



Never Waste a Good Crisis

A Review of Progress since *Rethinking Construction*
and Thoughts for Our Future

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Forewords



"I am glad to support this excellent report. At the present time, a number of clients are being led by their construction costs consultants to abandon frameworks and go back to lowest price tendering. That is a mistake. Partnering and close collaboration between the client and the whole construction team will mean that the project will come in to quality, time and cost, as Terminal 5 did at Heathrow under Andrew's leadership. But if lowest price is demanded by the client, the tender price will not be the actual financial outturn at the end of the project, because the supply side will be looking for claims and variations to make up for what was not in the tender. As I said in my report 15 years ago, best practice means "all have won and all must have prizes." Alice was in Wonderland then. But best practice must essentially continue in the construction industry."

Michael Latham

Sir Michael Latham (author of *Constructing the Team*, 1994)



"In *Rethinking Construction* we wrote that 'continuous and sustained improvement is achievable if we focus all our efforts on delivering the value that our customers need, and if we are prepared to challenge the waste and poor quality arising from our existing structures and working practices'. Since 1998 we could have had a revolution and what we've achieved so far is a bit of improvement. People are now measuring performance, and it is heartening to look at the demonstration projects to see that some very good work has been done. The opportunity remains just as large today, with the added incentives of harder economic times and major environmental pressures. So I congratulate the team on a thorough review and on pointing out the next steps on the way to radical improvement – every crisis is an opportunity."

John Egan

Sir John Egan (author of *Rethinking Construction*, 1998)



"Almost everyone associated with the construction industry improvement agenda in the late 1990s and early years of this century fondly recalls the energy and optimism associated with the Movement for Innovation and other reform initiatives of that time. It was unquestionably a time of great hope and expectation. Looking back a decade on; there is general agreement that progress has been made but not going as far or as fast as many had hoped. Having said that, it is not always easy to reach a balanced judgement on what has been achieved and where outcomes have fallen short. So Andrew Wolstenholme and his Review Team have performed a really valuable task in analysing and presenting the evidence. Above all they have helped identify the blockages to change that have impeded progress and which will need to be overcome if we are to deliver the transformational advances across the UK construction industry that we all want to see."

Nick Raynsford

Nick Raynsford MP (Construction Minister 1997-2001)

Executive Summary

Since Sir John Egan's Task Force published its report *Rethinking Construction* in 1998, there has been some progress, but nowhere near enough. Few of the Egan targets has been met in full, while most have fallen considerably short. Where improvement has been achieved, too often the commitment to Egan's principles has been skin-deep. In some sectors, such as housing, construction simply does not matter, because there is such limited understanding of how value can be created through the construction process.

For the last decade, the industry has been sheltered by a healthy economy. This has enabled construction to prosper without having to strive for innovation. The current economic crisis is a perfect opportunity for us to think again. We can not afford to waste it.

Looking ahead, there are major challenges on the horizon. Most clients have already cut their long-term investment plans, and capital budgets will be at risk for many years to come as we anticipate a long period of recovery from the current recession. For Government, there is huge pressure to reduce public spending. But perhaps the greatest challenge is how we can deliver a built environment that supports the creation of a low carbon economy for the UK. So while there is no crisis yet in our industry, we are approaching a time when UK plc can no longer afford to build and maintain, the infrastructure capable of supporting our future needs as a society.

So what will make the industry change now when it has failed to do so before? We believe that an essential step is for suppliers, clients and Government to adopt a new vision for the industry based on the concept of the *built environment*. This means understanding how value is created over the whole life cycle of an asset, rather than simply looking at the building cost, which is only a part of the total equation. It is about how the relatively small up-front costs of design and construction can have such huge consequences for future users, whether expressed as business or social outcomes, as well as for the environment.

The impact of this vision is potentially immense for our industry. We need to abandon our existing business models that reward short-term thinking. Instead, we should incentivise suppliers to deliver quality and sustainability by taking a stake in the long-term performance of a built asset.

How will this be achieved? We believe that the era of client-led change is over, at least for the moment, and that it is now time for the supply side to demonstrate how it can create additional economic social and environmental value through innovation, collaboration and integrated working – in short, the principles outlined in *Rethinking Construction*. Clients should focus instead on professionalising their procurement practices to reward suppliers who deliver value-based solutions.

Government, as a client, needs to understand the enlightened thinking that better and more intelligent designs improve patients' recovery in hospitals and learning outputs in schools. So, rather than reduce the number of schools and hospitals being built, it must sponsor smarter and more productive solutions and reduce the amount of money wasted on the procurement process. For Government as a policy maker, the challenge is to create an environment that incentivises innovation and speeds up the modernisation process.

There are other stakeholders with a key role to play. We need an education and training system that promotes holistic learning across disciplines, so that industry professionals are equipped with an understanding of how better integration delivers value. We also need industry bodies and professional associations to co-operate better to represent our industry effectively to Government and the public.

Above all, we need leaders who can engage the public and key stakeholders about the 'new value' the built environment brings, who can engage employees to deliver the necessary changes and who can attract more talented people from a wider pool to work in our industry. If our present leaders do not feel up to the task, they should at least support the development of the next generation, who appear to understand very clearly what is needed.



1. Introduction

by Andrew Wolstenholme, Chair of the Review Team

When we set out to review progress since *Rethinking Construction*¹, we asked ourselves whether the principles behind the Egan agenda remain relevant a decade after its publication. Having completed our review, we are now in no doubt that, while some of the ideas need to be updated, the need for change is as strong today as it was eleven years ago.

We know this because of the enthusiasm of so many industry professionals who took part in our research, through our in-depth interviews with key individuals, our multidisciplinary workshops and our online survey which attracted a huge response. We know it because when we asked people to think about Egan's original drivers for change, there was wide agreement that all remained important. In short, the Egan report had an impact on the construction industry that still resonates today.

Yet at the same time, we encountered disappointment at the lack of progress in implementing the recommendations, and pessimism about the future outlook for change. A recurring theme from our findings is that our industry needs (and to paraphrase a recently rediscovered Elvis Presley hit) 'a little less conversation and a lot more action please.'

That is why we have focused on why the industry has yet to embrace the changes and to propose what can be done to unlock the potential that clearly exists. In our opinion, it's no longer about whether this is the right stuff to be doing, it's more about what stops us, the industry, from doing something about it.

Our approach also reflects a realistic appraisal of our strengths and weaknesses as a Review Team. As a diverse group of industry professionals meeting on a voluntary basis, with neither the authority of a Government review, nor the support of full-time researchers, we built on the foundations laid by others, for example the report of the BERR Select Committee *Construction Matters*² and the Strategic Forum for Construction's *Construction Commitments*³.

We have been able to draw on additional reserves of direct industry experience amongst our wider pool of contributors which has given us the confidence to take some risks that perhaps Government or academic report writers might have resisted. So if we came across strong opinions, well argued by a qualified source, then we captured them in this report.

Above all, what we bring to the exercise is our integrity as a group of independent thinkers and our absolute commitment to creating a better industry. Which leads us to one of the key principles that underlies our work:

The team shares a vision of an industry that goes beyond the narrow concept of construction. Throughout this report, we have used the expression 'built environment' to describe this broader vision. We want our industry to embrace the whole, complex picture of how people can interact sustainably with the environment to maximise health, wealth and happiness. This requires integrated planning, design, construction and operation of built facilities. We believe that gaining wider acceptance for this concept is an essential step towards driving a new culture in our industry.

What We Did

We began by looking at all the available evidence – the last decade's worth of industry reports, the Construction Industry Key Performance Indicators and the evidence of the Constructing Excellence demonstration projects.

In the summer of 2008, Constructing Excellence conducted an online industry survey. The aims were to gather opinions from across the industry about progress since the Egan report, to put industry performance data into context and to highlight key issues for our research. The survey was publicised by *Construction News* and *Building* magazine to help target an audience beyond those who have already signed up to the Constructing Excellence initiative.

We also asked G4C, (Generation for Collaboration, the early career forum of Constructing Excellence), to research and report back on the experience of recent entrants to our industry.

The Review Team met regularly during 2009 to debate the findings and to develop our ideas. We identified a number of 'blockers' that we believe have stifled change in the industry. In some cases, these blockers reinforce each other to create a downward spiral – a system from which it becomes increasingly difficult to escape.

To help us understand how these blockers work together and how we can tackle them, we grouped them into four interrelated industry themes. The first is about how the demand for construction services shapes the industry, while the others are supply side issues which affect the industry's ability to respond to change:

- Business and Economic Models
- Capability
- Delivery Model
- Industry Structure.

Then we set out to engage the industry. We conducted multidisciplinary workshops and consulted a wide range of industry experts. By sharing and developing our ideas, they came to reflect the views of a much wider community.

What We Hope to Achieve

In this report, we explore each set of blockers in detail and identify strategies to tackle them. What we hope will emerge from our review is a renewed momentum for change and ultimately, 'a lot more action.'

The industry must rise to this challenge. This, together with the dramatic changes being driven by advances in material technology, the green agenda, the internet revolution and globalisation, could create the most exciting and dramatic period for our industry since the industrial revolution.

Who Should Read this Report?

Anyone who has previously engaged with the *Rethinking Construction* agenda should find this a stimulating read. For a newcomer to the debate, we will try to bring you up to speed in the next section. Regardless of your previous level of knowledge, we hope that this report will be essential reading for anyone who is interested in the future health and success of our industry.

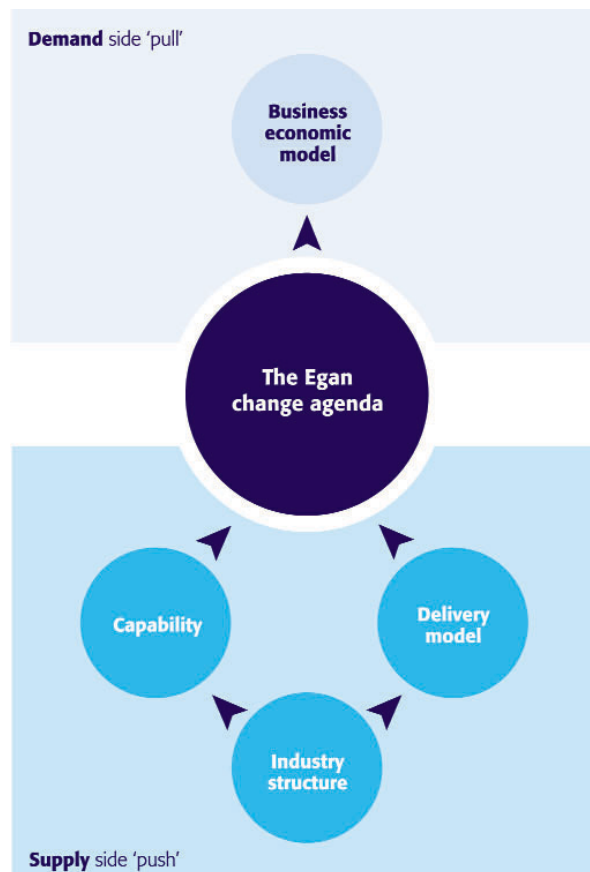


Fig.1 | Factors affecting the speed of change

2. A Brief Refresher Course on *Rethinking Construction*

*Rethinking Construction*⁴ was the 1998 report of the Construction Task Force to the Deputy Prime Minister on "the scope for improving the quality and efficiency of UK construction".

The starting point was a belief that while the industry, at its best, was excellent, there was considerable scope for improvement. The report cited low profitability, low investment in research and development, inadequate training and low client satisfaction as particular areas of concern. Based on the experience of other British industries such as manufacturing, retail and in particular, the car industry, the Task Force proposed that radical change could achieve widespread improvements in quality and efficiency (see Fig.1). They identified five key drivers of change to set the agenda:

- **Committed Leadership:** management believing in and being totally committed to performance improvement and communicating the necessary cultural and operational changes
- **A Focus on the Customer:** providing a product that the customer wants, when they want it and at a price which reflects its value. Anything which the customer does not value is waste and should be eliminated
- **Integrated Processes and Teams:** delivering value to the customer efficiently and eliminating waste
- **A Quality Driven Agenda:** getting it right first time with zero defects, on time and on budget. Innovating and stripping out waste. Reduced cost in use and after-sales care

- **Commitment to People:** decent site conditions, fair wages, a commitment to health and safety and training and development for staff. Also, a 'no blame' culture based on mutual interdependence and trust

The Task Force set targets for the industry to improve performance, based on experience from leading clients and contractors in the UK and overseas, such as 10% annual reductions in capital costs and construction time, and 20% annual reductions in defects and accidents.

