In this chapter we will explain the initiatives that Construction Excellence is circulating with the objective of tackling the UK’s problems. We can see how the initiatives are dealing with the different problems in the flow chart below.

Graph 8.1 Construction Excellence proposal to sort out the current problematic situation

8.1 Partnering

8.1.1 Introduction

Reasons

The construction sector, as we have been seeing in this report, suffers from a deep fragmentation, because there are too many parties involved in the construction process. There is also a historical division between design (consultants) and construction (contractors) and an abuse of subcontracting in order to avoid the inconsistencies of the workload.

For that reason: the clients requirements get lost in the supply chain, the parties are only interested in their own performances, there exists a lack of access to the supply chain members’ expertise in the early stages, which would reduce costs and time, and also enhance the quality and value for the end users.
Partnering is succeeding in the construction industry because it understands the necessity of subcontracting and the difficulties of joining the historical division; construction will always have too many parties involved, but a new relationship between all the parties could make the fragmentation disappear.

Partnering allows the requirements of the clients to be understood by the whole supply chain, all the parties can participate in its expertise and with new ways of remuneration, which aim to result in the misalignment between the parties, long term relationships can bring about innovation and reduction in costs and time, and other selection criteria not only based on price…

There are other collaborative arrangements like partnerships or joint ventures, but they make stronger and more rigid relationships between the parties, which are not suitable for an industry that wants flexibility in order to cope better with the variations of its market demand.
8.1.2 Explanation

Definition

The ECI defines partnering as a relationship between two or more companies or organisations, which is formed with the intent of improving performance in the delivery of projects.

Categories of partnering

*Project partnering* lasts for the duration of one project, the arrangement can be between the client and the contractor, but normally is between the owner and all of the supply chain.

*Long term partnering* or *strategic partnering* covers a larger period of collaboration and usually allows bigger savings of time and money.

Suitability

Partnering is not the only procurement method but is a very suitable one to deal with complicated management, high risk or high value projects. Most of the projects usually have some of these features and sometimes all of them, therefore, partnering is suitable for the majority of projects.

Key features for a successful partnering

- **Early involvement of all the parties** allows their expertise and knowledge to be borne in mind at this crucial stage, resulting in a better defined project and certainty of it being delivered on time and within budget.

- **Win-Win relationships between all participants**

- **Managerial commitment** is fundamental in order to appoint the entire workforce of the firm.

- **Commercial alignment**, by instituting incentive schemes, which guarantee a profit percentage for contractors and a sharing of profits for achieving the performance targets.

- **Integrated team**, as a result, the different parties stop focusing only on their part of the project and reduce the duplication of functions (planning, cost control, technical and safety audits)

- **Team spirit**

- **Trust** is for the majority of the participants an essential part of the success and the lack of it is one of the most important constraints to deal with at the beginning of the arrangement.

- **Innovative thinking and the application of new approaches**
• **Good communication** is always important in order to make other parties understand our interests and needs. Regular meetings are crucial too.

**Barriers to partnering**

• **Hierarchical organisations** promote a culture of moving responsibility upwards and are not suited to the horizontal team working.

• **Cultural attitudes** are not easily removed especially when people have used this culture for many years in their professional lives.

• **Little peer group contact**; managers only meet with each other when problems occur; they do not plan the execution or find out ways to improve the execution together.

• **Blame** is the consequence of the misalignment between the parties when problems appear.

• **Lack of communication**; some information might be confidential or will expose them to unwanted responsibility.

• **Ingrained distrust**

• **Rigid roles and procedures** that neither permit innovation nor team working.

In the table below we can see how the lack of trust and the cultural issues are the main obstacles experienced in the use of partnering arrangement by some Construction Excellence members. (Survey undertaken by Emma Thomas, student of Cardiff Business School).

