An Introduction to Key Performance Indicators

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Benchmarking is a tool that supports business improvement. It is becoming increasingly commonly used within the construction industry, specifically through Key Performance Indicators. A benchmark is a level of performance with which we can compare ourselves.

Benchmarking asks who performs better, why they are performing better and how a company can improve. By comparing ourselves to the best performers, or “best practice”, we can see how to improve to raise the level of performance.

Benchmarks may be internal, competitive or generic. Internal benchmarks are when we compare within our own company, such as between projects. The data is easy to collect, but the level of innovation may not be high. Competitive benchmarks are when we compare within our own industry. The data is more difficult to collect, but improvement will generally be greater. Benchmarking Clubs are often a good place to engage in competitive benchmarking. Generic benchmarking is concerned with comparing similar processes against those in other industries. For example, supply chain techniques from the automotive industry may be transferable to construction supply chains.

Benchmarking is an ongoing process of continuous activity. The process must be well planned and championed at a senior level. It requires an analysis and comparison of performance. Action must be taken to drive improvement to close the performance gap, and this action must be reviewed. The process should not be viewed as a “one-off”, there should be an effort to drive continuous improvement in all areas of the business.

Benchmarking is not easy. An understanding of the common pitfalls is important in order to avoid the process failing.

Benchmarking is central to the Rethinking Construction Agenda. The targets for improvement, or Key Performance Indicators (KPIs), form the basis for continuous improvement. Key Performance Indicators are national benchmarks that allow companies to compare project and organisational scores with the rest of the industry.

There are a wide number of benchmarking tools available to measure a variety of different aspects of the construction projects and organisations and allow them to be compared against national benchmarks. These tools measure issues such as people, design, environmental performance and general business performance. These benchmarks can then be used to drive performance in this area.

While in principle, KPIs are a relatively simple exercise, their implementation requires consideration of a wide number of issues. The key issue is to ensure good communication with all relevant stakeholders, particularly those who will have to collect the data. KPIs are not just about collecting data and any system will use the data to drive good communications with project team members and clients. KPIs need to be used to drive action otherwise the system becomes seen as a data collection exercise.
1. Introduction

This report has been developed to provide practical guidance for construction companies and their clients on the different types of benchmarking that are currently being undertaken in the construction industry. It draws on a number of information sources (Appendix A) available to industry, as well as the authors’ own experience of developing and implementing benchmarking systems.

The main areas covered in the report are as follows:

- **An Introduction to Benchmarking** – this section discusses the main principles of benchmarking, the different types of benchmarking that may be carried out and the main steps that have to be undertaken in order to benchmark successfully.

- **Benchmarking in Construction** – this section is concerned with the main benchmarking activities in the construction industry. This looks at a number of tools for benchmarking the performance of products, companies, and relationships.

- **Key Performance Indicators** – this section discusses how to use KPIs to benchmark. It serves as a basic introduction to the main concepts of measuring and using comparative data to indicate relative performance.

- **Introducing Key Performance Indicators into your Business** – this section provides practical guidance in the implementation of a KPI system within your business.
2. An Introduction to Benchmarking

Benchmarking is a method of improving performance in a systematic and logical way by measuring and comparing your performance against others, and then using lessons learned from the best to make targeted improvements. It involves answering the questions:

- “Who performs better?”
- “Why are they better?”
- “What actions do we need to take in order to improve our performance?”

Essentially, it is about looking at the way things are done and seeing why the performance is at a certain level, and using external comparators to improve performance. It uses data as evidence to identify who is performing better and using that understanding to drive improvement.

A recent surge of interest in Benchmarking has been encouraged by the publication of sets of national Key Performance Indicators. Beginning in 1999, these benchmarks allow companies to measure their performance simply and to set targets based on national performance data.

2.1 Why do we need Benchmarking?

Benchmarking is not just about measuring your own performance. It is about comparing with others to drive improvement. Perhaps the best known examples of Benchmarking within the Construction Industry are the Key Performance Indicators (see Section 4). These measures allow construction companies to compare the performance of their projects and organisations against national benchmarks. By doing this they can then look to the practices of the best projects, such as Movement for Innovation Demonstration Projects (see Appendix A), or the Construction Best Practice Programme (Appendix A), to drive improvement within their own companies.

