Small Medium Sized Enterprises

7.12 Access to relevant, clear guidance for SMEs is not always readily available. The Forum recognises the need for the expertise and enterprise of SME's to be harnessed to meet the agenda contained in this document. With this in mind, **the Forum will produce a simple summary of Accelerating Change, perhaps in the form of a wall chart, by the end of 2002.**

Housing

7.13 The Housing Forum intends to meet the particular needs of applying Accelerating Change to the housing sector. It is considering producing a bespoke document to reflect the particular circumstances and pressures facing the sector. The Housebuilders Federation plans to hold a major conference to consider Accelerating Change from the housebuilders' perspective.

Measuring Change

7.14 In building on the work of *Rethinking Construction* and delivering change to meet its objectives, it is important to be able to monitor progress against the strategic targets and deliverables set out in this report.

The Forum will put in place means of measuring progress towards its targets.

7.15 Mechanisms and systems such as Design Quality Indicators (DQIs), Key Performance Indicators (KPIs) and Environmental Performance Indicators (EPIs) to monitor and measure progress in accelerating change already exist. In addition, a database of the recommendations and targets and deliverables derived as a result of this consultation exercise should be developed and regularly reviewed. Other useful tools to help measure change will be generated through some of the deliverables suggested in this report, such as the

³¹ Planning: Delivering a Fundamental Change, Department of Transport, Local Government and the Regions, December 2001, www.planning.dtlr.gov.uk/consult/greenpap/index.htm

Glossary of terms and further information

Clients' Charter

The Construction Clients' Charter sets out the minimum standards they expect in construction procurement today, their aspirations for the future and a programme of steadily more demanding targets that will drive standards up in the future. By registering for the Clients' Charter which is operated for the Confederation of Construction Clients by their agents, Achilles Information Ltd, construction clients commit themselves to establish, with their suppliers, a modern business culture, through a self-imposed structured programme of change, supported by measurement against nationally accepted criteria and the exchange of best practice experience. Details of the Clients' Charter are available on www.clientsuccess@archives.com

Construction Skills Certification Scheme - CSCS

CSCS seeks to improve the construction industry's health and safety performance by identifying workers who have achieved a recognised level of competence in skills and health and safety. CSCS is a reference point for construction employers who wish to use recognised skilled workers and is a move towards a more qualified workforce.

Continuing personal and professional development

CPD (Continuing Personal/Professional Development) is defined as the holistic commitment to structured skills enhancement and personal or professional competence.

Gateways

Gateways are critical predetermined points throughout the life of a project. Before a gateway can be passed a review of all the project information and decisions to that date should be undertaken, preferably by a team of experienced people, independent of the project team. The project should not proceed to the next stage until satisfactory completion of the gateway review.

Independent Client Advice

Chapter 4 sets out the rationale for inexperienced and one-off clients who do not have the necessary skills to assess and articulate their business needs to have access to independent advice if they are to achieve successful business solutions.

Frequently asked questions about independent client advice

Who should seek independent client advice?

Clients who do not feel they have the requisite knowledge or skills to undertake all the steps required for the successful identification and delivery of a business solution.

What is the extent of the advice?

Input and help can vary throughout the life of a project. Clients should not assume that they need help for the entire process. Advice could be sought to deliver a peer review at critical stages, for clients undertaking the process themselves, or be engaged to assist in the entire process or at specific stages.

What is meant by 'independent' advice?

Objective advice free from any vested interest in a solution proposed as a result of the assistance given.

What is the role of people offering this advice?

They should have a non-executive role acting as a mentor to the client. They should not act as a surrogate or proxy client. They should facilitate and assist the client in fulfilling their requirements in delivering the business solution but the ultimate decisions taken remain the responsibility of the client. This is a very different service to that provided by a project manager.

Which discipline will the people offering this advice come from?

They could come from any number of disciplines. The key to the successful delivery of this role is their background experience and temperament.



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.

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.

Logistics

Logistics is the process used to manage the flow of goods and materials, equipment, services and people through the supply chain

Supply Chain Management

Supply chain management is the process by which one optimises the flow of goods and materials from supplier to the point of use.

Sustainability

As used in 'Reputation, Risk and Reward', a report by the Sustainable Construction Task Group chaired by Sir Martin Laing: "Sustainability represents the balancing of social, environmental and economic concerns whilst recognising that decisions made today will have very real implications for future generations". Further information on 'Reputation, Risk and Reward' can be found at www.bre.co.uk and www.cbpp.org.uk.

Annex 2 : Key steps a client must consider when faced with a business need

This section sets out in more detail the key steps a Client must fulfil and if required what form the advice may take. This is an initial overview of this concept and will require further refinement over the coming months (see figure 4).

There are various models that describe the procurement process over its whole life, from the identification of a business need to the completion of a contract for goods or services, or the disposal of an asset. Different models are appropriate to different circumstances and the following outline is not intended to be prescriptive. But it reflects key stages in such models and a common theme that it is important to get the initial steps right if a project is to be successful.