To achieve these ambitious targets, the Task Force proposed radical changes to the construction process, based around four related elements:

- **Product Development:** continuous development of the product to meet and inform the needs of clients and consumers
- **Project Implementation:** having the whole team work together to deliver a specific project on a specific site for a specific customer, where possible using computer modelling, standardised components and pre-assembly
- **Partnering the Supply Chain:** using the supply chain to drive innovation and performance improvement, with the opportunity to share in the rewards

- **Production of Components:** improvement of the production and logistics processes to eliminate waste and ensure the right components are produced and delivered at the right time, in the right order and with zero defects

It was recommended that these processes should be transparent to the industry and its clients. Sustained improvement could then be delivered through eliminating waste and increasing value for customers.

The Task Force also felt that for the industry to reach its full potential, it needed to change its culture and structure to support the improvement. It recommended that the industry should provide decent and safe working conditions and improve management and supervisory skills at all levels. Furthermore it felt that better results could be achieved through long-term relationships based on clear performance measures and sustained improvements in quality and efficiency by continuing to learn and improve as a team, rather than competitively tendering and having to create a new team for every piece of work.

The team called upon construction clients to show leadership and put forward 'demonstration projects' to show the recommendations of the report in practice, administered from a central knowledge centre. The Government in particular was invited to lead public sector bodies to become best practice clients. The team also added a chapter to address the specific needs of the housing sector. If these radical changes were widely adopted, the Task Force predicted that the industry could see dramatic improvements within five years. The report resulted in the development of a set of Construction Industry Key Performance Indicators, which are now published annually by Constructing Excellence.

How have we done against Egan's targets?

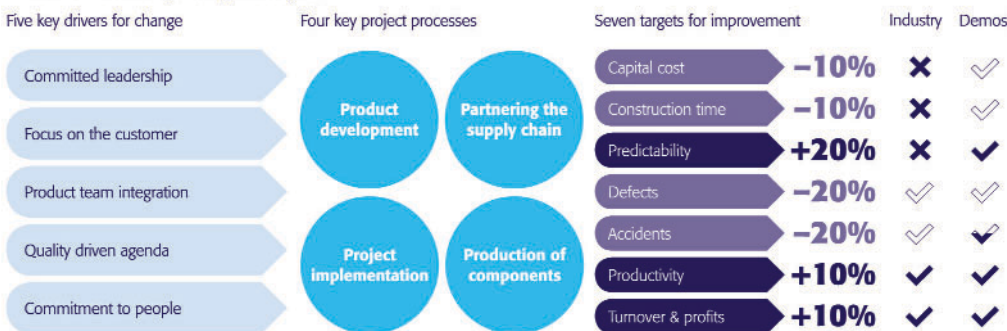


Fig.2 | *Rethinking Construction* recommendations

3. Progress So Far – The Evidence

"We could have had a revolution and what we've achieved is a bit of improvement"

"I would give the industry 4 out of 10"

Sir John Egan, 2008

"What has been achieved? More than I expected but less than I hoped"

Sir Michael Latham, 2009

What has been achieved since the publication of *Rethinking Construction*? Our findings suggest that while there has been significant improvement, it has not been on the scale anticipated by the Task Force.

The strongest body of evidence lies with the five hundred or so demonstration projects monitored by Constructing Excellence and its predecessors, which have consistently shown superior performance relative to the rest of the sector (as measured by the Construction Industry KPIs since 1998 – see page 12).

The problem, however, as our survey reveals, is that even where the principles of *Rethinking Construction* have been adopted, too often the commitment is skin-deep. Scratch beneath the surface and you find many so-called partners still seek to avoid or exploit risk to maximise their own profits, rather than find ways to share risk and collaborate genuinely so that all can profit.

A further point that is particularly relevant today – we cannot assess how far the improvements in, say, profitability are attributable to the favourable economic conditions of the last decade, as opposed to process efficiency and the elimination of waste. As we emerge from global recession, we should be concerned, therefore, about the prospects for future improvement in the absence of a fresh impetus for change.

Our Survey

Nearly one thousand industry professionals completed the Constructing Excellence survey, which was a far greater response than expected. The response included a good cross section of consultants, contractors, housebuilders, clients and suppliers, and was evenly split between members and non-members of Constructing Excellence. Respondents tended to be working in larger organisations in senior level positions, rather than SMEs or the broader employee base.

The main themes to emerge from the survey are clear. Around 90% reported a positive impact from *Rethinking Construction*, but this has been limited by partial uptake. In summary there has been too little change, too narrowly adopted and at too slow a rate.

Where there has been improvement, such as in the quality of major projects, many respondents commented on the patchy nature of the change. The overall impression is of a few shining examples of progress against a backdrop of fairly entrenched behaviour. This idea was succinctly captured by one respondent who referred to the "minority club" that had adopted the Egan philosophy, while another commented, "...there is no evidence that the progress made in a small percentage of the industry's activity will ever spread to the rest."

Where *Rethinking Construction* is considered to have been most influential is in raising awareness of the need within much of the industry and its bigger clients for improvement. At the same time, respondents expressed their frustration about the slow pace of change and the sense of too much talk and too little action.

One particularly strong theme is that people often pay lip service to the Egan agenda and fail to engage in the true spirit of the report. Instead they cherry pick the behaviours they wish to adopt, based on their own self-interest. So, while many clients say they want a best value solution, they still start out by pursuing the lowest tender price, and end up paying a lot more as a result.

The most widely perceived benefit of *Rethinking Construction*, mentioned by over half of those who commented, is a greater emphasis on integration, collaboration or partnering, though many qualified their view by saying that the benefit was patchy and did not reach into the supply chain. Companies who say that they partner will still seek to retain profit for themselves and pass risk down the supply chain, rather than use shared profit to eliminate risk for the whole team.

A wide variety of other benefits was described, of which only an increased focus on value/the client/the end user was mentioned by more than one tenth of respondents. Other recurring themes included the importance of quality, design and whole life costing, and people issues such as health and safety, skills and site conditions. Yet the perceived benefits are not universal across the sector, in part reflecting the different drivers in each section of the supply chain, nor do they necessarily penetrate below the senior levels of management.

What are the main benefits you have seen following the Rethinking Construction agenda?

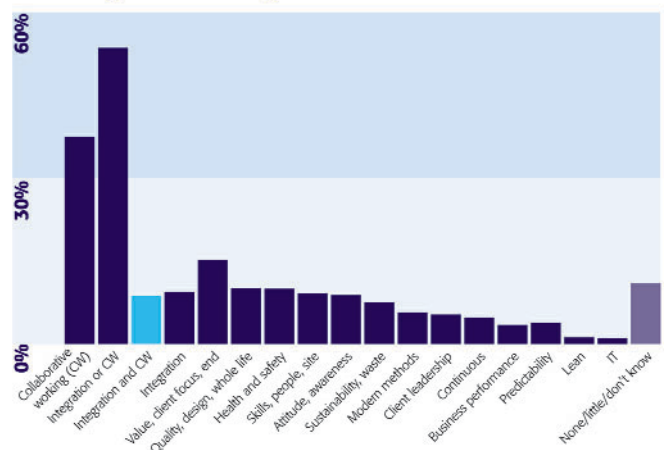


Fig.3 | Survey responses on the benefits since Egan

When asked for views on the disadvantages of *Rethinking Construction*, the most frequently mentioned topics were the lack of will to implement the recommendations (including a lack of Government support), the prevalence of old ways of working and confusion about the priorities. Others complained about too much bureaucracy, too many targets, a 'tick-box culture' and a tendency for all of this to disadvantage smaller players who lack the resources to satisfy all the new procurement requirements.

People issues also emerged as an area for concern. Some expressed their doubts about the quality of training available in the industry from providers who had jumped on the bandwagon. Particular reference was made to the quality of training in health and safety and the tendency to over-rely on carding schemes at the expense of genuinely raising competence.

The survey asked how important Egan's original drivers for change remained in today's industry. Each was still considered important for all but a handful of respondents (see Fig.2). Those considered to be very important were committed leadership (80%), focus on customer (73%) and commitment to people (71%). By contrast, only 56% thought that integrating the process and the team around the product was very important. Is it that respondents feel we have made sufficient progress on this one, or is it that there is still a large section of the industry that has yet to understand or be engaged about the benefits of an integrated approach?

The majority of respondents believed that their management is committed to quality and efficiency (80%) and that they are focused on the customer (76%). In both cases, this belief is directly related to seniority in the company, with junior colleagues less likely to be convinced.

Fewer respondents (60%) said that they work in integrated, multidisciplinary teams. Those who did so tended to work for larger organisations. Similarly, manufacturers and specialist contractors were less likely to agree with the statement.

Less than half (48%) believed that the projects they work on are completed to time, to budget and consistently exceed expectations, a figure very much in line with the KPI findings (see below). Again, those at middle manager level and below were least likely to agree with the statement. Some reassurance may be taken from the fact that 81% believed that their companies are committed to training, development and health and safety, although those working for very small companies were less likely to agree (72%).

When asked to rank a number of issues according to their importance to the industry, commitment to people, sustainability and client leadership emerged as the most important, followed by health and safety, design quality and long-term relationships. Least important issues were considered to be better regulation, reduced reliance on tendering and standardisation.

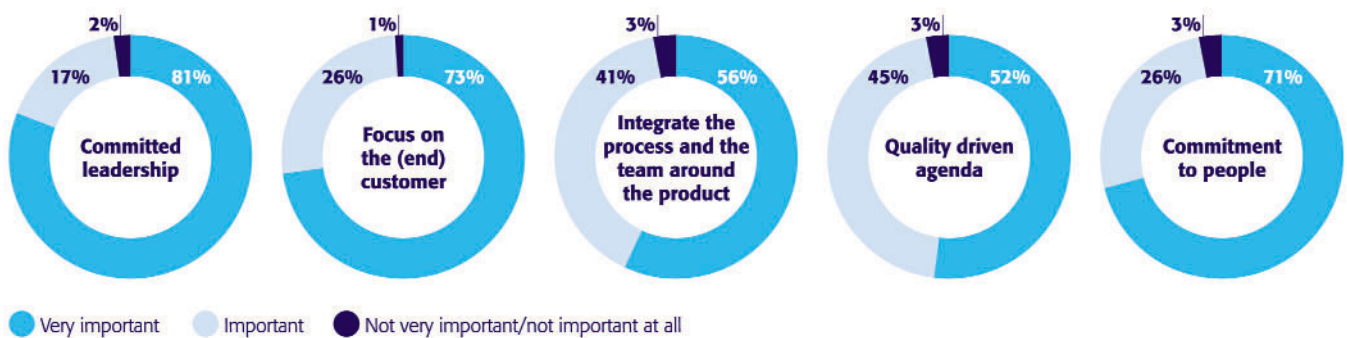
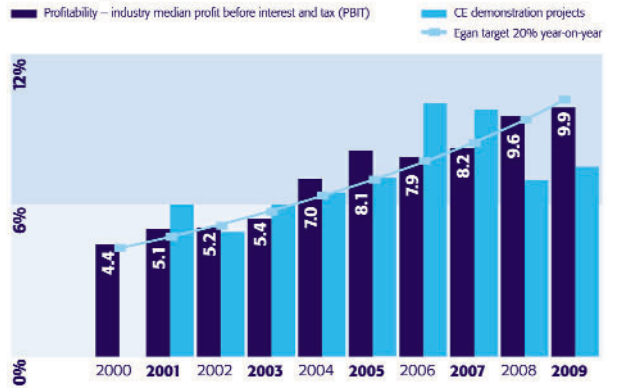


Fig.4 | Views on the continuing relevance of Egan's five drivers

Profitability



Looking ahead to the next ten years, respondents were clear about where the industry needs to focus its attention – people issues. Training, skills development, people management, the constitution of the labour force and its regulation were all frequently cited. There was a widely perceived need to improve the image of the industry in order to attract the right calibre of employees for the future prosperity of the industry. These of course are familiar themes and clearly they remain as big a challenge now as they were a decade ago.

So what does the survey tell us about the adoption of *Rethinking Construction*? It is clear that the stated aim of genuinely embedding the spirit of changes has not been met. There is not enough evidence of a united resolve across the diverse constituencies of UK construction to achieve Egan's vision of a modern construction industry. Where there are commitments, they tend to be superficial and expedient, not tangible and sustainable.