2.2 What is a Benchmark?

A benchmark is a standard of excellence or achievement used to compare and measure against. It represents a best in class performance for a specific process that can be used to compare against in an effort to drive improvement. Some other definitions could be,

- A benchmark is a reference or measurement standard used for comparison (www.dti.gov.uk)
- A benchmark is “the best in class” performance achieved for a specific business process or activity. It is performance that has been achieved and can be used to establish improvement goals.

When comparing between processes, there are 3 main types of benchmark to compare against,

- **Internal** – an internal benchmark is concerned with comparing against the best within your own organisation, such as the performance between different construction projects for example. The data is easy to collect and practices more easily transferred, however it is unlikely to be a spur for large scale innovation.

- **Competitive** – a competitive benchmark is comparing processes between organisations within the same industry. This will be directly relevant to your processes, and could provide large levels of innovation. However, it is often difficult to collect comparative benchmarks unless you are a member of a Benchmarking Club (see Section 5.12). An example of a competitive benchmark may be Health and Safety records.
Generic – a generic benchmark is concerned with comparing the same or similar process, but within a different industry. This may lead to high levels of innovation, but there may be difficulties in adapting practices from radically different industries. An example of a generic benchmark might be a comparison between construction and aerospace supply chain management techniques.

The table right (Table 1) shows the advantages and disadvantages of different benchmark types. This relates to how directly relevant the benchmark is to your business, how easy it is to get the data for comparison, and what level of innovation might be expected.

<table>
<thead>
<tr>
<th>Benchmark Method</th>
<th>Relevance</th>
<th>Ease of Data Collection</th>
<th>Likely Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Competitor</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Generic</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Table 1 – Different Benchmark Comparators

2.3 What is Benchmarking?

Benchmarking is the process of comparing a company’s performance against a benchmark to assess current performance and generate a plan to drive improvement in order to drive performance towards the benchmark level.

Plan:
- Establish benchmarking roles and responsibilities.
- Identify the process/service/project to benchmark.
- Determine the data collection methodology to be used.

Analyze:
- Record performance levels.
- Find benchmarking partners.
- Is there a performance gap and if so, identify the reasons for the difference.

Act:
- Set performance targets, then develop and implement improvement plans to meet them.

Review:
- Monitor performance against the performance targets.

Repeat:
- Repeat the whole process – benchmarking needs to become a integral part of your business if you want to continue improving your business.
2.3 Common Benchmarking Pitfalls

Below is a list of common problems that people come across when benchmarking. These should be considered before undertaking any benchmarking activity.

- Don’t try and benchmark too many things to begin with. Select two or three key areas, and then gradually add others over time.
- Don’t waste time benchmarking things that are just “nice to know”. Every benchmark should aim to improve performance in an area that is critical to the organisation’s performance.
- Don’t select benchmarks that are not specific or difficult to measure.
- Try to carry out a pilot study to make sure you understand the process.
- Don’t give up too early.
- Don’t keep the same benchmarks if the company’s priorities change.
In recent years there has been a huge amount of benchmarking activity within the construction industry. Clients, consultants, contractors and suppliers are finding that there are an increasing number of business drivers pushing them towards benchmarking.

In this section we will look at the different ways in which benchmarking is used and common measures that are available. These different measures fall into one of several categories depending on what they are designed to measure:

- Building Performance – e.g. environmental performance, design quality.
- Project Performance – e.g. time, cost, defects.
- Organisational Performance – e.g. Health and Safety, Respect for People.
- Relationship Quality – e.g. customer satisfaction service.

### 3.1 Key Performance Indicators

A Key Performance Indicator (KPI) is the measure of performance that is critical to the success of an organisation. The construction industry KPIs allow the benchmarking of your organisation against industry standard data published by the Construction Best Practice Programme. The construction industry KPIs were first published in 1999, and are updated annually.