<table>
<thead>
<tr>
<th>Obstacles in the implementation of Partnering</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Trust</td>
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<tr>
<td>Job insecurity</td>
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<tr>
<td>Lack of commitment</td>
<td>11,6</td>
</tr>
<tr>
<td>Political</td>
<td>12,3</td>
</tr>
<tr>
<td>Lack of Direction</td>
<td>11</td>
</tr>
<tr>
<td>Partnering seen as one way rather than two</td>
<td>8,2</td>
</tr>
<tr>
<td>Too costly to procure</td>
<td>5</td>
</tr>
<tr>
<td>Cultural issues</td>
<td>21,2</td>
</tr>
</tbody>
</table>

Table 8.1.1 Obstacles in the implementation of Partnering

**Steps to set up a partnering**

1. **Commitment**
   
   The commitment must come from the highest level and be reinforced throughout the organisation. The committed firms must have considered whether partnering is suitable for them and whether they are prepared for the change.
2. Selection of partners
In a collaborative arrangement where trust is so important, sufficient time must be spent on the selection of good partners. Typical considerations to take into account might include: understanding of partnering or previous experience, compatible values and culture, health and safety procedures, environmental policy, management style, staff and resources.

3. Mutual objectives
Firstly, to understand the other party’s needs and interests and finally set up clearly objectives that meet their aims. Workshops with partnering facilitator can be used for these firms with no experience of partnering. These workshops can take two days and teach them how to find mutual and common objectives and sort out possible problems that might occur during the works.

4. Problem resolution
A problem resolution mechanism is vital so as to enable decisions to be made quickly and effectively. Usually, some level of decision and time limit are agreed upon and if the problem has not been sorted out, the problem is referred to a higher level.

5. Continuous improvement
Some important issues of the work and its performance must be measured in order to demonstrate the improvement. A continuous cycle of “measure, review, identify and implement actions” is required. Final workshops can be implemented in order to learn from the errors and spread the acquired knowledge.

8.1.3 Contract, procurement & partnering

Article 85(1) of the treaty of Rome prohibits any agreement where the object is the prevention, restriction or distortion of competition within the common market. Fortunately, most businesses active in the construction market have a small portion of the market when they are under partnering arrangements; consequently, these partnering arrangements do not have a significant impact on the competition.

The European public sector directives (The supply directive 93/96, the Works Directive 93/97, the Services Directive 92/50 and the Remedies Directive 89/665) do not prevent a public authority entering into partnering arrangements providing that the relationship has been: tested competitively, established on clearly defined needs and objectives over a specific period of time and with safeguards for competition in the future.

The public procurement route, which is promoted by the government, wants the contractor to be selected not only on a price basis. They must look at other issues like whole life costs, health and safety and environmental issues, training of staff, qualifications…For this reason, the selection procedure in not very easy; the public authorities must take steps in order to prove transparency and the bidders must spend more money in their tender in order to demonstrate their capability in all the required issues.
A **two stage process** is the best way to cope with these new requirements. The first stage is a prequalification exercise to ensure that the contractors are fully competent and committed to enter into a partnering arrangement. As a result, there is first a selection of 3-6 firms to ensure that a competitive position is maintained. The second stage is focused to find the contractor or supply chain (sometimes they apply together with other firms, which have partnering arrangements with them, for works) that will do the best job. This means looking at whole life costs, the cultural behaviour of the firm, environmental policy, training, the use of apprentices and the use of benchmarking and so on.

On the other hand, **the private sector** has an unrestricted right to use negotiated procedures. For that reason, partnering has no problems at all in being used in the private sector and strategic partnering can be undertaken with less possibility of falling within any competition directives.

The **partnering agreement** is a non-legal document that in conjunction with an appropriately amended standard form of contract, defines the provisions of the arrangement such as attitude, partnering performance, allocation of risk, incentives and mutual objectives.

In recent years some new contracts forms have appeared incorporating partnering principle and clauses. The **NEC Partnering option**, **PPC 2000** and **the ICE Partnering Addendum** are examples of a more regulated use of partnering arrangements, but all forms of contract can use partnering; partnering only needs a trusting atmosphere and a collaborative framework.