Construction Industry Key Performance Indicators

The Egan Task Force asked the industry to develop the Construction Industry Key Performance Indicators (KPIs). 2009 was the eleventh year of their publication, based on data from thousands of projects collated from Government and industry surveys. The KPIs allow individual firms to benchmark their performance with other firms. They also enable Constructing Excellence to measure improvement across the industry in its annual Industry Performance Report.

While the data collection process is by its nature somewhat subjective, it represents an invaluable source of data, and we believe conveys messages that many would intuitively recognise. For example, most of the headline economic KPIs have shown improvement over the last eleven years. Analysis by Constructing Excellence in 2009 reveals that the average improvement over the whole set of economic measures, including various measures of client satisfaction, is 42%, which represents a year on year improvement of around 3%. Almost all of the people KPIs show improvement over eight years, averaging about 30% (year on year 2.5%), and there has been an average improvement in the environmental KPIs of 20% (year on year slightly under 2%).

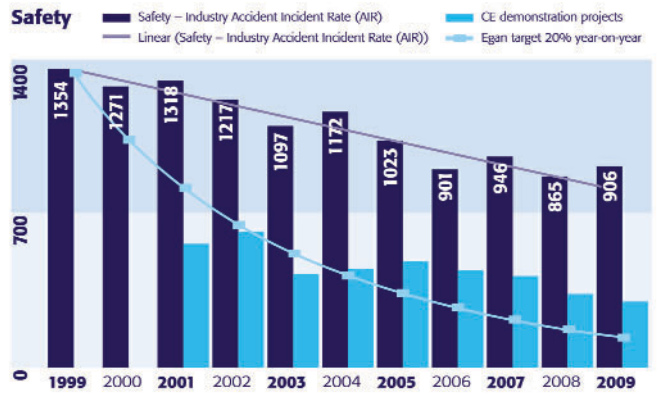
Six performance measures can be directly compared with Egan's targets for 10-20% year-on-year improvement: safety, profitability, predictability-cost, predictability-time, capital cost, construction time, and productivity. It is clear from the charts, where the pale blue line represents the Egan target and the dark blue bars represent the actual performance as measured by the KPIs, that the Egan targets have not been met in the industry as a whole, except in relation to profitability, with only safety and productivity showing reasonable progress.

How much of this measured improvement is due to Egan is of course arguable. For example, profitability is likely to have been significantly affected by the favourable economic circumstances of the last decade.

The light blue bars on the charts show that the Constructing Excellence demonstration projects have come much closer to achieving the targets, particularly for predictability, safety and productivity.

The most obvious area which has yet to show any improvement is predictability. There is still only around a 50/50 chance of a project coming in on cost or on time. Client-approved changes account for up to half of this variation, with the remainder attributable to the industry's variability. Clearly, there is still a need for major improvement by both clients and suppliers in this area.

Safety



Construction time

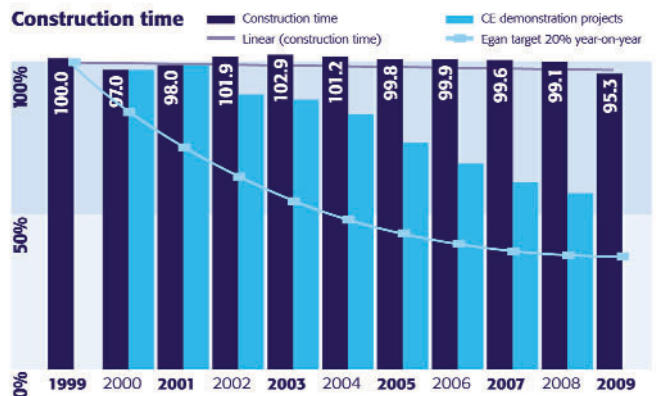


Fig.5-7 | Median industry performance year-on-year

Demonstration Projects

Egan's Task Force called for a programme of "demonstration projects to develop and illustrate the ideas that we have set out... Our ambition is to make a start with at least £500 million worth of projects". Ten years on, over 500 projects worth £14 billion have contributed significantly to the industry's knowledge base of innovation and best practice. The Constructing Excellence demonstrations continue to point the way with around 100 projects a year in the programme and on average these projects still out-perform the rest of the (improving) industry in 2008 by 19%, most noticeably in safety, which is 80% better, and predictability, which is 10-20% better.

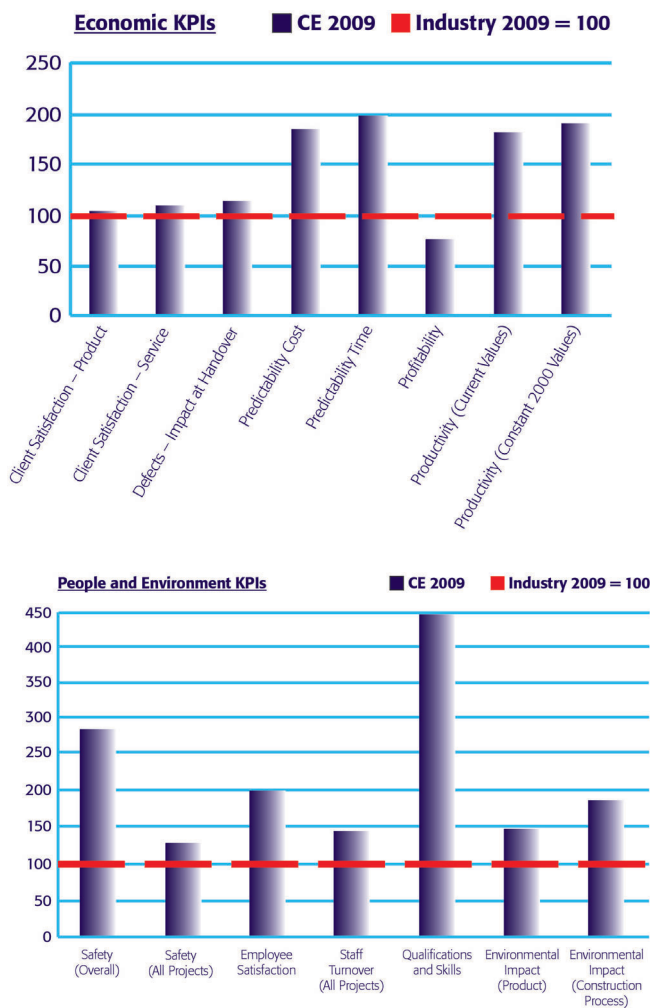


Fig.8-9 | 2009 Demonstrations outperform the industry by an average of 80%

Industry Reports Since 1998

A survey of major industry reports over the last decade demonstrates the continuing influence of the Latham report and the Egan agenda. In particular, the Government, as the construction industry's major client, has made a number of attempts to improve its own performance and that of the industry.

Top Ten Industry Reports Since Egan

Achieving Excellence, Office of Government Commerce, 1999
Modernising Construction, National Audit Office (NAO), 2001
Accelerating Change, Strategic Forum for Construction, 2002
Improving Public Services Through Better Construction, NAO, 2005
Be Valuable, Constructing Excellence, 2005
Callcutt Review of Housebuilding Delivery, John Callcutt, 2007
Construction Commitments, Strategic Forum for Construction, 2008
The Strategy for Sustainable Construction, Government/Strategic Forum, 2008
Construction Matters, Business and Enterprise Select Committee, 2008
Equal Partners, Business Vantage and Construction Clients' Group, 2008

In 2008, the Government launched the Strategy for Sustainable Construction in response to new carbon reduction targets. It challenged the industry to deliver value for money, safe construction sites, fit for purpose buildings and to reduce the environmental impact from the construction and operation of built assets.

Also in 2008, the BERR Select Committee published *Construction Matters*, which called for greater Government leadership on a strategic level and as a client, and in particular proposed the new post of Chief Construction Adviser⁵.

4. Blockers to Progress – Our Analysis

“But it's different for construction”

The ‘Big Ideas’ project⁶ suggested that it is human nature to resist other people's recipes for success. Successful organisations work out their own ways of doing things. They prefer to *rethink construction* themselves in an innovation-based approach to competitiveness, rather than have a solution prescribed for them.



Fig.10 | Sustained Competitiveness (ref *The Big Ideas*)

Many industry professionals have struggled with Egan's comparison with the manufacturing industry, because they interpreted it too literally, leading inevitably to the protest “but it's different for construction”.

Yes, construction is challenging. It has a long project cycle time, so that it can take years, sometimes decades, before the team can truly learn from the performance of their product. A project manager working on larger programmes may only ever complete a handful of projects in an entire career. Similarly, the logistical challenges of construction can make it harder to adopt new technologies.

Yet other complex industries with long development cycles such as automotive, aerospace and shipping have proven that it is possible to achieve radical change.

Although learning cycles may be longer for the whole programme, there are still many discrete projects and individual trades where performance can be adjusted quickly and efficiently in a process of continuous improvement.

In some cases, it is a question of mindset and framing the right questions. For example, while the potential for use of robotics is greater in a factory than on a construction site, the challenge becomes 'how can we do more of our construction offsite where we can use advanced technology?' In other words, it's not how we can be more like manufacturing, but *what we can learn* from manufacturing.

Interventions such as *Rethinking Construction* can therefore be seen as catalysts, helping to speed up the natural pace of change by challenging the industry to improve.

So why has change not occurred to the extent envisaged by Egan? We don't think there is any one simple explanation. Instead, we see many factors that have conspired to prevent change.

We have grouped these 'blockers' to progress under the following four interdependent themes:

- Business and Economic Models
- Capability
- Delivery Model
- Industry Structure.

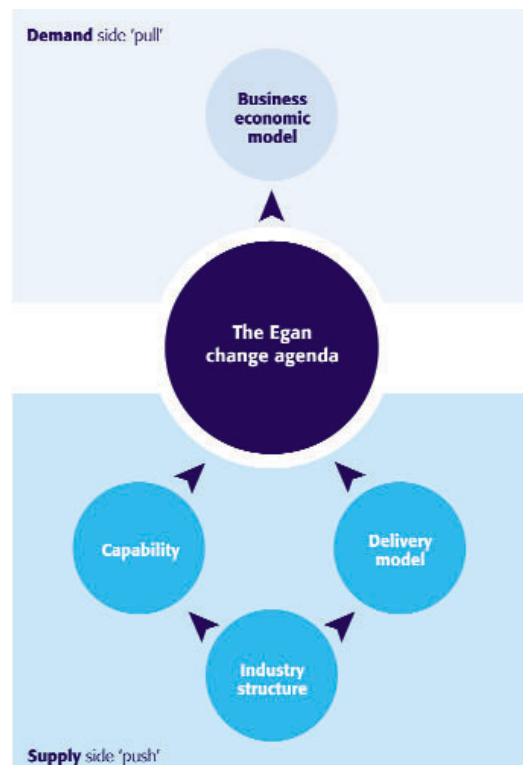


Fig.11 | Factors affecting the speed of change

Key Blocker 1 Business and Economic Models

"Business and economic models in the sector determine the pace of change"

Rethinking Construction was published when the economy was growing and therefore provided a favourable commercial environment for initial acceptance of its recommendations. The decade that followed was arguably a golden age for the UK economy and for construction. The effect of this, whilst clearly beneficial in many respects, was that there has been no major commercial imperative to seek radical transformation, such as occurred in the offshore oil or automotive industries in the 1980s. In the absence of any industry wide impetus for change, different sectors of the industry have progressed at varying rates.

The chart below shows a breakdown of the £125B built environment industry between the private and public sectors and the financial basis for each sector. In some sectors, to draw on the title of the 2008 BERR Select Committee report, it can be said that 'construction matters' – in other words that the cost, programme and quality of the delivery all support the business case. In other instances, sadly, 'construction does not matter' and has minimal impact on the business case – the private housing market seems to fit into this category, for example, where land prices and location have been the dominant factors.

Case Study: MoD Andover North Site



Rider Levett Bucknall led an integrated team for a £35M contract to redevelop the Ministry of Defence site at Andover, which included offices and residential quarters. The team, comprising specialist designers, three constructors and their supply chains, offered a complete design, build, operate and maintain service. As a result, whole life value was a primary consideration of the project from the design stage. A key success factor was the adoption of collaborative processes such as staff co-location, a shared project server and a project bank account. Since completion, the project has saved £500,000 (44%) compared with the target whole life costs.