The Headline Key Performance Indicators are derived from the 5-4-7 model first put forward in the Egan Report (1998) “Rethinking Construction”. These improvement targets formed the basis for the national Headline KPIs, which were designed to show how improvement would be demonstrated.

There has been a review of this model to include issues such as sustainability and Respect for People, as part of the improvement process, as well as directly linking to the Headline KPIs (see Section 4).

These KPIs are now widely used within industry to measure performance and drive improvement. They often form part of the requirement for tendering for some projects. KPIs are explained in more detail in Section 4.
3.2 Housing Quality Indicators (HQIs)

Housing Quality Indicators (HQIs) have been developed to allow housing projects to be assessed on issues other than cost. Examples of these quality indicators are highlighted in the table below:

<table>
<thead>
<tr>
<th>1. Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Site - visual impact, layout and landscaping</td>
</tr>
<tr>
<td>3. Site - open space</td>
</tr>
<tr>
<td>4. Site - routes and movement</td>
</tr>
<tr>
<td>5. Unit – size</td>
</tr>
<tr>
<td>6. Unit - layout</td>
</tr>
<tr>
<td>7. Unit - noise, light and services</td>
</tr>
<tr>
<td>8. Unit – accessibility</td>
</tr>
<tr>
<td>9. Unit - energy, green and sustainability issues</td>
</tr>
<tr>
<td>10. Performance in use</td>
</tr>
</tbody>
</table>

The use of HQIs is especially important for Registered Social Landlords (RSLs) who are required to send data regarding projects to a dedicated national database www.hqiuk.com managed on behalf of the corporation by the Building Research Establishment (BRE) Construction Benchmarking Centre. This allows HQIs to be completed online.

Registered Social Landlords (RSLs) and other Developers use HQIs to manage the quality of different housing schemes. It allows schemes to be compared on quality, rather than a purely cost basis. The HQI process enables the comparison of schemes and allows development teams to learn from their successes and mistakes.

3.3 Design Quality Indicators

The Design Quality Indicator is an assessment tool to evaluate the design quality of buildings. The development of the DQI has been led by the Construction Industry Council, with sponsorship from the Department of Trade and Industry (DTI), the Commission for Architecture and the Built Environment (CABE) and Rethinking Construction. It has been developed to allow consideration of design issues to be assessed.

DQIs look at design issues such as building appearance, use or security to allow a greater input into the understanding of how design affects the end user. It is designed to be used in conjunction with the industry KPIs. The DQI assessment uses a number of different categories to assess aspects of the design, for example,

**Build Quality** relates to the engineering performance of a building, which includes structural stability and the integration and robustness of the systems, finishes and fittings.

**Functionality** is concerned with the arrangement, quality and inter-relationship of space, and the way in which the building is designed to be useful.

**Impact** refers to the building’s ability to create a sense of place, and to have a positive effect on the local community and environment. It also encompasses the wider effect the design may have on the arts of building and architecture.

It provides a framework to allow design to be discussed. Client representatives and end-users have an opportunity to address design issues in a structured way. This will support the development of the brief and the setting of benchmarks. The additional transparency of the design process makes choices more inclusive and better understood by more members of the development team.

The use of DQIs can support the development of the brief, focussing solely on design issues and allowing an objective comparison of different design briefs against specified criteria.

When a building is completed and occupied, the DQI can be used with a wider number of stakeholders to assess the impact of the final building. End-users, facilities managers and even passers-by can be questioned with regards to the design quality of the building. This information can be used to inform future developments.

www.dqi.org.uk.
3.4 Environmental Performance Indicators

Environmental Performance Indicators, produced by the Movement for Innovation are designed to look at the environmental “footprint” of a building, in terms of energy use, water use, impact on the local environment and transport issues.

(http://www.m4i.org.uk/rc/publications/reports/m4i_epi_report2001.pdf)

BREEAM (Building Research Establishment Environmental Assessment Method) is an environmental assessment method and quality standard used to assess and review the environmental performance of buildings. The model is widely used, providing more detail than the Movement for Innovation EPIs.