### 8.2 Benchmarking

Benchmarking is a systematic method of comparing the performance of organisations against others. With this feedback it can be found out the strengths and weakness of firms and set up goals for improvement.

**Reasons**

These benchmarking tools help in the following issues:

- Companies can demonstrate their performance.
- Public procurement can take into account a wider range of issues than simply price or cost; because benchmarking helps to measure other concepts. For example those related to the workforce or to the environment.
- Partnering contracts include requirements to use benchmarking tools in order to prove that performance has improved.
- Organisations upgrading their quality management systems to meet the requirements of ISO 9001:2000
- Organisations wishing to improve their performance.
Benchmarking and the Construction Excellence

Construction Excellence (formerly Construction Best Practice) launched the **Key Performance Indicators** in 1999, then in 2002 the **Respect for People KPIs** and finally in 2003 the **Environment KPIs**. As a result, now there are three strands being published: sustainability-economic, social and environmental.

<table>
<thead>
<tr>
<th>Sustainability-Economic</th>
<th>Social</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client satisfaction-product</td>
<td>Employee Satisfaction</td>
<td>Impact on the Environment</td>
</tr>
<tr>
<td>Client satisfaction-service</td>
<td>Staff Turnover</td>
<td>Energy use-product</td>
</tr>
<tr>
<td>Defects</td>
<td>Sickness Absence</td>
<td>Energy use-process</td>
</tr>
<tr>
<td>Predictability-cost</td>
<td>Safety</td>
<td>Mains Water Use-product</td>
</tr>
<tr>
<td>Predictability-time</td>
<td>Working hours</td>
<td>Mains Water Use-process</td>
</tr>
<tr>
<td>Productivity</td>
<td>Qualifications &amp; Skills</td>
<td>Waste-process</td>
</tr>
<tr>
<td>Profitability</td>
<td>Equality &amp; Diversity</td>
<td>Vehicle movements</td>
</tr>
<tr>
<td>Safety</td>
<td>Training</td>
<td>Impact on biodiversity</td>
</tr>
<tr>
<td>Construction Cost</td>
<td>Pay</td>
<td>Area of habitat created</td>
</tr>
<tr>
<td>Construction time</td>
<td>Investor in People</td>
<td>Whole life performance</td>
</tr>
</tbody>
</table>

Table 8.2.1 The Key Performance Indicators

There are other performance indicators in each of the strands with more specified information; these are the **Secondary Performance Indicators** and the **Additional Performance Indicators**

In addition, there has been a gradual development, as the different sectors and parties in the construction sector have published KPIs specific for their area or activity. Consequently, we have the **M&E Contractors KPIs**, the **Consultants KPIs**, the **Construction Products KPIs**, as well as, the **Housing KPI Toolkit**, the **Timber Sector KPI and more** specifics KPIs.

These KPIs are derived from a representative sample of data obtained from surveys of the industry. The main sources are the Department of Trade and Industry, the RICS annual clients’ survey, the Health and Safety Executive, Dun and Bradstreet, Inter-Company Comparisons amongst others.

Finally, a range of **benchmarking clubs** now exists within the construction industry. Club members submit the performance data to a central database and receive reports on how they compare to the other club members. Examples of these benchmarking clubs are: Construction Excellence in Wales Benchmarking Club, Local Authorities Construction and Property Benchmarking Club, National Highways Benchmarking Clubs amongst others.

5 steps to successful benchmark

**Decide what to measure**: plan clearly what needs to be improved and ensure that these issues are important to the firm or to the final user. Finally, determine the data collection methodology to be used.
Initiatives

Analyse: benchmark the firms’ results against a competitor, against the industry or against themselves, then report the results (CE suggests the radar chart as a convenient way to do it) and eventually, find out the reasons for the differences found.

Act: action is needed to maintain strengths and eliminate weaknesses. This is the most important step; performance will not change unless we do something to change it. Usually, improvements will take time and may involve joint action between clients, contractors and suppliers; for that reason, KPIs are ideally suited for supporting partnering.