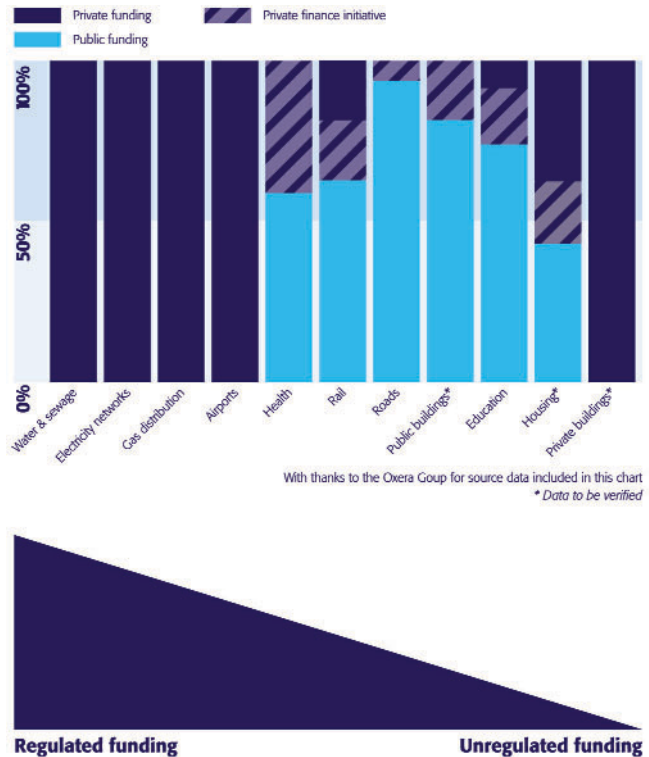


Fig.12 | Built environment expenditure by sector

So which sectors have shown improvement and how have they achieved it? Inevitably, it has tended to be the major clients with repeat construction business who have developed in-house 'intelligent client' teams. Successful teams have consistently integrated their processes and achieved results through a sustained programme of change – many adopting the Egan principles and adapting their business model to incentivise and promote best practice.

In the water and airport sectors, the regulator provides an added impetus to achieve better value capital investment. As a result, the supply chain has to demonstrate increased value over time to survive in post. Some of the larger retailers have also demonstrated partnering arrangements, no doubt in response to the intense competition from within the sector.

The public sector has made some significant moves in the right direction. NHS Estates' Procure21, Defence Estates' Prime Contracting, Birmingham City Council, Manchester City Council and Hampshire County Council are all examples of best practice for collaborative working in integrated teams.

More widely however, the public sector, which now accounts for up to 40% of total construction demand, has yet to emerge as a coherent champion of the Egan agenda. While the leadership of public organisations may be committed to the idea of best value, their procurement teams often still want to achieve lowest price. Where frameworks have been used, they have usually not been performance managed, with the inevitable outcome that they have not realised the potential benefits. In spite of the best efforts of the Office of Government Commerce, much of the public sector has yet to understand how the process of developing the built environment affects the future quality of public services.

Private finance options have also emerged in the last decade as a major new business model. In theory, they should be a major corrective influence, since they force clients to consider capital and operational expenditure from the outset of the project. Unfortunately, the potential benefits of the PFI process have frequently been lost by the failure to set up integrated teams, or by awarding too many one-off contracts which prevents the transfer of learning between projects. Ironically, some would argue that PFIs mean that construction matters less for Government, because it takes assets off the public sector balance sheet.

Case study: Birmingham City Partnership



Founded by Birmingham City Council, the Birmingham Construction Partnership was a unique collaboration of contractors, design and specialist supply chains set up to deliver all capital projects with a budget above £100K. With a true partnering approach, the team were able to align all construction projects to the City's corporate objectives of sustainability, whole life costing, best value, local employment, training and strategic alliances. After one year, the Partnership achieved a 52% improvement in projects delivered to time and a 29% improvement in projects delivered to budget.

Even if the experience of PFI to date has been less than perfect, the Review Team believes there is great benefit to be gained from business models where the supply chain takes a stake in the future performance of an asset. Property developers who hold and manage a property are more likely to be concerned about whole life cost and building sustainability into the design and construction process. It is of concern therefore to note that the recession has led a number of 'build to keep' developers to sell off assets. By contrast, those who develop to sell have no market incentive to do anything other than build as cheaply as possible within legal limits. Such developers are likely to downgrade their specifications even further unless the basis for valuation changes to costs-in-use.

Case Study: Capital Programme Management, Manchester City Council



Manchester City Council formed a dedicated team to achieve greater reliability in time, cost and quality in the delivery of its capital projects. Staff received training in a standardised framework for project management. This was used for the complex £12.5M Sure Start programme, where Council staff managed 25 major projects over two phases.

Looking to the future, there is no doubt that the recession has undermined confidence in Egan's idea of client-driven change. Egan did not envisage that good clients would not always have new work, nor that client framework agreements may not provide the expected long-term stability for contractors. The era of client stability and leadership may be over, as the credit crunch seems likely to limit funding for some years to come. Instead, we now need the supply side to take on the leadership role and embrace the challenge of delivering more value for less budget. The current economic downturn should focus suppliers' minds on the need for more radical change if they are to survive, let alone thrive, in the upturn when it comes. "Never let a good crisis go to waste", as President Obama's Chief of Staff commented in early 2009.

So what has so far stopped suppliers from taking the lead? A major problem is without doubt the lack of incentives currently provided by client business models for a supplier to innovate and deliver more sustainable solutions. As work becomes scarcer during a downturn, suppliers may become reluctant to offer a value-based solution through fear of being undercut by the competition on initial price.

Case Study: Welsh Water Capital Alliance



The Welsh Water Capital Alliance was a strategic partnering team set up to deliver around 60% of Welsh Water's capital investment program during 2000-2005. It comprised Dwr Cymru Welsh Water, United Utilities, six strategic design/construction partners and a number of specialist roles. The partners committed to work collaboratively in order to meet the needs of the Alliance. Welsh Water succeeded in reducing its costs base by 60% and was assessed by OFWAT as having the best overall performance in the sector.

In reality, suppliers can not change the industry on their own. The time has come for a stronger vision from Government and across the industry which recognises the key contribution that the built environment makes to the UK's long-term economic prosperity and its aim of achieving a more sustainable, low carbon economy. For example, many leading commentators believe that adopting carbon as a major unit of currency would be the most powerful way to promote the right kind of change in our industry. It is encouraging therefore to note the announcement by Peter Mandelson in September 2009 of a low carbon review of the construction industry.

In summary, the Review Team believes that the following factors relating to the business and economic model together create a downward spiral that prevents progress:

Lack of Cohesive Industry Vision

A lack of joined-up thinking in Government and our industry about how the built environment contributes to the UK's long-term prosperity and the aim of achieving a sustainable, low carbon economy.

Few Business Drivers to Improve

For much of the supply chain, there are few business or economic drivers to deliver meaningful change. They are prepared to accept stable, though unexciting returns, rather than attempt changes that are seen as being 'too difficult'.

Construction 'Does not Matter'

The low impact of construction costs and outcomes on the client's business case means that in some sectors construction 'does not matter'.

No Incentives for Change

Most client business models are focused on short-term gain and do not reward suppliers who can deliver long-term sustainable solutions.

Construction is Seen as a Commodity Purchase

Too many clients focus on the upfront costs of construction, rather than the value created over the lifetime of an asset. Few suppliers, other than those involved in PFIs, have any continued interest in the operation of the building and therefore no incentive to raise quality standards.

Industry Culture is Driven by Economic Forces

Even where clients plan for the long-term, few have avoided cuts during the current downturn. Many clients and suppliers appear to have abandoned partnering behaviour (if they ever adopted it in the first place) and returned to transactional relationships.



Fig.13 | Key Blocker 1: Business and Economic Models

Key Blocker 2 Capability

"We need to attract, retain and develop more of the right people to improve industry capability"

When the Task Force published its recommendations for the construction industry, did it understand the size of the leadership challenge required to bring about such radical cultural change? Our view is that it did not. Ten years on, our survey found that people issues have now risen to the top of the agenda.

Rethinking Construction described the shortage of senior management with the "commitment to being best in class and with the right balance of technical and leadership skills to manage their businesses accordingly".

In addition to developing more leaders of excellence, it recommended that the industry should develop project managers who can integrate projects and lead performance improvement, raise awareness amongst designers of how they can create value in the project process, improve training of supervisors, increase multi-skilling and in general, better train construction workers to cope with new supplier technologies.

Case Study: Architectural Engineering and Design Management BS at Loughborough University



Loughborough University developed its building design degree in response to the growing need for greater inter-disciplinary thinking. The department's vision has been to develop professionals with a broader understanding of design and construction activities, who can act as system integrators. With a year of industrial training, most students gain sponsorship and, as the programme is accredited by the Chartered Institute of Building (CIOB), can achieve a fast route to full professional qualification. The course is now in its tenth year and 120 students have graduated, including several who have been shortlisted for industry awards.

How far has this happened? The evidence in section 3 suggests that while there have been significant improvements in vocational training and in health and safety, there is less evidence of an emerging culture of excellence, based on integrated teams. We believe that with a few exceptions, a major factor has been the lack of leaders with the ability to communicate their vision and the commitment to drive a wider change in culture and behaviours.

As our survey revealed, when people think about the benefits of *Rethinking Construction*, they think about process change. Yet slavishly following a process will not produce the desired outcome unless people genuinely understand how their input contributes to the ultimate goal. This only comes from strong leadership.

Case Study: Arup Graduate Programme

Arup is an internationally respected company which summarises its approach with the phrase "We shape a better world". It offers a highly regarded graduate programme for up to 200 graduates per year in Europe, with most of the roles based in the UK. The company places a high value on teamwork, creativity and a belief in sustainability. It also promotes a culture of mentoring to ensure graduates are appropriately supported when exposed to bigger challenges early in their career. The company's website quotes the philosophy of its founder, Sir Ove Arup, "Every member is treated as a human being whose happiness is the concern of all".

A recent survey by the Chartered Institute of Building (CIOB) concluded that its members recognised few stand-out leaders in the construction industry. With the possible exception of a handful of leading architects and design consultants, there are no household names in our industry. In our national media, we are more likely to see coverage of people who protest on top of buildings than those responsible for erecting them. This invisibility at the top contributes to the low profile and poor brand image of the industry, which in turn prevents us from attracting sufficient numbers of the highest quality recruits.

There are many reasons why construction has a low public profile. In a low margin, competitive industry, public relations tends to focus on investor relations or supporting the sales effort. Industry leaders do not seek a wider publicity due to an instinctive risk aversion, based on the common perception that the national media are only interested in things that go wrong, such as Wembley Stadium or the T5 opening.

Such a narrow, defensive media strategy will not help influence public policy or educate the public about our vital contribution to UK plc. Nor will it help recruit tomorrow's brightest graduates. Attracting and developing a sufficient proportion of the right calibre of graduates has long been a major challenge for our industry. It's not that we don't have good people in our industry it's simply that we don't have enough of them and we need to have more!

As part of our research, we asked the 'Generation for Collaboration' (G4C), the early career forum of Constructing Excellence, to report on the experience of recent entrants to the industry. We were particularly interested to know what had attracted graduates to the industry, what development they had received since graduation and how their experience compares with other industry graduate programmes.

G4C's conclusions should be a wake-up call. In summary, we learned that graduates see construction as offering fewer benefits and opportunities compared with other industries. As a result, the industry struggles to recruit young people from a wider range of academic backgrounds beyond the vocational disciplines.

Case Study: Astins Institute



Astins, the UK dry lining contractor, opened the £1M Astins Institute in 2009 to train up to 60 apprentices a year in dry lining skills to NVQ levels 2 and 3. All apprentices are paid during the two year course and guaranteed a job with Astins on qualification. The company also pioneers 'women in construction' and has set a five year target for 8% of its front line employees to be female, compared to a 1% average for the construction industry. As proof of their commitment to this target, the second intake of apprentices was entirely female. Inspired by the Honda Institute, the course also includes general life skills, such as a visit to a local climbing school to help apprentices overcome fears of working at height.

Those who do enter the industry frequently find that the working environment does not motivate them to fulfil their potential and that the skills development opportunities are inadequate. They also see that their prospects for career advancement are limited by the existence of a 'permafrost' of middle managers who joined a very different industry and act as a major barrier to change. This is especially true for any young professional who has already gained a strategic understanding of how the built environment can generate long-term value for society and the economy.