(www.bre.co.uk/bream)

3.5 Respect for People Indicators

The Respect for People Indicators have been developed by Rethinking Construction to assess the commitment that an organisation has to its personnel. These measures address issues identified below:

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

The Respect for People KPIs are seen as a driver for good project performance. The Commitment to People is seen as a key driver in the 5-6-10 model (see fig 1) for the success of construction projects, while good Respect for People processes are central to organisational improvement. The Respect for People Toolkit has a cross-over with tools such as Investors in People, Benchmark Index, ISO 9000-2000 and Considerate Constructors.

http://www.rethinkingconstruction.org/rc/respect/

3.6 Benchmark Index

The Benchmark Index is a tool designed specifically for SMEs. The tool takes the form of a detailed questionnaire addressing a variety of areas based around both financial and non-financial measures. This data gives a detailed view of the business and allows the company to be benchmarked against a national sample of 8000+ companies, with over 3000 from various construction sectors. The on-line database allows you to select companies that most closely resemble your own to find a pool of companies against which to compare against.

The Benchmark Index is supported by the Department of Trade and Industry. Sample questionnaires are available at:-


3.7 Construction Clients Charter

The Construction Clients' Charter is a benchmarking tool that is designed to support clients in their procurement. The client has a key role to play in construction project teams. The charter highlights key areas of improvement for large repeat clients to ensure they are committed to improving their internal processes to support procurement.

The Charter identifies a number of issues based around issues highlighted in Rethinking Construction, such as partnering, culture change, risk management. The Charter applicant identifies how their organisation is introducing new processes to support these aspects of procurement and organisational development.

http://www.clientsuccess.org.uk
4. Key Performance Indicators

Key Performance Indicators are probably the most common benchmarking experience that construction companies and their clients will have encountered. Many companies are involved with implementing KPI systems, sometimes without understanding their place within the Rethinking Construction Agenda. The following section highlights some of the main issues and gives an example to show how KPIs are calculated.

4.1 What is a Key Performance Indicator?

A Key Performance Indicator (KPI) is the measure of a process that is critical to the success of an organisation. Many organisations use KPIs. There are a number of performance measures that define the success of a project or organisation.

The construction industry KPIs allow the benchmarking of your organisation against industry standard data published by the Construction Best Practice Programme. The construction industry KPIs were first published in 1999, and are updated annually.

4.2 Why Use KPIs?

KPIs have been seen as an integral part of the Rethinking Construction Agenda. The 5-6-10 model (see fig 1) identifies 3 key elements,

- Drivers – those things that have to be in place to drive improvement.
- Processes – the areas of process improvement.
- Performance Targets – the key performance indicators.

The KPIs are essentially the evidence that culture change and process improvement are actually leading to positive change in terms of better performing projects and organisations.

Many clients, especially within the public sector are seeking to work with companies that demonstrate a commitment to continuous improvement. Often the implementations of robust KPI systems are seen as a requirement for companies to win work. From the client perspective, KPIs provide a useful way to demonstrate wider project requirements, beyond time and cost issues.

4.3 What are the Headline KPIs?

The headline KPIs are those defined by Rethinking Construction in the 5-6-10 model (see Figure 1). The KPIs are represented by the 10, meaning there are 10 Headline KPIs. The Headline KPIs are shown in table 2 below:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Type – What Measured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Cost</td>
<td>Improvement of capital cost year on year.</td>
<td>Project</td>
</tr>
<tr>
<td>Construction Time</td>
<td>Improvement of time year on year.</td>
<td>Project</td>
</tr>
<tr>
<td>Predictability Cost</td>
<td>Actual cost against the cost predicted at tender.</td>
<td>Project</td>
</tr>
<tr>
<td>Predictability Time</td>
<td>Actual time against the time predicted at tender.</td>
<td>Project</td>
</tr>
<tr>
<td>Client Satisfaction Product</td>
<td>Client satisfaction with the delivered product</td>
<td>Project</td>
</tr>
<tr>
<td>Client Satisfaction Service</td>
<td>Client satisfaction with the service provided by the Project Team</td>
<td>Project</td>
</tr>
<tr>
<td>Defects</td>
<td>Impact of the defects of the final product</td>
<td>Project</td>
</tr>
<tr>
<td>Productivity</td>
<td>Value added per person working on the project</td>
<td>Project</td>
</tr>
<tr>
<td>Profitability</td>
<td>Profitability of the Construction Company</td>
<td>Organisational</td>
</tr>
<tr>
<td>Safety</td>
<td>Accident Incident Rate for the Company</td>
<td>Organisational</td>
</tr>
</tbody>
</table>