Review: monitor the performance against the performance targets set up in the previous step.

Repeat: benchmarking must be a habit for those who want to improve their businesses.

8.3 Respect for people

The construction industry was suffering from a bad image (high number of reportable accidents, low wages, tough work and poor working conditions); as a result of this bad reputation, recruiting and retaining talented people was a difficult task. There was also an acute problem of skill shortage and a lack of training that was affecting all construction levels: top management, management level, designers, supervisors and operatives.

The Rethinking Construction's Movement for Innovation published in November 2000 “A Commitment to People: Our Biggest Asset”. This report identified seven priorities for action:

- Workplace Diversity
- Site Facilities and the site working environment;
- Health
- Safety
- Career development and lifelong learning
- The off-site working environment
- Behavioural issues.

In order to take action regarding these seven priorities a set of toolkits and the Respect for People KPIs were established. These tools are extremely valuable in addressing the people issues in quality standards such as:

- The Benchmark Index
- Considerate Constructors Scheme
- Construction Clients Charter
- European Foundation for Quality Management
- Investors in People (UK’s government preferred quality standard)
Initiatives

Toolkits and Respect for People KPI’s

**Respect for People; Health and Safety Toolkit**

High-risk activities, poor training standards and inadequate safeguards all contribute to the fact that construction has one of the highest incidences of accidents and ill health of all the sectors. This not only accrues direct costs such as lost time, insurance premiums, compensations and possibly legislative actions, but it also damages the image of the firm and hinders the recruiting.

This toolkit has been designed to help raise awareness of project safety (a major consideration of construction activities) and seeks to address these issues in a simple way.

**Respect for People; Equality and Diversity in the Workplace**

At a time of serious skills and labour shortages in many parts of the country the industry is effectively turning its back on a considerable amount of the available workforce. Some companies who are not attracting and retaining a diverse workforce are losing out on a large pool of local resources. On the other hand, firms complying with these initiatives tend to be the most desirable companies to work for.

Construction needs to become more representative of the total labour available, to eliminate poor stereotypes and recruit and develop the most talented people. Equality and diversity are about acknowledging and appreciating all the ways in which people differ, not only the more obvious distinctions of gender, ethnicity, disability, and age, but also the less visible differences such as background, personality and work style.

This toolkit helps you to identify issues that need to be addressed and provides links to agencies and information that can help you respond to the challenge of managing equality and diversity.

**Respect for People; Training Plan Toolkit**

Training is an important aspect of “Respect for People” and contributes significantly to the companies with benefits such as: ability to respond to increasing pace of change and higher levels of motivation that can help to retain and recruit staff.

This toolkit is adapted from the Construction Industry Training Board grant scheme model and provides a good starting point.

**Respect for People; Work in Occupied Premises Toolkit**

Although it was produced particularly for refurbishment projects where the construction works were affecting the clients; this toolkit is useful in other situations where providing the construction works might affect neighbourhood or other parties.
This toolkit and the Working Environment Toolkit could be the 'shop window' for the construction industry to show what it can do and how well its people can be treated. It is, therefore, a way to improve their bad reputation.

**Respect for People; Worker Satisfaction Toolkit**

The managers and the workforce often see things differently. As a result, managers may take inappropriate actions, while the issue that most concerns the workforce remains unresolved. This leads to dissatisfaction and the creation of a sense of 'them and us'. Effective and regular reviews of satisfaction are now established as a good practice to resolve this situation.

The Satisfaction Questionnaire provides a framework based on current best practice questions that you can use to survey the workforce anonymously. It has also been designed to collect the data necessary to benchmark 'Employee Satisfaction' against the Respect for People KPI - Employee Satisfaction.

**Respect for People; Working Environment**

Improving the working environment does not require a great amount of effort and may have huge benefits; not only because it can enhance the image of the industry, but it can also increase the personal satisfaction and commitment of the staff and consequently, improve the productivity.