Indeed, this permafrost may have wider implications for the industry, for example, in seeking to understand how we can address the low representation of ethnic minorities and women in construction. It is interesting that in 2009, three women who have risen to the top of professional institutions⁷, all run their own businesses.

Recent entrants also point to the failure of the industry to address the single most important issue that the next generation has to face – that of sustainable development and, in particular, a low-carbon economy. By not embracing the sustainable built environment agenda, we are missing out on a huge opportunity to attract young people to the industry.

Similarly, a stronger ethical stance within the industry would help to attract and retain people who perceive the industry as being excessively focused on the bottom line.

A starting point to address these findings is for us to revisit the contribution of the educational sector and the role of professional institutions. One major reason why young people lack awareness of the industry is because some schools and universities often fail to understand and promote the opportunities effectively. While clearly the industry itself carries a responsibility in this respect, the educational sector could do much more to understand the needs of the industry it supports.

Moreover, in order to attract students, higher education providers have to demonstrate that their course content is accredited by the professional institutions, which tend to exist in parallel silos. While most universities have made efforts to introduce cross-disciplinary learning and joint project work, this falls short of enabling students to understand how the industry really works at a business and strategic level.

Greater integration of professional accreditation routes would be a major step towards helping new entrants gain a broader and more holistic industry perspective from the start of their careers. There has been some progress already, for example the Institution of Civil Engineers (ICE) and the Institute of Structural Engineers (IStructE) set up a Joint Board of Moderators. There have also been some honourable attempts, such as the abandoned merger between the ICE and the Institute of Mechanical Engineers (IMechE). The leaders of professional bodies who contributed to this review recognised the opportunities for further collaboration and expressed a willingness to work towards this aim.

Case Study: Craft Training

In 1986 the Worshipful Company of Carpenters relocated their craft centre to Stratford in East London. Their vision was to set up a training facility for 200 young people a year to learn the crafts of carpentry and stone masonry – skills that are declining, certainly at the level needed to renovate the historic buildings that we so proudly cherish as part of our heritage. The Carpenters have recently opened an extension to their Stratford facility with a faculty of more than 600 students, many from less advantaged backgrounds. Many of these students will use their skills to help deliver the 2012 Olympic games.

Ultimately, however, the buck stops with the employers who must do more to invest in their human capital. Compared to the manufacturing, consulting and banking sectors, we do not adequately equip new entrants with the skills needed to face complex challenges in the early phases of their careers. Nor do we provide the working environment and career development structures to attract and retain men and women striving to balance work and family, nor to secure a lifetime loyalty to the industry.

A final point for us to consider relates to the attraction of our industry for anyone who wants to work abroad. In the future, there may be fewer opportunities to do so. As the Chief Scientific Officer, Sir David King has observed, China trains one hundred times the number of qualified engineers as the UK. As the technology frontier moves from West to East, we can no longer assume a future export market for our ideas and practices. Unless we can enthuse our people to work in the UK industry, we may lose them altogether.

In summary, the Review Team believes that the following factors relating to industry capability together create a downward spiral that prevents progress:

Lack of Visible Leadership

The industry lacks enough leaders who can communicate their vision and engage employees to think about the value of their input beyond their tactical horizon. Lack of visible leaders results in a low profile and poor industry brand.

Failure to Attract New Talent to the Industry

The industry's poor image means that it does not attract sufficient high quality, highly motivated graduates, nor do we promote our industry effectively to women and members of ethnic minorities.

Narrow Degree Courses Prevent Holistic Thinking

Instead of developing students to think holistically about how we create integrated built asset solutions, universities perpetuate the industry model of separate disciplines and are restricted by the need to align with professional accreditation routes.

Failure to Develop Talent within the Industry

Inferior graduate development programmes and the 'permafrost' of middle managers results in brain drain both overseas and to other industries. Leadership training at all levels of the industry is inadequate, particularly for junior leaders and supervisors.

Lack of Purpose

The industry lacks a clear mission, based on a strong ethical stance, for the contribution it makes to society. As a result, it struggles to present an effective image to the public and Government.

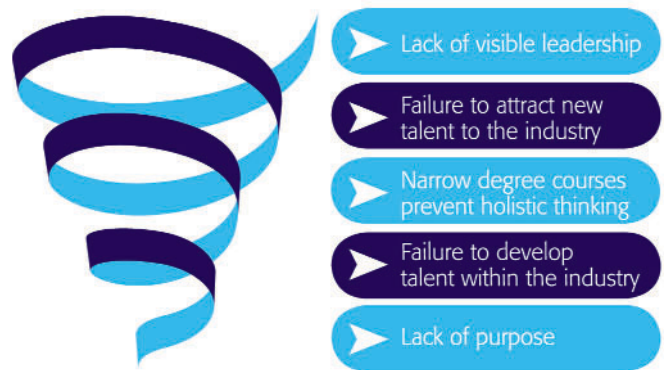


Fig.14 | Key Blocker 2 : Capability

Key Blocker 3 Delivery Model

"A lack of integration in the delivery process impedes continuous improvement"

The main focus of *Rethinking Construction* was to align the industry around a delivery model based on collaborative working and integrated, lean processes to improve performance. We have already seen, by comparing demonstration projects with the rest of the industry, that this approach can deliver significant benefits. In spite of this firm evidence, the model has yet to be adopted widely in the industry.

Egan was clear that the role of the client was central to his change programme. As much of the value generated by the Egan principles was for their benefit, they were targeted to create and support a project environment through which change could be delivered.

For many such clients, supporting an industry change programme was an act of blind faith. Even without this expectation, the role of the client is difficult. Many clients may have the chance to make a capital investment once in their life and if this is the case they will be led through the process by the consultant team they choose to work with. Repeat clients will develop their own in-house capabilities, their own processes and their own procurement styles. Without doubt, the most important task they have is to agree a brief, often the output of a lengthy stakeholder engagement process, and for this to be in sufficient detail to define the investment outcomes. Increasingly these outcomes are expected not simply to deliver a commercial return or social benefit, but also to respond to corporate social responsibility policies.

Case Study: Value in UK Hospitals

Professor Bryan Lawson and Dr Michael Phiri of the University of Sheffield carried out evaluations of two hospitals, both involving new and improved accommodation. The findings showed positive outcomes, for example in Brighton the patient treatment time savings exceeded annual capital charges by 46%. In Poole the revenue savings exceeded the capital costs in the second year of operation, and at Brighton this happened in the first year of operation.

The last eleven years of KPIs have shown that projects are still only 50% likely to come in on budget and the average cost overrun of the remainder in 2007 was 26%. Half of these overspends are down to the inefficiencies of the supply chain, the rest are due to client change. Authorised change or not, this data gives us some idea of just how poor client teams are at getting the brief right before the delivery process begins.

Case Study: Academy of St Francis of Assisi



When Kensington Academy Trust set out to build the 900 place St Francis of Assisi academy for 11-16 year olds in Liverpool, it wanted a building that would have a major impact on its students' achievements. The academy, which has been designed with a strong environmental focus, was voted the top performing UK school in terms of 'value added' to its pupils. In 2007, 44% of Year

11 students gained five or more GCSE passes – in 2008 this figure rose to 57%.

The ability to define and control the brief and the sponsorship of the right delivery environment are both critical elements of the client's role. Clients have much progress to make in delivering these critical inputs.

The absence of a major driver for change on the supply side resulted in clients seeking to drive improved performance through their procurement process in order to deal with their own financial pressures. Many big clients employed large in-house "intelligent client" teams, who recognised that market conditions pointed to partnering and framework approaches to secure good quality supply. However, other key industry processes did not change, and managing new arrangements in the same old way has left some clients and main contractors unconvinced that the benefits are sustainable.

The low penetration of cultural change has been exposed by the current economic downturn, with evidence that clients and main contractors are now reverting to type (if they were ever committed to partnering the supply chain in the first place). Instead of drawing opportunity up from the supply chain, there is a determination by main contractors in particular to tender every package, every time, and select on the basis of lowest price.

We are seeing a return to long tender lists, firms chasing work at unsustainable margins, cost and time overruns, jettisoning of quality or sustainability initiatives and more of a claims-oriented approach. One major contractor recently reported in private that their strategy was "to bid low and provide in the budget for a claims consultant". Other anecdotal evidence describes longer payment cycles, further fragmentation of supply chains and the practice of 'subbie-bashing' by retendering sub-contracts.

It is ironic that this kind of behaviour is returning when there is now a body of evidence that lowest cost tendering does not equal best value output. This was clearly spelled out to the public sector back in 1999 when the Office of Government Commerce published *Achieving Excellence in Construction*.

Furthermore, first tier contractors still take on and charge clients for taking risk, then seek to pass this risk down the supply chain, without always developing a mature approach to risk mitigation. This inevitably leads to high levels of dispute when the risk materialises.

Even when the first tier of clients, lead consultants and main contractor develop long-term relationships based on collaborative teams, there is usually a failure to involve specialist contractors and manufacturers early enough in the process, which effectively closes off the tap of innovation and frequently results in unnecessary costs further down the line.

Similarly, many public sector clients and some contractors have implemented a supplier framework, but have done so to save cost and time in the upfront phase of a programme, rather than a genuine desire to invest in constructive relationships based on collaboration, which can then deliver real cost reduction.

In general, most construction firms fail to leverage value in their supply chain or to invest in strategic capacity. Few companies have the purchasing power to leverage their supply chains, or the resources to invest in IT, people development or offsite production capacity to improve performance. Those who do have the purchasing power fail to maximise their leverage by buying smartly and matching the size of their demand to the supply market they are approaching. Only a handful of construction firms offer a vertically integrated approach from design to managed handover.

A fundamental problem in the industry is the lack of awareness of the whole life cycle concept and how the quality of the built environment impacts on the operating performance of the economy and quality of life in general.

Case Study: Filton Blood Centre



NHS BT Trust appointed Laing O'Rourke and their project team on Procure21 terms to build the world's largest blood processing centre. The team adopted a collaborative, partnering approach which enabled them to deliver the centre as specified by the client, on time and within budget. The team ensured quality of design and construction by involving the whole supply chain at an early stage of the project.

The built environment sector covers the planning, design, manufacture and assembly/construction and commissioning of built facilities, to their subsequent operation, maintenance, refurbishment, deconstruction and re-use⁸. As such, a case can be made for the sector accounting for almost 20% of GDP rather than the 6-7% GDP accounted for by construction output alone.

Case Study: St Helens town centre



St Helens Council created a partnership with Mayfield Construction Ltd to deliver an ambitious £6M upgrade to St Helens town centre. From the outset, the team identified clear aims for the project based on the key drivers of environmental, social and economic sustainability. By involving specialist contractors early in the project, sustainability initiatives were implemented at no additional cost. As a result, benefits of the project include an impressive 97% of all waste material segregated, reused or recycled and the use of LED street lighting which creates significant annual savings.

If more people in the industry (and outside) understood this bigger picture, it would have a huge impact on the delivery model. They would appreciate that our industry adds value in the use of facilities, rather than in the construction. Hence, getting the design stage right becomes critically important. Clients would understand that built asset solutions are a long-term strategic decision based on business and social return, rather than an occasional distress purchase when other options have been exhausted. Development of corporate real estate should really be a responsibility sitting alongside the IT Director or HR Director in terms of its relevance to business performance.

In most cases, however, those involved in the design and construction of buildings have left the project long before anyone experiences the building in use. As a result, there is poor understanding within the industry of how buildings actually perform, or how their quality brings value to future occupants. Evidence of a change of thinking towards the whole life concept remains sparse. Although understood by many architects and engineers, it has not been widely adopted throughout the sector.

Part of the problem is a lack of long-term performance data which clearly needs to be addressed with better research and evaluation. Progress has been made in proving the case in the development of hospitals, where patients recover better; schools, where students learn better; offices, where people are more productive and leisure facilities where sales are improved, all because of the quality of the built environment. A major new driver of this approach is the requirement for environmental sustainability, e.g. for site waste management plans and for energy efficiency to reduce associated carbon emissions. The industry needs to learn from post occupancy evaluation of how well built assets perform in order to improve the planning and design process.

Unfortunately there are many public sector procurement departments who fail to take account of both capital and revenue expenditure. This frustrates the main purpose of public sector procurement – to appoint the most economically advantageous bid over the lifetime of the project – and results in projects being designed for lowest price, rather than maximum affordable value.