Table 2 – Headline KPIs
These Headline KPIs are generally concerned with the performance of contractors. However, there are KPIs for a number of different members of the supply chain, such as consultants, mechanical and electrical contractors and product suppliers. A comprehensive list may be found at KPIZone.

4.4 How do I Measure a KPI?

The actual process of calculating a KPI is relatively simple, although there are some practical issues that may need to be addressed in implementing a system. These are addressed in Section 5, Introducing Key Performance Indicators into your Business. This section highlights the basic principles of KPIs. The full KPI measurement pack, containing measurement advice and comparison charts is available from the Construction Best Practice Programme www.cbpp.org.uk. Additional information may be found at www.kpizone.com.

4.4.1 Calculating the Indicator

The first stage is the calculation of the indicator. The indicator is the score that will be needed to compare against other projects. For the example we will consider the KPI Predictability of Construction Cost. This has two pieces of data that need to be collected: -

a. Predicted Cost at Tender Stage = £1,000,000

b. Actual Cost at Practical Completion = £1,020,000

Using the KPI pack, we can see the equation for Predictability of Construction Cost is: -

\[
\frac{\text{Actual Cost} - \text{Predicted Cost}}{\text{Predicted Cost}} \times 100
\]

This gives us a score of +2%, which means that the project was delivered 2% later than originally predicted. This gives us our indicator. If this score is negative then it would mean that the project was delivered before the stated time in the tender.

4.4.2 Calculating the Benchmark

The benchmark is a measure of how the indicator compares against an industry sample. In the graph below (fig. 2) we can see two curves. The dark line indicates the predictability of cost of design; the lighter line indicates the predictability of the cost of construction, the KPI we are currently measuring.

![Fig 2 – Predictability of Construction Cost Comparison Graph](image)

The benchmark is calculated by: -

- Finding the performance level of the indicator, in our case +2%.
- Measure horizontally across until you meet the comparator line.
- Measure vertically down until you find the benchmark score, 34%.

The score of 34% is the benchmark. This shows that, in terms of predictability of cost, this project has performed better than 34% of the sample. However, this also means that 66% of the sample are performing better, showing a certain amount of room for improvement.

4.5 Using Radar Diagrams

Radar diagrams are the most common way in which people present benchmark information. The radar diagram below shows different scores for the headline KPIs for a particular project. The score shown is the benchmark, a score out of 100% which shows how well a project is
performing against the sample. For example (see fig 3, below), if we look at predictability of cost we can see the radar line touches 60%. This means that the project is performing better than 60% of the sample projects.

![Example Radar Diagram](image)

**Figure 3 – Example Radar Diagram**

### 4.6 Conclusion

The actual calculating of the KPIs is a relatively easy task. However, there are several issues that need to be considered when putting a system in place. Issues such as getting staff involved, storing the data and building the process into the project can make the process difficult. These issues are considered in the Section 5, Introducing KPIs into your Business.
5. Introducing KPIs into your Business

Although KPIs themselves are relatively simple, the implementation of a workable system can be a difficult task. The following section includes some advice based on the Centre for Construction Innovation experience in putting systems in place. Following this advice could help prevent many of the common pitfalls in the implementation of a KPI system. Clients may have different requirements from contractors and therefore your approach may be slightly different.

This process is from the perspective of the contractor or consultant, who may want to put in place a system to measure the performance of projects.