The introduction of visitors centres, on-site canteens, changing rooms, on-site showers and branded overalls with both the name of the company and the employee’s name have little cost and big benefits.

This toolkit is designed for everyone in the construction process, in both on-site and off-site environments.

**Respect for People Handbook and the Respect for People Wallchart**

There has been criticism that sometimes the standards of quality are meaningless and do not reflect the reality of the firm. The staff issues are complex concepts and are very difficult to measure properly; for that reason, having lip accreditation or other quality standard accreditations do not necessarily guarantee effective communications or good training programs and not having these accreditations do not mean a lack of communication or training programs.

The Respect for People KPIs is a very useful toolkit that permits valuating quality standards relating to the workforce management, by using measurable indicators that can objectively define the behaviour of a firm towards its workforce.
8.4 Demonstration projects

The demonstrations projects are examples of Rethinking Construction principles in action, which prove the benefits of using Construction Excellence’s initiatives and motivate the whole industry aim for improvements, as successful as these achieved by the demonstration project firms.

The demonstration projects can come from all sectors from the industry providing they use the following principles:

- Respect for People Initiatives
- Creation of sustainable developments
- Demonstration of improvements based on clear benchmarks
- Involvement of the whole supply chain as early as possible
- Sharing of the knowledge obtained
- Commitment to being open and honest about both successes and failures of the project

There are not only benefits for the industry by becoming a demonstration project, the firms that want to be demonstration projects have clear benefits too; such as:

- To be recognised as a leading edge firm and to attract media attention...
- To raise the performance of the organisation
- To be a member of a network of continuous improvement.

In conclusion, the industry needs “champions” that demonstrate the success of Construction Excellence initiatives such as partnering, benchmarking, respect for people, knowledge management, integration of the supply chain, amongst others. Without good examples there will be always people who resist change due to a fear of the unknown.

We have attached two good examples of demonstration projects that were carried out in Wales. One is the Hotel Water Efficiency Project and the other is the Cardiff Partnering Scheme.

**HOTELS WATER EFFICIENCY PROJECT**

**Introduction**

The “Hotels Water Efficiency Project” succeeded in the following issues: adding value for the hotel’s clients, reducing the operational costs of the hotel and raising their environmental performance through the installation of water efficiency devices. The project contains a wallchart where hotels can benchmark their performances in the use of water, cases studies, and a best practice guide for hoteliers, suppliers, professional advisers and industry regulators.
Project sponsors

Wales Tourist Board  
Environment Agency  
Corus Group  
The BOC foundation  
Severn Trent Water  
Aquasmart  
Actaris Metering Systems  
Manufacturers of sanitary ware

Summary

The project consisted of benchmarking the consumption of water before the installation of water efficiency devices in eight hotels, against the consumption after the installation. Seventy meters were placed in the hotels, in order to measure the consumption of water and also to find out if there were any leaks. With the intention of comparing the data received from the meters properly, it was thought that the best way to do it would be on a consumption per guest basis.

The next step was the location of the water efficiency devices, according to the special needs of each hotel and with the requirement to carry it out as a refurbishment project, which eventually incurred more costs than new work. When the devices were installed then the data could be compared. Furthermore, a questionnaire was given to the guests in order to find out the change of quality perceived by the customer.

Finally, when the data was compared the improvements in the reduction of water waste and its related costs could be measured.

Moreover, with the water consumption hotels data, given by the Water Agency and the data of the number of guests during the year given by the Wales Tourist Board Office; it was possible to make a wallchart that could be used by hoteliers for comparing their performance against the hotel sector.

Construction Excellence initiatives

The demonstration project succeeded in the use of partnering between all the parties involved and in the management of the project in a trusting and friendly atmosphere.

Use of benchmarking tools.

Acknowledgement of the importance of whole life costs and environmental issues.

Results

About 70% of water consumption reduced per guest, in some hotels.  
Average savings about £1000 in water costs per year and per hotel.  
Pay back of three years
A significant rise in the environmental performance. 
Winners of the 2005 UK Water Efficiency Awards in the Hotels and Leisure Category.