The silo nature of Government inevitably works against the Egan agenda.

Case Study: Learning from the Japanese Construction Industry



Some basic benchmarking by Constructing Excellence identified the Japanese construction sector as one from which we could learn much about Egan principles in practice, in particular 'lean'. In May 2009 Constructing Excellence led a party of fourteen industry people from the UK and overseas on a week-long study tour. The findings highlight many fundamental practices which are 'lean' and could be applied in the UK – or indeed anywhere.

The biggest lesson was the total focus demonstrated on delivering on time and to budget, as a matter of honour and principle. This approach boils down to basic common sense, efficiency and sound business and project management. Everyone focuses on optimising the way the project is carried out and gets it right first time, from the start. It understands that most people like to do a good job and their commercial, design and planning processes create the conditions in which they can. Other key points are:

- An incredible focus on pre-planning activities through the application of simple visual tools and standard meetings
- Transparent procurement, contract and payment processes
- Company support resources from research and development, standardised processes, cost databases and standard procedures
- Education and training to promote company ways – starting with directors and working down through the company. Japanese people are well-educated, and their education continues during their working life. The university courses for senior managers met by the study tour were the most prestigious in the country

Case Study: Learning from the Olympics



The Olympic Delivery Authority (ODA) with CLM, its delivery partner, is proving to be an excellent intelligent client, adopting many aspects of best practice and innovation. Examples include a focus on value (legacy), environmental sustainability, early consultation with potential suppliers, and the delivery partner function which provides an expert interface between the 'thin' client and the supply chain, where there are not enough companies big enough to take on a mega-scale programme. ODA's experience needs to be captured and promoted not just in the UK but around the world.

Departments procure separately and do not share learning effectively with each other. Civil servants are not trained to be experts in procurement. The proposed Chief Construction Adviser could be an effective counter to these problems of ministerial turnover and fragmentation, provided the person has sufficient clout within the industry and Government.

In the wider industry, procurement practice is not as professional as it could be. Tender processes focus on price, which destabilises the supply chain, rather than highest value with lowest waste and cost, which has a stabilising effect. Furthermore, the inability to assess non-compliant bids has stifled innovation. It has also made procurement more expensive as the client team needs to see a developed design before it can pick the winning bid.

There are, of course, examples of good practice. Open book accounting is increasingly common in the regulated sector, where team members are released to find ways to reduce cost or add value, creating an excellent alignment of interests for all parties.

There are also major benefits to be learned from overseas, including Japan where there are many examples of lean practices being applied successfully in construction.

In summary, the Review Team believes that the following factors together create a downward spiral that prevents the use of effective delivery models:

Few Clients Demand a Best Value Solution

Clients struggle to articulate what value means to them, and too few projects develop a clear brief that defines their business, social and environmental requirements. Clients are unaware of the potential value that integrated supply chains can bring, and fail to engage them early enough, relying too often on consultants specifying traditional solutions through dated procurement methods.

Lack of an Integrated Process Results in Sub-optimal Solutions

Designers are appointed in isolation. Contractors are engaged late and with a focus on lowest price. Facilities management and operational integration are rarely considered at the design stage. As a result, there is a failure to develop a fully integrated design that reflects the whole life cycle of an asset.

Contractors would Rather 'Push' Risk Down the Supply Chain than 'Pull' the Opportunities Back Up

Contractors' mindset is to procure in order to pass risk down the supply chain, rather than to draw up opportunities to create value by working as an integrated team.

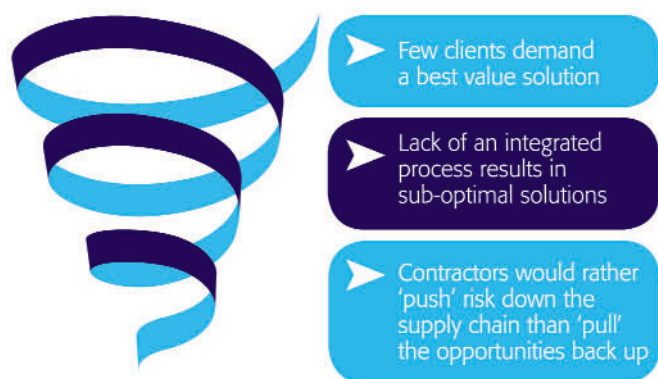


Fig.15 | Key Blocker 3 : Delivery Model

Key Blocker 4 Industry Structure

"The diverse and fragmented structure of the industry creates competing agendas"

Egan's Task Force described the fragmentation of the industry as both a strength and a weakness. The industry is dominated numerically by SMEs, large firms (over 80 employees) accounting for 52% of the value of work done, 36% of employment but only 7% of all contracting businesses⁹ and a tiny fraction of the stock market. This long-tail structure is evident in construction sectors around the world, although it may be slightly worse in the UK where at the top end, the biggest contracting firms still struggle to compete on a global level for the biggest programmes – unlike for example the big UK multidisciplinary design companies such as Arup or Atkins who have a truly global reach.

While the large and increasing number of small firms may enable the industry to cope flexibly with variations of workload, the low level of vertical integration means that subcontracting continues to be a dominant way of working. These represent horizontal interfaces which, every time they are introduced, put up yet another barrier to the free flow of information and innovation. We are not suggesting that there is a simple alternative to the subcontracting culture. Vertical ownership of the supply chains will help, but is available to only the largest firms in our industry. Instead we need to be aware of the added complexity introduced and to raise our game to ensure that waste and value is not continually trapped between each layer we choose to add.

Overall, Egan's Task Force paid little attention to wider structural issues. Sir John himself had low expectations of the support and buy-in that he was likely to receive from industry bodies. A key problem is that there are simply too many of them. According to BERR, the construction industry has over three hundred trade associations. James Wates identified over 500 separate industry bodies¹⁰, and we know his list was not comprehensive. None of these associations has a critical mass of members at all stages of the construction process.

When trade associations do step up to the plate to address industry issues, there can be a large amount of duplication or disharmony, which makes it impossible for anyone to see the complete picture of the built environment sector. As a result construction punches well below its weight by comparison with other business sectors.

Sir John Egan demonstrated his willingness to work constructively with industry bodies by chairing the Strategic Forum for Construction. Its 2002 report *Accelerating Change* was an attempt to boost the momentum of change by adopting sector-wide targets, but the Forum has lacked the resources to enable these targets to be met.

CBI's Construction Council is a welcome addition to the scene, helping the CBI and its stakeholders to understand construction better. However, the industry still needs to do more to present a coherent, united voice to Government, for example by the CBI group and the Strategic Forum for Construction working more closely together.

The Task Force also called upon Government to demonstrate its commitment to the change agenda. The Government responded by sponsoring a number of sector initiatives (housing, local authorities) and thematic initiatives (collaborative working, respect for people, value). However, the lack of consistency in these schemes resulted in some confusion within the industry as to which agenda they should be following and which targets they should adopt. Initiative overload became an excuse for inaction. Since 2003, Constructing Excellence has brought together many of the disparate initiatives, but with the gradual removal of core Government funding, at a much lower level of resource. This has limited the organisation's ability to lead change in the industry.

Government has itself struggled to present a consistent face to the industry. The 2009 Cabinet reshuffle resulted in the ninth Construction Minister in as many years, as well as the ninth Housing Minister in the same period, which is far too high a turnover to achieve any kind of meaningful engagement with such a complex industry.

Government has also become more fragmented in its approach to the industry since the days of DETR. Responsibility for legislation is split across several departments (eg health and safety, climate change, communities and local government) – and the department responsible for construction sponsorship (now Business Innovation and Skills (BIS)) has had five name changes.¹¹

Similarly there has been frequent change within departments with responsibility for education and training, which has not helped address the challenges of recruiting and training in construction. The most recent reorganisation saw the end of the two-year-old Department for Innovation, Universities and Skills (DIUS) and its responsibilities incorporated into the Department of Business, Innovation and Skills (BIS). Under this banner, the Minister for Further Education, Skills, Apprenticeships and Consumer Affairs works jointly with the Department for Children, Schools and Families.

In the light of the BERR Select Committee report, *Construction Matters*, we wanted to understand why a sector that is worth over £100 billion and contributes 8.7% of the economy's gross value add receives so little Government attention.

The answer is a familiar one: construction lacks unity as an industry and has yet to capture the interest of the public in the same way as, say, the aerospace or automotive industry, where the impact of the recession on jobs has been highly visible. While construction accounts for a significant proportion of Government spending, the fact that it is devolved to departments makes it hard for Government to adopt a centralised view. For example, only a handful of Office of Government Commerce employees work on construction procurement.

The construction industry as a whole suffers from a lack of champions in Government. Few MPs have direct experience of the industry. Nor does it attract a local fan base of MPs like more regionally-clustered industries such as energy, automotive or aerospace which are far smaller¹² but able to out-punch construction.

Construction Matters was therefore a very welcome engagement from backbench MPs. We welcome that, as a consequence, a Chief Construction Adviser, in the style of a Chief Scientific Officer or Chief Medical Officer should be appointed in late 2009.

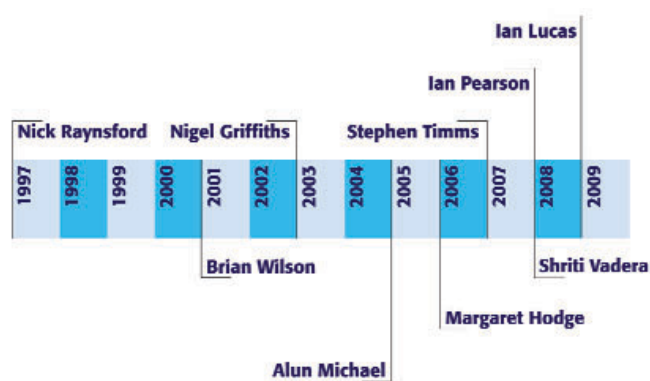


Fig.16 | The average length of service for the last seven Construction Ministers is just over one year

In summary, the Review Team believes that the following factors relating to industry infrastructure together create a downward spiral that prevents progress:

Lack of a Single, Coherent Voice for the Industry

Not only are the key messages from different industry bodies diluted, they are often contradictory.

Lack of Joined-up Thinking by Government and Other Key Stakeholders

Government struggles to combine its roles of chief client and industry regulator, and divides responsibility for the built environment amongst too many departments. This results in a complex and confusing set of policies, initiative overload and a lack of understanding amongst wider stakeholders.

Too Many Industry Bodies

The complex industry structure sitting in silos and too many industry bodies, makes it hard to see the bigger picture. Having at least five relevant sector skills councils is an example of this and impedes a broader and more strategic understanding of built environment. Institutions are too focused on preserving professional disciplines, rather than how to provide integrated best practice solutions to clients. Similarly, trade associations focus on transactional issues within their own technical specialist silos.

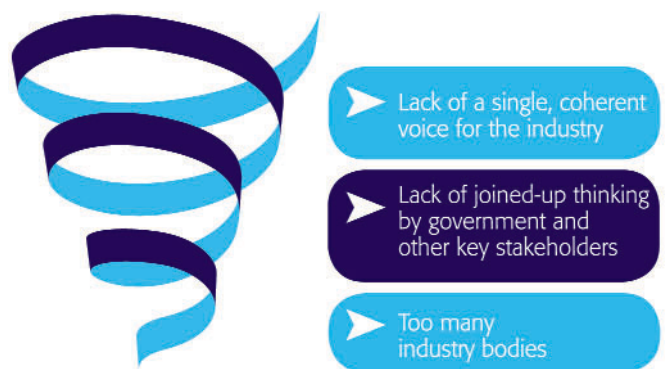


Fig.17 | Key Blocker 4 : Industry Structure

5. Big Themes for Future Action and Some Quick Wins

Big Themes for Future Action

The problem, as we look to the future, is a complex one. The next generation of the built environment will last for, say, sixty years. Our carbon economy at this time will be under huge strain and will be at a stage of transformation. What we build today will either support or hinder this process of change.

But in the middle of an economic downturn, companies are more interested in survival – saving cash – and looking for returns on their investment decisions over a five to ten year cycle. To close the loop, Government and regulators have to learn how to set policy to reward behaviours that span the sixty-year path on which we are embarking, in the hope that it is pointing broadly in the right direction.

G4C and the young leaders that are emerging today have got it. For the new generation, this conundrum is the top priority, and furthermore, they are up for it. They would define the issue in three pots:

- First is the promotion of environmental and social issues as the key drivers for measuring long term success;
- Second is for this industry to take off its blinkers and accept that construction is just a small part of the total process;
- Third, is to attract and train future leaders to engage in this 'total' process – 'soup to nuts' and not just the bits you are taught at school and university.

These views are visionary. The next generation are asking us to start to set the conditions for the journey to speed up, or else to step aside and let others take over.

In summary, we believe the key challenges for the future are as follows:

1. Understand the Built Environment

If we are to drive culture change in our industry, we must move beyond construction to a broader vision of the built environment. Good built environment which is sustainable leverages performance in other parts of the economy to deliver superior quality of life, whether in housing, transport, education and healthcare, offices, retail or industry. However, far too much of the industry does not focus on its end purpose and either cannot see, or is not incentivised to see, how the process creates value for end users.

Both clients and suppliers need a better understanding of how the relatively small up-front costs of design and construction leverage much higher costs downstream for end users in terms of facilities management, business costs and ultimate value.

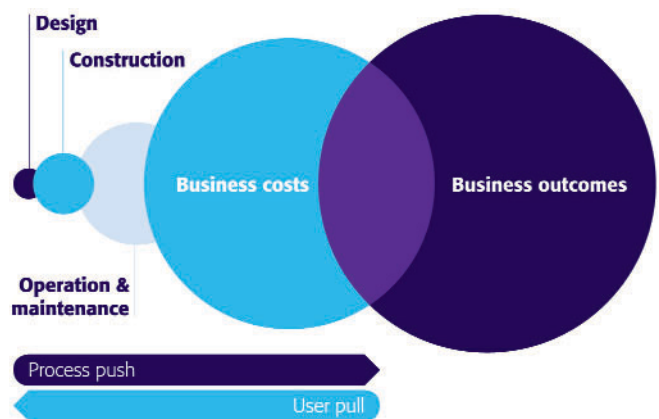


Fig.18 | Indicative ratio of costs and value over a building's life cycle

The latter may be measured in terms of business (financial), social (education, healthcare, etc) and environmental outcomes. Such a powerful argument has captured audiences' imagination whenever Constructing Excellence has exposed it.

2. Focus Much More on the Environment

Our industry must become a sustainability leader and adopt carbon efficiency into all our processes. Our failure so far to link ourselves in the public's mind with one of the major issues of the day, namely climate change, is a huge missed opportunity for our industry. A 'green recovery' from the current industry recession is now required. Put simply, our vision is of a future where young people who want a better world will be able to fulfil their aims by joining our industry to deliver a low carbon economy, rather than by devoting themselves to environmental protest.

3. Find a Cohesive Voice for Our Industry

Our industry bodies and professional associations must collaborate to represent our industry effectively to Government and other key stakeholders. One option may be to give the Strategic Forum for Construction greater authority and resources. Alternatively, the UK Contractors Group or the Construction Industry Council need to expand their sector coverage. If we want the attention of Government, we should focus on how improved performance in our industry can help to reduce Government costs.

4. Adopt New Business Models that Promote Change

Business models are fundamental to changing behaviour. We must move away from models that encourage short term thinking and find ways to incentivise long term value creation. This could include incentivising developers to hold and manage property, rather than developing to sell, encouraging contractors to move away from subcontracting to business models based on vertical integration or integrated teams, or for suppliers to take a financial interest in the ongoing performance of their completed projects, rather than walking away after installation.

5. Develop a New Generation of Leaders

We must develop a new generation of leaders who can communicate their vision and drive change in culture and behaviours. We need leaders who can help the public understand our contribution to a successful society and economy and help to attract more of the best recruits to our industry. G4C shows that the younger generation has the right aptitudes (see Appendix 3) and desire for change, so our challenge is to speed up the natural pace of evolution. There needs to be a major co-ordinated push across the industry to improve the quality of leadership development, both at a project team level but particularly at the top of the industry.

6. Integrate Education and Training

Together with the education sector and professional bodies, we need to promote a wider strategic understanding of the built environment and how all disciplines inter-relate to deliver solutions.

7. Procure for Value

All customers in the chain need to professionalise their procurement to achieve best value, rather than focusing on lowest price. They also need to be more open to invite and assess innovative proposals by suppliers. The inability to assess alternative bids or those based on outcome specifications, or to take account of both capital and revenue expenditure let alone value, severely constrains innovation at the point at which team members are selected.

8. Suppliers to Take the Lead

In the current economic downturn, clients will struggle to lead the way – we need suppliers to show how they can create additional value. Industry firms and their clients have a strategic choice – turn back to the bad old ways of lowest-price tendering with negative margins and a subsequent claims battle, or embrace beneficial, sustainable change. This starts with proper collaborative working including integrated, lean processes. Evidence exists for this latter course of action, but Constructing Excellence needs to be more effective in presenting this data to persuade senior decision-makers.

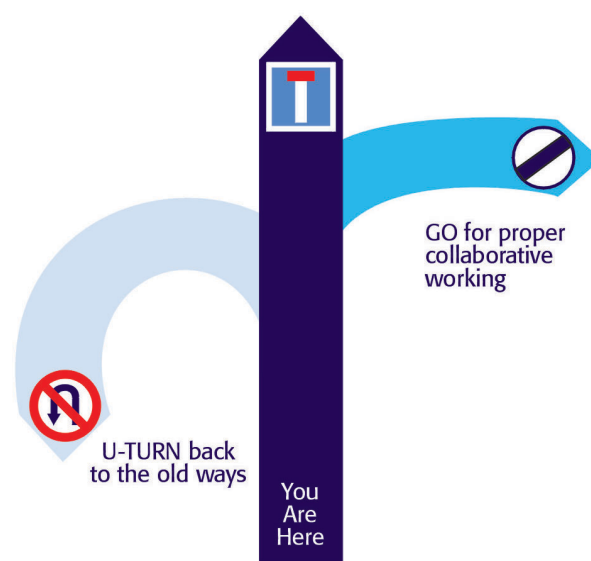


Fig.19 | Taken from Constructing Excellence's *Survival Guide – Working out of an industry downturn* (Sept 2009)

Some Quick Wins

We believe these challenges are appealing and a realistic big picture of what needs to happen to get us out of the recession with a new sustainable way of working.

What we also need are some quick wins that will engage leaders of the top firms, their clients and suppliers, and government. We offer the following:

Industry Leaders

1. Take the lead for the industry's change agenda. Do not wait for clients to give you permission to change. It may be another five or ten years before they will be in a position to help.
2. Exploit the recession to look for your own case for change – lift the industry by searching for better profits, funded through real value improvements, change and productivity.
3. Seek incentives for delivering innovative solutions. Your customers want them (and need them) but are not sure how to ask!
4. Do not rely blindly upon other people's recipes for success. Interpret and apply in your own way to gain full advantage and ownership of the changes.

5. The younger generation is telling you to look at construction as a part of a wider, and much more important, process that delivers the built environment. You are building stuff now that should still be fit for purpose in 2070. Are you?
6. Up your game by attracting, training and retaining your future leaders. A lot of them are choosing to bypass our industry altogether.
7. Graduates leave university with a technical qualification. Institutions will guide them to professional status. You have to convert them into people who you would trust to lead and grow your business. Steal some ideas from other sectors who understand what graduate and professional training really means.
8. People management should not be a transactional process – employees are not 'spanners on inventories'. Develop talent management as a core skill along with organisational design and change.
9. Continue to support efforts to improve the image of the industry by promoting the vital role of the built environment from an early age in schools.

Government

10. Understand the strategic value of infrastructure and develop a long-term vision for a sustainable UK built environment.
11. Develop policies to incentivise innovation and change in our industry to help speed up the modernisation process and focus the industry on the next steps.
12. Regulatory models have pulled the industry in the right direction in some sectors, along with many variants of the PFI model. Build on these to help the industry's change agenda succeed.
13. Plan for the nation's future infrastructure. It would help everybody if the plan was integrated and funded. If you are about to make cuts in infrastructure spending then you need to be honest with us. We will need to plan for the downturn or lose the momentum and skills that we are building.
14. Leadership makes a huge difference. Choose a Minister responsible for the built environment who has a real purpose and ambition and who can stay in post long enough to make a real difference.
15. Support the Chief Construction Adviser's mission to federate the departments who influence the Industry's agenda and who themselves have to act as exemplars in their capacity as construction clients. He or she has to emulate the excellent profile that Sir David King has developed as Chief Scientific Adviser.

16. Supporting the education and professional development of the industry by working with universities to create 'system thinkers' who challenge silo approaches to problem solving.

Clients

17. Think strategically – the world is changing. Assume that legislation will get radically tougher in order to meet the environmental agenda. Understand how you need to rethink your business models to achieve a step change in sustainability performance. Achieving BREEAM 'Excellent' is a start – but it will not solve the big issues.
18. Improve your team's ability to develop and control the brief. You and your consultant teams are injecting waste into the procurement process by specifying one-offs and by introducing late changes when it is inefficient and expensive to implement them.
19. Challenge your consultants to develop more options for risk transfer. Passing the risk down the supply chain effectively turns off the innovation tap. The more innovative the solution the closer you will need to get to the supply chain and the greater the potential to generate long-term value. Work with the supply chain to understand where they are really best placed to manage risks on your behalf, and to deliver best value when they do so.
20. The supply chain wants your repeat business. An effective way to generate value is to incentivise real improvements in output in return for a 'pipeline of opportunity'. If you align longer term objectives in this way, you will create relationships based on trust with your consultant team and suppliers.
21. Few clients incentivise their teams to find radical savings in operating expenditure over the life of an investment – and yet the business case to do so is compelling.
22. Safety – always act as if you are personally responsible for safety. Your behaviour and attitude as a client will be reflected by the project team. If the moral case for investing in an environment where everybody goes home safely is not compelling enough, consider the true cost of poor safety on your programme and the reputational damage to your company.

The built environment sector and all the businesses that work in it have such a vital role to play in delivering a sustainable quality of life for our society. We need to raise our collective game despite uncertain economic times. More than anything, we need to support the development of the next generation, who appear to get very clearly what is needed to take the industry forward.

Appendices

Appendix A | Contributors to this Report

The Team

As you would expect, the team responsible for this report was an 'integrated team' that drew upon talent from many sectors of the industry including academe. We had a united purpose, a shared enthusiasm and dedication to help improve the industry, and we were also characterised by experience of more than one part of the built environment supply chain.

Chair

Andrew Wolstenholme OBE. Currently managing director of Balfour Beatty Management, Andrew was formerly Capital Projects Director at BAA where he was responsible for the construction of Heathrow's T5 terminal and the Heathrow Express.

Team Members

Simon Austin | Professor of Structural Engineering Department of Civil and Building Engineering Loughborough University. Founding Director of Adept Management Ltd.

Malcolm Bairstow | Currently Partner of Ernst & Young and Global Real Estate & Construction Advisory Leader. Previously Managing Director of Schal with responsibility for Royal Opera House and Tate Modern Projects.

Adrian Blumenthal | Supply Chain Manager, Amec/EDF Energy. Formerly with Constructing Excellence and the M4I team after leaving Crown House.

John Lorimer | Capital Programme Director, Manchester City Council. Previously with Mowlem Construction.

Steve McGuckin | MD of programme and project management for Turner and Townsend plc. Previously Director of Projects for Land Securities plc.

Sandi Rhys Jones OBE | Management and marketing consultant, Non-Executive Director of Simons Group Ltd.

Don Ward | Chief Executive of Constructing Excellence. Previously Chief Executive of Be, the Design Build Foundation, and the Construction Industry Board, set up to implement the 1994 'Latham Report'.

David Whysall | Co-Chair of G4C (Generation for Collaboration), Senior Cost Manager, Turner and Townsend.

Zoe Le Grand (secretariat) | Project Manager at Constructing Excellence, now with Forum for the Future.

Wendy Guthrie | Research Associate in the Department of Civil and Building Engineering, Loughborough University.

Richard Davies (author) | Employee Engagement Consultant, Director of 'I Like Mondays' Communications Consultancy.