5.1 Identifying Requirements

Why are KPIs being introduced into the company? It is important to understand what the drivers are for putting a system in place, as ultimately any system must meet the requirements. Whether a KPI system is in place as a requirement for winning work, a drive for continuous improvement or both, it is important to understand what the system is for and how this will impact the system design as a whole. For example, if KPI systems are required by a client, then the KPIs as defined by the client will form the basis of the system. A clear understanding of the objective is fundamental for designing a successful KPI system.

5.2 Identify Stakeholders

Any introduction of such a system may cause concern. This is best counteracted with a short discussion between the various stakeholders, with specific reference to project managers. The key is to identify the reasons for the KPI exercise, establish the requirements from each individual and look to address concerns before the system is in place and look towards how these can be alleviated. For a KPI system to work it requires the support of those who will provide the information. Once stakeholders have been identified and consulted, it may be useful to reconsider the requirements taking into consideration the wider needs of the group.

5.3 Identify Nominated Person

One of the main problems of the KPI system is that when they are put in place everyone thinks that it is everyone else’s responsibility. It is useful to identify a single person who can collect and collate data. They can help remind people when data is required and ensure that the system is stuck to. It also means that when data is required everyone knows where to get it from. This person can offer advice and support to people who are actually collecting the KPI data.

Figure 4 – KPI System Process
5.4 Select Which KPIs will be Required

Once the requirement and core purpose for the KPI system has been put in place it will be important to determine what to measure. There are several issues that need to be addressed at this stage:

- Limit the number of indicators to about 8-12; more than this and the exercise becomes onerous. The application of any system will become very difficult if there are too many measures and too much data to collect.
- Identify key measures. The measures must be collected for a reason, if they are not used or no action is taken if they are high or low, then they are not key for the project or organisation.
- Consider what data you are already collecting. Some of the headline KPIs, such as safety, or productivity may already be collected. It is important to check that you are not collecting data that someone already has.

The majority of systems will have a mixture of external, such as the headline KPIs, and internal benchmarks. An internal benchmark will allow you to compare between your own projects, but not at the national level.

5.5 Some Issues with Headline KPIs

Below are some considerations concerning Headline KPIs that may need taking into account when selecting KPIs.

5.5.1 Construction Cost/Time

The purpose of this KPI is to see how projects are delivered cheaper and quicker on a year by year basis. This is a useful measure, but is only really useful when there are a number of directly comparable projects where the units are identical or very closely comparable. If there are a large number of differences between the project and the comparator project then the calculation will be complex and the result may be inaccurate.

5.5.2 Client Satisfaction Product

This score assesses how satisfied the client is with the product. The scoring mechanism within the guidelines from Construction Best Practice Programme states that the data should be collected scoring satisfaction from a scale of 1-10. However, this does not actually identify why the Client was happy with the product.

An alternative approach could be to adopt a questionnaire that identifies several aspects of product satisfaction. Some aspects of Design Quality Indicators may provide some ideas as to aspects of design that may be considered in such a questionnaire. It will be useful to talk to the client in order to determine what drives their satisfaction in terms of the delivery of the product. Factors that may be important to some clients may be less important to other clients. An example may be found in Appendix D.

5.5.3 Client Satisfaction Service

This score assesses how satisfied the client is with the service as provided by the contractor or consultant. Essentially, it serves as a measure of the strength of the relationship. It is based entirely on how the client perceives their needs are being met. As with the Client Satisfaction Product it may be useful to identify aspects of performance, rather than using a single measure. Issues that may be important to the client may include:

- Response times to requests for information
- Financial planning
- Work planning
- Site conditions

There may be a number of issues that are important to a specific client. In addition, it should be noted that service is an ongoing aspect of the construction project. For longer projects, it may
be useful to collect client satisfaction data periodically. This opens a line of communication between project partners. If issues are raised during the life of the project and addressed, then problems of conflict may be avoided. An example may be found in Appendix D.

5.5.4 Safety

There are two key points to remember in addressing the safety score. The first is that the score differs from the standard HSE measure in that it is per 100,000 hours worked, rather than per 10,000 hours. This is resolved by multiplying the Accident Incidence Rate by 10 from the standard score to get the KPI indicator value. The second issue is that the Safety score is organisational rather than for a project. While the score can be collected for a project, it will mean that a single accident will give a very low score unless the project is very large.