**CARDIFF PARTNERING SCHEME**

**Introduction**

The Cardiff Partnering scheme challenged the traditional means of procurement in the local authority by setting up an approach that would encourage the partnering of the entire supply chain.

**Project sponsors**

Cardiff County Council  
Leadbitter Construction  
Cadwyn Housing Association  
Cardiff Community Housing Association  
Glamorgan & Gwent Housing Association  
Hafod Housing Association  
United Welsh Housing Association  
Wales & West Housing Association  
Strongs CQS Projects Managers  
KWL Arquitects  
Nicholson Jones Structural Engineers

**Summary**

The £3.8 million project consisted of a package of 46 houses that would be awarded to the contractor firm which could prove that the principles of Construction Excellence would be applied during the design and construction process.

<table>
<thead>
<tr>
<th>Partnering</th>
<th>Benchmarking</th>
<th>Use of performance bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open book approach</td>
<td>Fair sharing of risks</td>
<td>Construction insurances</td>
</tr>
<tr>
<td>Detailed pricing</td>
<td>Use of registered subcontractors</td>
<td>Problem resolution process</td>
</tr>
<tr>
<td>Pre-pricing of variations</td>
<td>Health and safety policies</td>
<td>Training…</td>
</tr>
</tbody>
</table>

Table 8.4.1 CE’s initiatives at the Cardiff Partnering Scheme demonstration project

In order to make sure that the principles and the requirements of the Council were understood, the Council prepared a brief where the requirements and the definitions of the rethinking construction’s principles were explained and defined.

The tender process had two stages:
The first one was typical of the traditional procurement where companies price the project and bid for it. After this first stage, two or three firms were selected for the second stage where the companies had to prove their capability of achieving the requirements of *the edge of terms* (brief): partnering, agenda 21, training, benchmarking...

This second stage was valuated in terms of benchmarking, though the existing difficulties because of a lack of data. This second step was more expensive for the firms; however, it was an important project.

**Construction Excellence initiatives and key points.**

One of the most important issues was the use of *partnering*. Partnering permitted an understanding of the needs and critical paths of all the participants, consequently the risk was understood and shared fairly, and large savings could be achieved.

In order to learn how to create a trusting atmosphere, where problems and discussions could be sorted out in a collaborative way and without an adversarial attitude, a *facilitator* was appointed for one day.

*Risk management tools, problem resolution process and profit margin guarantee* where other key tools that helped to create a collaborative atmosphere.

Each one of the participants identified the risks of their activities and the critical paths, and then all the risks of the process were discussed by the core group, with representation of each party.

The problem resolution process was very important in order to maintain the trusting atmosphere of all the participants, because if a problem occurred the party was not alone and the whole supply chain helped. Consequently the stress, the risk and the adversarial attitudes were reduced.

One of the main causes of adversarial attitudes is the low and unreliable margin of contractors’ profits. If profits were guaranteed there was no reason for: late variations, reductions in quality, abuse of subcontracting...In private partnering schemes, incentives profits for the construction and design motivate the parties to reduce costs and these are shared fairly by the whole supply chain. Public authorities are not allowed to give these extra profits to the companies because they must give best value. But the reduction of time during these constructions means that other profits can be made in other activities if the construction time is reduced.

The council used a *15% rule* with the purpose of distributing the market fairly and also selecting suitable partners. They were looking for companies with a turnover of about 15% of the project; which means that the companies are interested enough to do a good job. If the project is too small for them it gives them little money and consequently they do not pay enough attention; and if it represents a high turnover for them, it can be hazardous because the company is too dependent on the project.

Most of the savings were made by the use of *off-site materials*: timber house, prefabricated roofs, kitchens and bathrooms pods...
In order to ensure that the involved parties will trade fairly and achieve the requirements for their jobs, **bond performance** and penalty clauses were set up in the contracts.

Finally **benchmarking tools** were used to find out the strengths and weakness of the project, to earn from errors, to compare the project against the industry and to obtain data that would be useful in the future.