Step 1 - Verification of need

1. Accurately identify and articulate the need.
2. Identify the key objectives and outcomes that the business wants to achieve.
3. Prioritise the objectives.
4. Identify the stakeholders.
5. Identify business attitude to risk.
6. Identify and prioritise significant constraints eg financial, legal, time, technology, and business change.
7. Identify internal project structure and ownership.

Outcome:

Clear statement of the business needs embracing priorities, objectives, stakeholders and constraints.

Step 2 - Assessment of options

1. Develop and appraise all the options.
2. Research the learning from past experience (both your own and others experience).
3. Review the preferred option with the business stakeholders and confirm that it will deliver the business needs and objectives, is realistic and meets the requirements in relation to risk and constraints.

Outcome:

A robust business case that meets all the business requirements.

If the preferred option requires a construction phase:

Step 3 - Develop Procurement strategy

1. Research the options for procuring the project and determine the strategy.
2. Research the learning from past experience (both your own and others experience).
3. Confirm project performance criteria.
4. Review business plan, financial requirements and risks, and controls.
5. Confirm stakeholder commitment.
6. Confirm that the procurement approach will support and encourage good client/supplier relations.

Outcome:

Strategic Brief articulating, in the client's terminology, the project objectives, needs, priorities, constraints, budget, programme, decision making framework, measures of success and method of selection for the most appropriate delivery of the required business solution.



Step 4 - Implement Procurement strategy

Implement the procurement strategy and select the team best placed to deliver the required business solution. (Throughout this process the Client, by his actions, will set the tone by which he expects the project to be delivered.)

Step 5 - Project delivery

1. Validate and improve the Strategic Brief.
2. Brief the team regarding all aspects of the project (Needs, objectives, risks, constraints and stakeholders.)
3. Implement appropriate and agreed performance measurements.
4. Ensure new members brought into the team are inducted with regard to the business needs, objectives and method of delivery.
5. Make appropriate and timely decisions always referring back to and validating the project objectives.
6. Advise the business on steps to be taken for regarding the implementation and operation of the new asset.

Outcome:

Project team fully focused on delivering the most appropriate solution to meet the client's business needs within the agreed parameters and a business prepared to embrace the new asset within its operations.

Step 6 - Post Project Review

1. Undertake assessment of new asset
2. Measure final delivery performance against the targets set.
3. Review project history.

Outcome:

Capture project learning to confirm benefits and to inform future projects.

Publications and useful websites

Publications

'Rethinking Construction': The Report of the Construction Task Force, 1998

Reputation, Risk & Reward - the business case for sustainability in the UK property sector': The Report of the Sustainable Construction Task Group, 2002.

'Rethinking Construction, Innovation and Research': A Review of Government R&D Policies and Practices, Sir John Fairclough, 2002

"A commitment to people - our Biggest Asset" - A report from the Movement for Innovation's working group on Respect for People, November 2000.

Building a better quality of life: A strategy for more sustainable construction, DETR, April 2000

Achieving Sustainability in Construction Procurement, Sustainability Action Group of the

Government Construction Clients' Panel (GCCP), June 2000

Planning: Delivering a Fundamental Change, Department of Transport, Local Government and the Regions, December 2001

Construction (Design and Management) Regulations 1994:
www.hmso.gov.uk/si/si1994/Uksi_19943140_en_1.htm

OGC Publications

No.1: Essential Requirements for Construction Procurement Guide

No.2: Value for Money in Construction Procurement

No.3: Appointment of Consultants and Contractors

No.4: Teamworking, Partnering and Incentives

No.5: Procurement Strategies

No.6: Financial Aspects of Projects

No.7: Whole Life Costs

No.8: Project Evaluation and Feedback

No.9: Benchmarking

No 10: Achieving Excellence through Health and Safety

Useful Websites

Commission for Architecture and the Built Environment:
www.cabe.org.uk

Confederation of Construction Clients:
www.clientsuccess.org.uk

Construction Best Practice Programme:
www.cbpp.org.uk/cbpp/

Construction Industry Council: www.cic.org.uk

Construction Industry Training Board:
www.citb.org.uk/citb_home.htm

Construction Research and Innovation Strategy Panel:
www.crisp-uk.org.uk/

Department of Trade and Industry's Construction Pages: www.dti.gov.uk/construction/

Design Quality Indicators www.dqi.org.uk

Health and Safety Executive: www.hse.gov.uk

Her Majesty's Stationary Office: www.hmso.gov.uk

Housing Forum: www.thehousingforum.org.uk

Local Government Task Force: www.lgtf.org.uk

Movement for Innovation: www.m4i.org.uk

Office of Government Commerce: www.ogc.gov.uk

Rethinking Construction:
www.rethinkingconstruction.org





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