5.6 Other Benchmarks

The Headline KPIs are the most common, but there are a number of other KPIs that may be used as part of the project KPIs. It is quite possible to mix and match from a number of different sources. Information about these may be found at KPIZone.

The majority of the Headline KPIs are “lagging” indicators. This means that they will tell you what performance is after the event. It may be useful to use some “leading” indicators. These are indicators that give a clue as to future performance. The best example of these is the Respect for People indicators. Issues such as staff turnover or absence, can often indicate issues that have not yet translated into current project performance, but may have an impact in the future.

5.7 Internal Benchmarks

Internal benchmarks (see Section 2.2) are those which have no external comparator data. An individual company may decide that certain measures are important to them. They will be able to compare from project to project, but they will not be able to compare externally.

Where a company has decided that a key issue is not covered by the Headline indicators they may want to use these internal benchmarks. There are two main questions to be answered when selecting internal benchmarks. The first: is the measure important? There is little point collecting a measure if it not important to the company or other stakeholders. The second: how can it be measured? It is vital to establish a measurement process that is consistent and easy to apply. This will support the comparison between projects. Additionally, if an internal benchmark requires a lot of work to collect and analyse the data it may be difficult to collect. A few examples of internal benchmarks are shown in table 3 below:

<table>
<thead>
<tr>
<th>KPI</th>
<th>Reason</th>
<th>How Measured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Chain Satisfaction</td>
<td>Suppliers and subcontractor relationships are important for success of projects</td>
<td>Questionnaire</td>
</tr>
<tr>
<td>Time to Final Account</td>
<td>Settlement of Final Account is important for the finances of the company</td>
<td>Time from practical completion</td>
</tr>
<tr>
<td>Value Engineering (VE)</td>
<td>The value of engineering knowledge in raising specification in relation to cost</td>
<td>% of cost reduction associated with VE in terms of final cost</td>
</tr>
</tbody>
</table>

Table 3 – Examples of Internal Benchmark

Internal benchmarks can become external benchmarks if the company joins a benchmarking club (see Section 5.12), where a group of companies may share their scores allowing for comparison outside of the company.

5.8 Data Management

When there are a number of projects the amount of data may become large. While paper-based systems are adequate, larger amounts of data may be kept in an electronic form, such as a spreadsheet or database. This will allow projects to be more easily compared and allow the quick generation of radar diagrams. The Centre for Construction Innovation KPI Management Tool (see fif. 5, opposite) can support this.
5.9 Audit Systems

One of the key issues with KPI systems is the issue of audit. Many companies do not audit their KPI data which can raise questions with regards to the accuracy of the data. It is an important issue for those viewing and making decisions with regards to KPI data. Third party audits of KPI data provide an additional safeguard to the figures presented and should be considered when comparisons are made between different KPI results.

An audit system should consider some of the following issues:

- Documentary evidence to show where the data has come from.
- Dates and signatures attached to documents such as questionnaires.
- Checked by an independent third party.

5.10 Use of KPIs

A KPI system must be used to drive improvement. A system without outcomes creates work without creating any benefit. It is useful for any post-project review to consider the KPI scores, what they mean and if there is any relevant action to be taken.

KPIs need to be used intelligently. Do not just consider the score, but discuss why a particular score is high or low.

- If a score is low, ask why. There may be good reasons for a score being low that may have been beyond the project team’s control. By getting to the core reason decisions can be taken to make sure that any problems are mitigated. If low scores are “punished”, then it is unlikely that individuals will participate in the system.

- If a score is high, ask why. There may be something that the project team is doing exceptionally well and it may be important to capture it and replicate across other projects.

5.11 System Review

The KPI system is not a rigid system. It must meet the objectives of the stakeholders. If it is not fulfilling the objectives then it may need reviewing. In addition, if there are practical issues of data collection or management, then these must also be considered. A system that is difficult to use or poorly understood, will not be used.

5.12 Clients and KPIs

Clients may use KPIs to select potential partners. However, it is important not only to take the scores into consideration. Some key questions to ask when looking at KPI submissions are,

- What is the system used for? Does the partner use KPIs to drive improvement? Do they have a mechanism in place to look at the scores and make changes to the way work is being done?

- Are the KPIs audited externally? An external audit procedure will add additional credence to any scores they are presenting. A company that audits its own KPIs will have a wide number of reasons to report in a less rigorous manner.

- KPI comparators are for all construction projects. Certain projects may be from sectors where performance is not as traditionally high as others. There is an
issue that when comparing projects, you may not be comparing like with like.

- The benchmarks and scores can have a degree of tolerance. This means that minor differences between scores could represent a fairly minimal difference in performance, especially when factors that may have influenced the scores are considered. KPIs are a “wet finger” to give a rough indication of performance and should not be considered scientifically accurate.

### 5.13 Benchmarking Clubs

Benchmarking Clubs are a good way of comparing yourself with similar companies. The membership may be made up from more closely comparable companies with benchmarks that have been specifically developed. This allows for better comparison, although they often require a trusted third party to manage the data and produce a report.

Support in setting up benchmarking clubs may be obtained from the Centre for Construction Innovation (www.ccinw.com), or the Construction Best Practice Club (www.cbpp.org.uk).

### 5.14 Conclusions

As in the application of any management system, it is vital that those people who are going to be involved in the system have an understanding of why the system is in place and what it is for. Without this, the implementation will be difficult as people will see it as additional work with no clear reason. This can be countered by early involvement and communication of results and what they mean. This level of involvement will give the system meaning for all those involved. If a project team has been collecting data and a report is compiled it is important that the outcomes are communicated and discussed with them, rather than the data being used solely for external communications.

KPIs are an excellent method of communication. It enables different stakeholders within the project to communicate about issues that are important to them. They have some basis on which to start a dialogue, which is sometimes not always easy within project teams. The collection and reporting of KPIs is only one part of the system, it is how they are used to communicate and drive the change that creates value for those involved.
CCI KPI Page – www.ccinw.com/kpi

Access to the KPI Management Tool and basic information about the application of KPIs and their use.

KPIZone - http://www.constructingexcellence.org.uk/resourcecentre/kpizone/default.jsp

A comprehensive resource of data and information with regards to the application and use of KPIs. This includes issues such as housing KPIs and Respect for People Indicators.

DQI - http://www.dqi.org.uk/

The Construction Industry Council Design Quality Indicator website to support the development of measures for design.

BREEAM - http://www.breeam.co.uk/

The Building Research Establishment’s Environmental Assessment Model assesses the impact of buildings in terms of their environmental footprint addressing issues such as energy and water use.

Consultants KPIs - http://www.acenet.co.uk

The Association of Consulting Engineers publishes annual KPIs for consultants. For more information visit their website.
Appendix B - Glossary of Terms

Benchmark – a comparative measure that allows companies to compare with the best in class.

Benchmarking – the process of comparing processes against Best Practice and therefore driving improvement.

Best Practice – a process or method of working that currently achieves the best performance among a group.

Demonstration Projects – exemplar projects demonstrating best practice. This information is gathered by the Movement for Innovation. (http://www.m4i.org.uk/m4i/).

End users – the ultimate users of a building product.

Key Performance Indicator – a measure that shows the performance of a project or company against critical criteria.

Lagging Indicator – an indicator that tells us what has already happened in terms of project performance, such as cost or time information.

Leading Indicator – an indicator that may indicate possible future performance. This measures factors, such as staff turnover or absence that may have an impact on future project performance.
Appendix C - Abreviations

BREEAM – Building Research Establishment
Environmental Assessment Method

CCI – Centre for Construction Innovation

CABE – Commission for Architecture and the
Built Environment

CBBP- Construction Best Practice Programme

DQI – Design Quality Indicator

DTI – Department of Trade and Industry

EPI – Environmental Performance Indicators

HQI – Housing Quality Indicators

KPI – Key Performance Indicators
CCI is the Centre for Constructing Excellence in the North West and promotes the Rethinking Construction agenda to the construction industry in the region.