**Benefits**

- Training and respect for people issues
- Sustainability
- Innovation
- Personal satisfaction and reduction in the stress of the workforce
- 5% lower costs

### 8.5 Other initiatives

**Whole life costs**

The nCRISP defines whole life costs as: “the systematic consideration of all relevant costs and revenues associated with the ownership of an asset”.

In this research, we have been emphasising the fact that clients sometimes award projects on a lowest price basis and are too impatient to start the works on-site. This initiative allows a new way of procurement where other issues, rather than just the price are also taken into account; furthermore, the clients can also understand the huge benefits that a previous study could bring to their project.

Whole life costing is a very interesting initiative especially for: Local Authorities in order to provide the best value, private clients with long term ownerships, consortia formed to undertake a PFI project and financiers and insurers.

It is important to highlight the fact that, whole life costs are greater than the capital or initial costs; it is said that the operational expenditures are 5-10 times bigger than the capital costs. Some surveys like that of the Royal Academy of Engineering, have found the company’s staff costs to be 100 and 200 times bigger than the initial construction costs. This indicates that initial capital costs could be paid only by increasing the productivity by 1%; for that reason, a good design and a proper understanding of whole life costs can prevent a great deal of waste.

The benefits of whole life costing for companies:

- Encouraging the analysis of business needs
- Optimising the total costs of ownership by balancing the initial costs and the running costs
- Ensuring risk and cost analysis of loss due to failure or inadequate maintenance
- Promoting realistic budgeting for operation, maintenance and repair
• Encouraging the recording of the durability of materials and components at the outset of the project

Today there is still a lack of data to make a reasonable study of the whole life costs of a project, however, some data can be derived from a direct estimation from known costs and components, historical data, models based on different issues. Aside from looking for the costs’ data, it is important to find out the discount rate (3.5% advised by the HM Treasury for the public sector) and the life span of the project.

Value management

The construction industry should ensure that the final product offers good value for money, satisfies the end users’ and the owners’ needs. A failure to carry out this analysis might cause problems at the later design and construction stages. Many construction projects suffer from poor definition, because the client does not dedicate enough time to it and the other parties involved in the process are not appointed at the earliest stages. As a result, over expenditure, delays, overruns, claims, end users dissatisfaction or excessive operating costs might occur; value management can help to avoid most of these problems.

This initiative is much related to the previous initiative, because it means spending time on understanding the parties needs and all the costs involved during the useful life of the project. Furthermore, a good briefing is necessary to make all the parties understand the real needs.

Risk management

Without this tool partnering arrangements would be very difficult to manage. Identifying the real risks that affect the construction process and minimising the potential effects of them with a fair sharing of risks, assigning each of them to the parties better qualified to deal with them, is the best way to achieve a trusting atmosphere; were team working and partnering can exist.

The main benefits of a good risk management are:

• To minimise the uncertainty of projects, which is often the reason for the adversarial attitudes.
• To valuate the costs associated with the risks of the design, construction, operation and maintenance, complementing the whole life costing approach.
• Clearer and fairer sharing of risks; once risks are established risk minimisation can be assigned to individuals within your team.

Off-site production

Off-site construction has been increasingly used in construction in the last few years as means of improving quality and increasing efficiency. One of the keys in the use of off-site production is the early appointment of the project team and the client in order to examine the opportunities for introducing it. Once the scheme designs have
been completed, investigating options to implement it might cause disruption and have little benefit.

The principal benefits resulting from using more off-site productions are:

- Reducing the time and unpredictability of construction.
- Improving product quality and reliability
- Increasing efficiency
- Lowering costs
- Increasing social benefits, by reducing waste and enabling a bigger scope for recycling materials.
- The ease of replacement and maintenance.

**Supply Chain Management**

A good supply chain management is fundamental for the success of the project, because products and services provided by the supply chain account for 80% of the total costs of the project. Consequently, the ways in which these products and services are procured have a profound effect on the final project outcome.