Other Participants

We are hugely grateful to the many people throughout the industry who contributed to our efforts by taking part in interviews or workshops:

Michael Ankers OBE,
Construction Products Association
Des Armstrong, DFPNI
Edwin Bergbaum, Waterman
Simon Bingham, Cauntons
Angela Brady,
Angela Brady Design
Michael Brown, CIOB
Vaughan Burnand,
Constructing Excellence
Gerry Carroll, NG Bailey
Lucy Chadwick, DfT/Crossrail
Richard Chambers,
Lambeth College
Greg Chant-Hall, Skanska
John Connaughton,
Davis Langdon
Mike Cornelius, ODA
Peter Cunningham,
Constructing Excellence/Construction
Clients' Group
Andrew Dainty,
Loughborough University
Chris Davies, Buro Happold
Jon de Souza,
Constructing Excellence
Clare Devine,
Women in Construction
Richard Dixon, Corus
Sharon Doherty, Laing O'Rourke
Rita Donaghy CBE
John Findlay, Balfour Beatty
David Gann, Imperial College
Chris Gilmour, BAM Construct
Richard Haryott, Arup
Stephen Hockaday, Laing O'Rourke
Mike Holley, DHL/Excel
Will Hughes, Reading University
Sir John Egan, Severn Trent Water
Andrew Kane, FaulknerBrown
Robert Knight, Igloo Regeneration
Zara Lamont OBE, Carillion

Henry Loo, Cancer Research
Trevor Lowe, Gleeds
Stephen Matthews, CIBSE
Kieran McDavid, UCL Hospitals
John Mead, Davis Langdon
Sir Michael Latham
Brendan Morahan, Taylor Woodrow
Jim Morse,
Nuclear Decommissioning Authority
Tony Mulcahy, BIS
Richard Ogden, Build Offsite
Simon Poole, Transport for London
Sunand Prasad, RIBA
Nick Raynsford MP
Ian Reeves, McGee Group
Murray Rowden, Turner and Townsend
Richard Saxon CBE,
Consultancy in the Built Environment
Anna Scothern, BRE
Steve Spark, 4Projects
David Stanley, Wates
Geoffrey Taylor, Cauntons
Christine Townley,
Construction Youth Trust
Adam Turk, Polypipe
Steve Underwood, Kier
Jaz Vilku, Marshalls
Denis Walker, BIS
James Wates, Wates
Tony Whitehead, Defence Estates
Paul Wilkinson, BIW
Ewan Willers, RIBA
Julie Wood, Arup
Dominic Wright, Simons

We also thank the 900+ people who replied to our online survey.

Appendix B | Summary of Relevant Industry Reports

Introduction

Over the years, the construction industry has faced many calls for change. Clients have voiced concerns about the impact of inefficient processes and waste on their commercial performance. Health and safety has emerged as a major concern, and climate change and the need for buildings to be more environmentally friendly has challenged the industry to change once again.

Background

From the end of the Second World War, reports identified that a fragmented industry led to a poor quality product and warned of the danger of adversarial relationships within project teams¹³. Subsequent reports including the Emmerson report (1962)¹⁴ and Banwell report (1964)¹⁵ commented on the need to improve costs, time, quality and fitness for end users. Both identified the need to improve trust, foster a collaborative culture and eliminate adversarial relationships. The Finniston Report (1980) examined engineering specifically, focused largely on the capability of the industry and commented on the low status of the engineering profession in society, recommending new educational standards and a National Engineering Authority¹⁶. Numerous reports have been produced since then but a few key reports made a large impact and set the change agenda for the industry.

1. Constructing the Team (Latham)

Constructing the Team (1994)¹⁷, commonly known as the Latham report set the starting point for the most recent change agenda in the industry. The widespread growth of partnering and subsequently collaborative working can be traced to Latham. He stated that widespread adoption of collaborative working practices could achieve a 30% real cost saving within five years. Latham also recognised the significant role of the client in achieving successful construction projects. There was patchy take up of the recommendations in the Latham report, hindered in part by public sector procurement rules.

2. Rethinking Construction ('Egan')

The slow uptake of good practice in partnering, particularly beyond the first tier of the supply chain, was amongst the factors which persuaded the incoming Labour government in 1997 to ask Sir John Egan, Chief Executive of BAA (British Airports Authority) and formerly of Jaguar, to undertake a new and more radical review of the industry. With the Task Force membership drawn heavily from manufacturing and larger clients of the industry, their 1998 report¹⁸ pointed strongly towards 'lean thinking'. It identified five drivers for change – committed leadership, focus on the customer, product team integration, quality driven agenda, commitment to people, and four process improvements – product development, partnering the supply chain, project implementation and production of components. It identified targets for improvement in areas such as construction time, cost and predictability and accident reduction.

3. Accelerating Change

In September 2002 the Strategic Forum for Construction, which succeeded the Construction Industry Board in July 2001, and initially chaired by Egan, published a manifesto for the next phase of change in the industry. *Accelerating Change* (2002)¹⁹ set a headline target for 20% of projects to be undertaken by integrated teams and supply chains by the end of 2004 and 50% by the end of 2007. The rationale was that *"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."*

4. Achieving Excellence

Government's traditional approach of awarding contracts to the lowest bidder in the name of value-for-money, and then reaping the harvest of claims and overspend, began to be seriously questioned by senior civil servants almost as soon as the Latham Report was published. A series of further reports concluded that Government procurement was partly to blame for the poor performance of the industry and made recommendations for change across government.

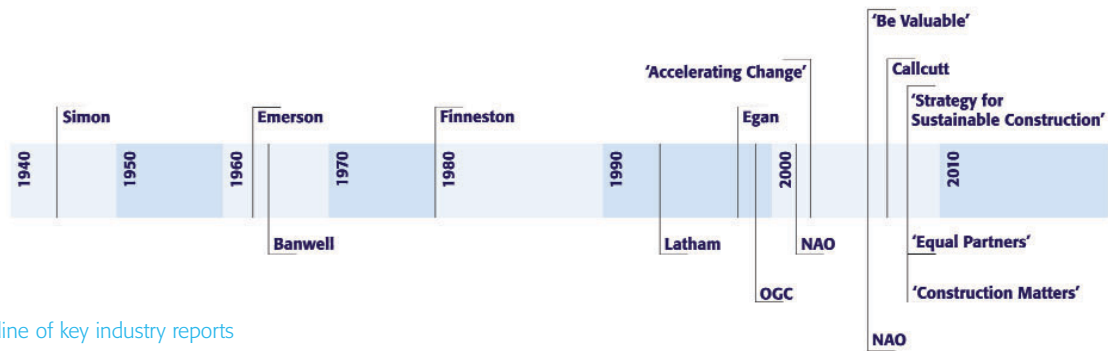


Fig.20 | Timeline of key industry reports

The key barrier appeared to be public sector procurement rules. This client leadership from the public sector has been a critical success factor of the last twelve years' efforts. The Government initiative *Achieving Excellence* (1999)²⁰ sought to promote the construction change agenda across government spending departments. Targets included the use of partnering teamwork and the development of long-term relationships.

5. National Audit Office

Modernising Construction (2001)²¹, was published by the National Audit Office to improve public sector procurement and management of new construction, refurbishment and repair and maintenance. It made a number of recommendations for government departments and the construction industry, including more coordination between improvement initiatives, demonstration projects that show true innovation, more sophisticated performance measures, better good practice dissemination, more training and better use of innovation. The National Audit Office produced a subsequent report, *Improving Public Services Through Better Construction* (2005)²² which traced the progress made by the various departments since 2001.

6. Be Valuable

Concern over understanding of "value" led Constructing Excellence to publish *Be Valuable*²³. This defined the concept of value as being what you get over what you give. It also suggests that the structure of the industry prevents it from engaging with

the whole life cycle of a building. Clients are removed from occupiers, end users and facilities managers and therefore take little interest in the operational phase of a building. Built environments should be seen as working assets rather than as physical artifacts.

7. Callcutt Review

*The Callcutt Review of Housebuilding Delivery*²⁴ was published in 2007. The issue of land supply and management was identified as key to delivering stretching Government housebuilding ambitions and the target was set for all new homes to be zero carbon by 2016. It made recommendations to Government for different land supply and management strategies which would increase the rate of housebuilding delivery. It also recommended more stringent quality standards based on customer satisfaction and also to improve skills in the sector.

8. Strategy for Sustainable Construction

Awareness of the need to mitigate harm from global warming grew from the early 1990s. In 2008, the Climate Change Act was passed and contained legally binding CO₂ reduction targets of 80% by 2050. The Government and industry recognised the responsibility that the built environment had for much of these emissions and launched the *Strategy for Sustainable Construction* (2008). The strategy aimed to provide clarity around the existing policy framework and signal the future direction of Government policy. Divided into two sections: the "Ends" and the "Means", the

strategy contains targets for the industry on all elements of sustainability from climate change to material selection. The construction industry was therefore challenged not only to deliver value for money, safe construction sites and fit for purpose buildings but also to reduce the environmental impact of the built environment in its construction and operation. A progress report was published in September 2009.

9. Construction Matters

In March 2007, the Trade and Industry Committee (subsequently renamed the Business and Enterprise Committee) launched a major inquiry into the UK's construction industry, challenging the industry to demonstrate its strengths but also to highlight areas where there was need for improvement and the role the Government could play in achieving this. Their report *Construction Matters* (2008)²⁵ outlined the need for Government leadership both at the strategic level and as client. It recommended that there should be a role that both government and industry accept as having overall responsibility for construction – a Chief Construction Adviser.

10. Equal Partners

In 2008 the Construction Clients' Group and Business Vantage conducted a study which found that despite the economic downturn, the majority of private sector clients continued to maintain a focus on value and desire for collaborative working.²⁶

Appendix C | G4C Recommendations

G4C is the early career forum of Constructing Excellence. In May 2008 they held a workshop to discuss the shape of the industry that they would wish to inherit as they progress into leadership roles in the industry.

Six ideas for radical change from the younger generation to enable an industry fit for the future.

1. Raise the Profile of the Industry

The image of the industry has to be changed and its profile raised, with the aim of becoming one of the top three industries in which to work. A greater commitment to developing and providing recognition for people in construction is required to attract newcomers. More work is required to educate young people and their advisers on the career opportunities available. At present there is still a lack of real understanding which blocks potential talent from entering the industry.

2. Improved Mutual Respect across Professional Disciplines

Whilst G4C members have a healthy mutual respect across professional disciplines and supply chain companies, this is less evident elsewhere in the industry. An active campaign is required to improve the respect, which would be supported by point 3.

3. Develop Professionals with a Strategic Understanding

Consider creating an industry-wide professional body that provides chartership/accreditation for a strategic built environment professional. Current professional institutions are too far removed from each other. Whilst it is important to maintain professional standards and avoid dilution of technical ability, respective institutions need to ensure their professional accreditations also provide an understanding of the whole industry – a strategic platform for the future.

4. Develop One-stop Solution Providers

The industry should promote the development of businesses that can provide a one-stop-solution to a strategic objective. A client would then have one point of contact rather than many consultants and contractors on a project. This would require consultants and contractors to operate as a single entity and therefore truly work together.

5. Improve Supply Chain Efficiency

Supply chains need to work more efficiently. Long-term collaborative working should be promoted with earlier involvement on projects, not only main contractors, but also specialists and suppliers. Greater emphasis should be placed on off-site manufacture and development of standardised products.

6. An Industry-recognised Set of KPIs

We should develop a set of KPIs based on the new industry change agenda (e.g. committed leadership, quality driven agenda) against which every major organisation in the industry is scored. This would cover consultants, contractors, suppliers and clients. The results should be produced annually as a 'Which' or 'JD Power' style magazine.



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- ⁴ Pg 4, *ibid*
- ⁵ Implemented as the Chief Construction Adviser in late 2009
- ⁶ A research collaboration between Reading, Loughborough and Salford universities, see *Big Ideas for a Changing World – www.thebigideas.org.uk*
- ⁷ Dr Jean Venables, President of the Institution of Civil Engineers, Ruth Reed President of the Royal Institute of British Architects and Janet O'Neill, President of the Royal Town Planning Institute.
- ⁸ See *Be Valuable – A Guide to Creating Value in the Built Environment*, Constructing Excellence, 2005
- ⁹ *BERR Construction Statistics Annual*, 2008
- ¹⁰ *Simplifying and Strengthening the Voice of the Construction Industry*, James Wates, 2006
- ¹¹ Environment; Environment, Transport and the Regions; Trade and Industry; Business Enterprise and Regulatory Reform; Business Innovation and Skills
- ¹² *Construction Matters* reported that the gross value added of the construction sector was twice that of these three sectors combined
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