This initiative wants to face the problems derived from fragmentation, which are affecting the construction sector; for that reason, it is much related to partnering and to risk management.

In traditional procurement each company in the chain has its own client, but modern procurement methods are moving to the appointment of integrated supply chains, where the parties have the same long term objectives and are committed to delivering the best value to the project client and the end users. The benefits of integrated supply chains include:

- Reducing real costs
- Certainty and predictability of costs and time
- Delivery of products that accomplish the requirements of the client
- Scope to repeat business with key clients
- Greater confidence in longer term planning and relationships

**Knowledge Management**

The knowledge management describes the processes which enables an organisation to make use of the knowledge and learning of its workforce; as a result, errors are not repeated, the successful experiences can be used by others members of the company or the team and they do not have to reinvent the same “work arounds” and “rules of thumb”. In conclusion, by sharing the explicit and tacit knowledge companies can improve the efficiency of its work provide errors are not repeated and experience is transferred.

Some employees are reluctant to share their knowledge, because it takes time and effort to do it. Moreover, they think that if they share it, they could be dispensable; however, experience shows that becoming indispensable does not enable employees to be promoted.
The knowledge management success can be summarised in 5 steps, as follows:

- Search knowledge internally (visits, interviews with the staff) or externally (media information, surveys, customers).
- Record the information gathered.
- Communicate the obtained knowledge throughout the organisation by means of presentations, meetings, working papers or reports.
- Apply the knowledge learned.
- Learn from the process and share the experience achieved.

**Health & Safety**

Accidents and ill-health not only have a human cost, but also a financial cost: lost time, higher insurance premiums, compensations, legal costs. In addition, it damages the reputation of the industry and its ability to attract new employees. The construction industry has one of the worst statistics in health and safety issues, which is one of the main causes for the bad reputation of the industry. The principal reasons for this poor performance are: high risk activities, poor training and inadequate safeguards.

The values expressed by the Respect for People initiative, as well as, physical barriers and signs, clear responsibilities and legislation, warning devices (alarms and sirens)…are trying to improve the current performance in health and safety issues.

**IT**

The use of Information Technology not only permits users to benefit from software tools such as CAD, structures software amongst other tools, but it also breaks down the barriers between departments and companies, thus enabling a better communication throughout the supply chain. As a result, the efficiency of the activities improves, and part of the fragmentation of the supply chain is removed.

**Briefing**

We have been seeing that clients do not spend enough time finding out what their real needs are, nor studying alternatives during the first stage of the project. As a result, at the end of the project the client is dissatisfied, not only because the designer and the contractor do not deliver a good work, but also because the client has not explain well the real needs of his organisation and of his end users.

With a good briefing, consultants understand the requirements of the clients and these requirements do not get lost in the supply chain, as they are clearly defined by the client and can be read and consulted at any time.

Key issues in the briefing process are:

- Establishing objectives
- Examining different alternatives to achieve them
• Defining clearly what, when and how the project is going to be dealt; changes that are made later on are usually very expensive
• Prioritising time, cost and quality
• Defining the kind of organisations that will work on the project
• Identifying and understanding the risks involved
• Ascertaining the cost, time and life span of the project

8.6 The new procurement route

With the understanding of all these initiatives a new procurement model can be profiled. First of all, the value management tools and the briefing allow the requirements of the client to be found out and made understandable for all the members of the supply chain. Then, the whole life costing enables a new way of selecting bidders, not only based on tender prices and with better rewards for the client at the end of the useful life. A proper integration of the supply chain, with the use of partnering agreements between all the parties, and the use of risk management enables a scenario where waste can be removed and innovation can be boosted. Furthermore, the requirements of the clients do not get lost, because now, as the supply chain is integrated, there is only one client and one common goal. Finally, the Knowledge management tools permit the gathering and teaching of the findings and experiences of the project, and benchmarking helps to set goals and monitor the running of this new procurement route.

The flow chart below summarises this new procurement route: