

# Managing Profitable Construction

*The Skills Profile*

*CITB Research  
July 2000*

these areas and related their skills to a study and shows the influence of skills on performance and the **management skills** provided. The forecast in markets, technology and company. The construction industry requires training to **drive** up skills, which will not make tomorrow's skills will not make tomorrow's skills in both **performance** and skill profitable, complete these with low



**CITB**

# Executive summary

*In any size of construction firm the management team must excel in:*

- winning contracts
- managing the delivery of those contracts
- planning the future of the business
- managing employees, customers and suppliers

In 1999, the CITB measured the skills of senior managers of leading construction companies in these areas and related their skills to the performance of their employer and the training provided. This report sets out the findings of the study and shows the influence of skills on performance.

*The study found that:*

- the construction industry requires new skills to deal with changes that are forecast in markets, technology and construction techniques; *today's skills will not make tomorrow's profits*
- there are significant differences in both performance and skills. Companies with higher skills are more profitable, complete more projects on time and have more satisfied customers than those with lower skills
- training drives up skills, which in turn drives up the performance of the company

*In essence, the study has shown that one difference between high and average performance is the skills of the management team.*

*This independent research was commissioned by CITB  
from Moores Rowland Management Solutions  
July 2000*

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# So, what do we need to be good at?

The project revolves around four processes that construction companies need to be good at – *the key processes*.

The best construction companies:

- have a strategy that is based on reality and exploits the market – *strategic management*
- successfully tender for, and win, profitable business – *business development*
- manage the construction process to ensure the job is on time, to specification and makes a profit – *construction management*
- maximise the value received by their stakeholders (clients, employees and suppliers) – *stakeholder management*

These statements define the processes and skills that we studied.

**Table 1 – Process definitions**

Key process	Definition	Skills measured
Strategic Management	Defining where the company is going and how it is going to get there.	<ul style="list-style-type: none"><li>• Setting business strategy</li><li>• Developing effective working relationships</li><li>• Controlling finances</li></ul>
Business Development	The process of winning business	<ul style="list-style-type: none"><li>• Identifying future work</li><li>• Initial feasibility study</li><li>• Preparing cost estimates</li><li>• Finalising the bid</li><li>• Pre-tender planning</li></ul>
Construction Management	The process of constructing buildings	<ul style="list-style-type: none"><li>• Project planning</li><li>• Procurement</li><li>• Site management</li><li>• Control of costs</li><li>• Dispute resolution</li></ul>
Stakeholder Management	The process of managing customers, employers and suppliers	<ul style="list-style-type: none"><li>• Managing customers</li><li>• Managing employees</li><li>• Managing suppliers</li></ul>

# Skills now and in the future

The current skills priority is focused on the current approach to construction and client management and does not support partnering.

In this section of the report we outline the skills levels in our sample and relate this to the skills required to develop the industry.

The study found that the highest skill levels measured are in planning, controlling and delivering projects and the lowest are in feasibility studies, identifying future work and pre-tender planning. The softer business management skills of managing design, business development and estimating fell in between.

The skills of strategic managers reflect the short-term, contract nature of the sector, which regards short-term project performance more highly than long-term planning and developing relationships. We found weaknesses in stakeholder management skills in those charged with strategic management in the sector.

Employers need to review the case for partnering and decide which route they are to take. This decision should be based on the market opportunities and not the current skills in the industry. If they decide to take on the challenge of partnering, they need to review the skills of their senior and business development managers. They are likely to need re-training.

A lower skill in developing relationships mitigates against partnering with customers and joint ventures with suppliers and other contractors.

Whilst partnering may seem a good idea, without the skills to implement it, it is less likely to happen.

## Overall skills in the sector

### Our approach

Respondents from each company completed a questionnaire based on the National Occupational Standards for construction management. The respondents gave us information about their perceived and actual skills against these standards. Over 10,000 items of data were collected. By carefully weighting their responses, we generated an assessment of their skill level on a scale 0 - 6, where 6 is the highest skilled. We then grouped the individual questions and the individual company scores to provide an overall skill assessment for the sample.

### The results

Tables 2 and 3 show the relative skills of the sample in each of the four key processes.

**Table 3 – Skills league table**

Skill	Benchmark
Financial control	5.5
Cost control	5.3
Finalising the bid	5.3
Project planning	5.3
Site Management	5.3
Dispute resolution	5.2
Managing design	5.2
Tender planning & evaluation	5.2
Estimating	5.0
Business planning	4.7
Developing effective working relationships	4.6
Identifying future work	4.5
Procurement	4.5
Pre tender planning	4.4
Feasibility studies	3.9

**Table 2**

Strategic Management		Business Development		Construction Management		Stakeholder Management	
Financial control	5.5	Finalising the bid	5.3	Project planning	5.3	Construction managers	4.8
Business planning	4.8	Tender planning and evaluation	5.2	Site Management	5.3	Strategic managers	4.7
Developing effective working relationships	4.6	Managing design	5.2	Cost Control	5.3	Business developers	3.2
		Estimating	5.0	Dispute resolution	5.2		
		Identifying future work	4.5	Procurement	4.5		
		Pre tender planning	4.4				
		Feasibility studies	3.9				

### Our view of these results

The analysis suggests that the sector can plan, control and deliver projects. These core skills, when correctly applied, ensure that buildings are produced well and within budget. People with these skills will get the job done.

Lower down the skills table are the business skills of managing design, estimating and business development. This suggests that construction companies regard management of the business as important but have less competence here than in the skills required to carry out actual projects work.

The lowest skill scores are in areas associated with the front-end of the business including workload/project procurement, feasibility studies, identifying future work and pre-tender planning. This partially explains the difficulties the industry has in partnering – it is less competent in developing projects from ‘client’s initial requirements’ than it is in traditional bidding and contracting.

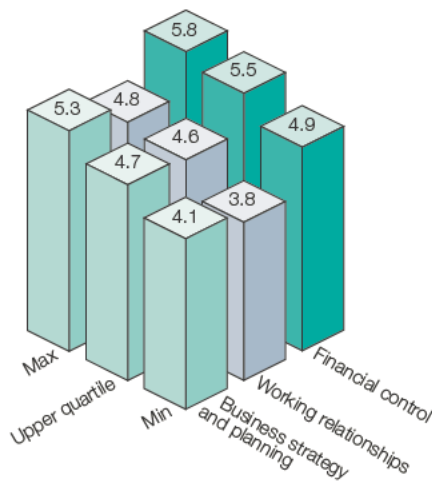
From these results, we conclude that companies focus on the skills involved in construction management and strategic management possibly at the expense of business development and stakeholder management.

As the sector moves from pursuing a succession of individual contracts for different clients to providing an on-going service to a smaller number of clients, skills in strategic planning, stakeholder management and business development become more important.

## Skills relating to strategic management

Strategic management, in addition to basic control, is defining where the company is going and how it is going to get there.

**Fig 1 – Strategic management skills**



The skills graphs in this report relate to the aggregated skills measured for the individuals in the companies taking part. All scores are normalised to a scale of 0 to 6 where 6 is the highest skill possible.

In the skill graphs we report:

- the maximum score; the highest score in that skill achieved by any company
- the minimum score; the lowest score in that skill achieved by any company
- the upper quartile; the score above which sits the top 25% of the respondents

Those companies adopting this scoring system will aim for the upper quartile score as a benchmark of skills. The difference between maximum and minimum score shows the gap between the highest and lowest skilled companies.

### Our view of these results

The results suggest that:

- financial control is the strongest skill in strategic managers of construction companies
- developing and maintaining working relationships with stakeholders is the weakest skill
- business planning shows the greatest variance in skills in the companies taking part

The skills spread in strategic management reflects the fact that construction companies are operationally centred and not strategically controlled.

The sector regards short-term project performance as more important than longer-term planning and the development of longer-term stakeholder relationships.

This may be due to the constant fluctuations in the strength of the construction market over the last 20 or so years – where construction companies were unable to make long-term plans. This is typified as companies making the most of the good times and cutting back when the market is in recession. The economic stability of recent years now allows for long-term planning. The lower skill level in developing relationships mitigates against long-term, repeat partnering with customers and joint ventures with suppliers and reflects the traditional one-off project contracting.



## Business development

The skills associated with partnering or negotiated projects (initial feasibility and pre-tender planning) are low.

The skills we measured relate to business development in the widest sense and go beyond the process of responding to tenders and estimating.

### Our view of these results

The chart suggests a significant variance in the different skills across the companies with initial feasibility work being the lowest skill area and finalising the bid the highest.

### Our conclusions

The current business development process centres on traditional competitive tendering, which requires high skills in bidding and estimating, and agreeing contract terms. The skills associated with partnering or negotiated projects (initial feasibility and pre-tender planning) are low.

As with previous skills, this mitigates against customers or clients procuring construction by this method of contracting.

Fig 2 – Business development skills

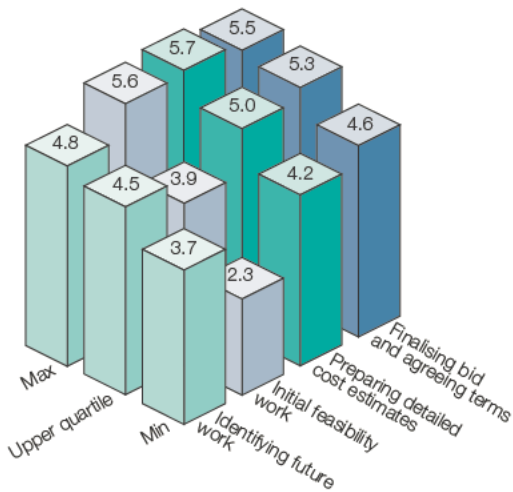
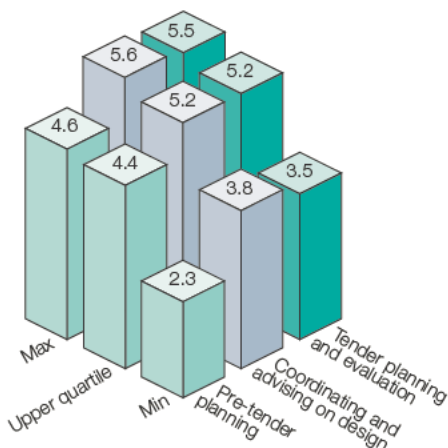


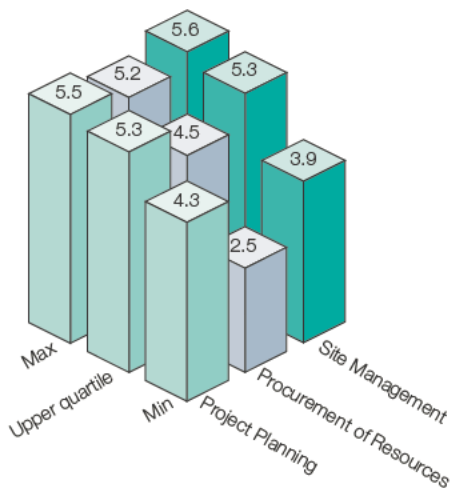
Fig 3 – Business development skills



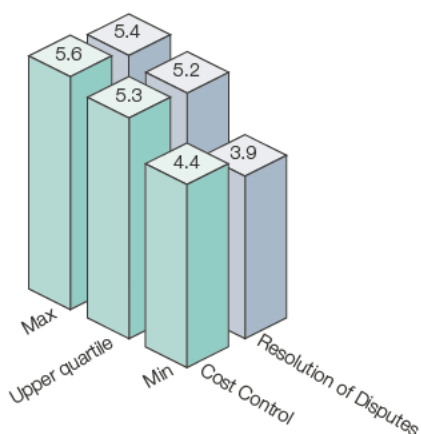
## Construction management

There is competence in the planning and execution of the construction process.

**Fig 4 – Construction management skills**



**Fig 5 – Construction management skills**



We measured skills in all aspects of managing the construction site.

### Our view of these results

The results suggest that:

- contract cost control skills are higher than for resolution of disputes, procurement and site management
- procurement skills are lower than the other five skills
- the upper quartile score is above 5 (maximum 6)
- there is competence in the planning and execution of the construction process
- there is a wide gap between the maximum and minimum skills scores in all five skill areas which suggests a variance in skill levels across the companies

### Our conclusions

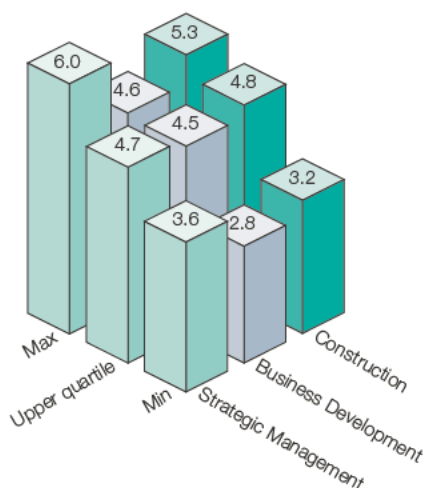
The overall skill levels are high; the benchmark in all but procurement is over 5 (maximum is 6). The areas for improvement are procurement of resources and resolution of disputes.

## Stakeholder management

Those involved in business development have less ability to deal with key stakeholders (both internal and external) than their colleagues charged with managing the construction work.

Each area of the management team interacts with the stakeholders (customers, employees, suppliers) in the business. We measured the skills of the individual managers to deal with their respective stakeholders.

**Fig 6 – Stakeholder management skills**



### Our view of these results

From the chart, we observe that:

- there is little difference between construction and strategic managers in the skills associated with stakeholder management
- business developers fall significantly below their colleagues in the area of stakeholder management
- the maximum score is significantly above the benchmark for stakeholder management

### Our conclusions

This result goes against what we expected to find.

In other industries, marketing and selling is a people-driven exercise. However, in construction it appears that those involved in business development have less ability to deal with key stakeholders (both internal and external) than their colleagues charged with managing the construction work. This is partially due to the fact that a lot of business development can be and is done by process-driven methods. For instance, finding work to bid for can often be about having systems in place to identify opportunities, estimating Bills of Quantities is mostly an internally driven process. For companies that want or need to expand their workload into negotiated and partnering work, strong interpersonal skills and team working abilities are vital.

# Do we have the skills for the future?

## What might the future be?

As part of a Foresight study we consulted with a group of clients, contractors, professionals and suppliers to the sector to identify the likely changes over the next three to five years. Their views of these changes and the impact on skills are detailed below.

## International competition

Those UK companies that choose to compete with the international conglomerates will have to become bigger to do so. These larger companies, in turn, will have to offer one-stop-shop solutions. Competing for large international projects and ventures will lead to different, possibly more flexible corporate structures. These structures could involve joint ventures and partnerships. UK companies will continue to be a target for international acquisitions.

As companies grow, there may be conflicts between divisions and perhaps cultural disharmony. Insecurity of the individual may increase levels of staff turnover and make it difficult to recruit.

Increased international competition for the world's large projects will mean the large domestic companies (that once looked abroad) will look more to the UK market. This will increase competition on medium-sized contractors who, in turn, will start to work in the markets traditionally serviced by small contractors.

The international nature of the market will give construction companies better access to more suppliers.

## Legislation

Employment legislation will affect the split of outsourced and in-company staff. This is both an opportunity and a problem for construction. If clients outsource property management then this is an opportunity. If construction companies are forced to move towards outsourced staff then quality and training may suffer.

An integrated transport policy would be an opportunity for the construction industry and will create significantly more business for civil engineering organisations as indicated in the 1999 Budget.

Legislation may drive in minimum entrance standards for both individuals and companies. This will restrict who can tender for work and who can deliver it. This may help to improve the image of the industry. The introduction of stricter standards for quality may perversely reduce the number of suppliers to the industry and increase costs and potentially, construction margins.

Employers will need to have a greater understanding of current and emerging legislation – both domestic and international. Two areas they will need to pay particular attention to are environmental and health and safety legislation. Companies will need flexible procedures to adopt stricter legislation and respond to opportunities that this legislation may create.

## Market and customer changes

The implications of customer changes on construction companies are that they will have to:

- provide more company information to a customer base that is increasingly skilled in assessing tenders for best value and quality rather than buying just on price
- provide a complete service requiring different structures, resources and approaches to customer management
- increase the focus on lifetime costs being able to predict accurately the cost and performance of the building
- understand risk better in order to manage their exposure to new risks brought about by new types of contract
- adopt management approaches that lead to continuous improvement in delivery performance
- provide customers with evidence that their staff are technically competent and that the company is accredited to external standards such as ISO9000, ISO 140001 and Investors in People
- increasingly offer solutions based on modular buildings that are (in whole or part) manufactured off site
- invest greater time and skill in the pre-design phases of buildings
- move from project management to account management where the team manages the supply of construction services to a client rather than the delivery of a single building project
- develop an enlightened human resources policy towards broader based skills in the organisation and discourage demarcation between professionals

## New technology

Companies will need to be more technology focused both in the way they operate and what they produce. Manufacturers may seek to licence their technology with construction companies that offer a good channel to market and have the right skills to apply the technology.

IT will change communication and increase the openness of information on progress and costs. This openness brings a requirement for new disciplines relating to the control of information flow and the authorisation of documents. Structures and procedures for information release and circulation will have to be clear. The longer-term implications of IT mean that:

- procurement could be remote using the internet
- suppliers stock becomes visible meaning less forward notice on purchasing
- international expertise is more easily accessed using the internet to send data back and forward between designers, architects, project managers and other professional staff from around the world

Construction companies will need to consider not only how to build but also what to build. Whether to construct a unit or buy a module and assemble it will influence the profitability of the construction. As more modules become available, construction companies will have to decide between on-site construction or off-site prefabrication. Adopting the latter will involve production-type processes where construction companies select and manage suppliers in the same way that traditional manufacturing industries do.

Modular buildings, which are one answer to the client's increased drive for standardisation and reduced time on site, will become more common. The modular approach to building will change the designer's approach to flexibility. In some instances, the choices will be reduced and there will be a trade off between cost of construction and creativity. It also has implications for changing types and levels of site skills.

#### **Strategic change within the industry**

Strategic change in the sector will affect both large and small companies.

Larger companies will be more involved in joint ventures, partnerships and possibly acquisitions. Smaller companies will find that they are competing against larger companies who have chosen not to go the joint venture route and are looking to smaller sized contracts.

Acquisitions and joint ventures will create new corporate structures and systems that will require large change programmes to implement. These larger companies will develop longer-term relationships with their clients and suppliers. To develop these longer-term relationships will require construction companies to provide services that span finance, construction and facilities management. Such relationships may see manufacturers entering the construction market. There will be a focus on cost-down activities to increase the overall value added. For example, construction companies will look to standardised units to reduce labour and materials costs.

The sector must improve its image to attract the staff required to implement the change and work within the newly structured companies. A greater focus on qualifications, particularly amongst managers, will assist this. The professions will need to consider management and commercial skills as equally important as technical skills.

## So, what does this mean for skills?

### The overall skills focus

If the predictions made by the groups are accurate then the key skills changes are:

#### Strategic management skills

No longer will it be sufficient to focus on a local region. Competition, suppliers and customers will be international. Even the small company cannot escape this; they will have to consider international suppliers to maintain a technological edge and will find themselves competing with international players in their local market. Skills relating to market understanding, negotiation, legal skills and risk management are essential.

#### International business skills

For the larger companies, the skills of international business will become increasingly important. Cultural awareness, language skills and international law are at the top of the list of enabling skills. Alongside these are skills required for joint ventures such as team building, negotiation and communication.

#### Technical skills

The skills base of the construction company will expand to encompass the use of information technology in all its guises – computer aided design, planning, scheduling, communication and cost control. All areas of the business will require IT skills. These skills take two forms – the skill to use IT and the skill to manage it. Larger companies may outsource the IT management; smaller companies will be forced to do this in-house. Planning skills to ensure on-time delivery at a profit are essential to maintain longer-term customer relationships. On the construction site, the skills of procurement and production will need to change. Modular buildings will expand the skills portfolio to include assembly and quality control.

#### Professional skills

The skills base of professionals – architects, surveyors etc – will need to broaden so that each has a sound understanding of the others role and skills. If the forecast reduction of demarcation of these roles occurs then those involved will need to expand their skills to a broader base

#### Stakeholder skills

Skills in understanding customers and their requirements will need to increase. Customers will give more output specifications based on, for example, the capacity of a hotel or the output of a factory; they will not give detailed specifications of the building. They (the customers) will become more skilled in measuring value and so the construction company will have to be able to understand valuation techniques and accounting practices commonly used, for example, in private finance initiative projects.

#### General management skills

The management of longer-term customer relationships and greater involvement of suppliers will call for better communication. The expansion in IT will lead to an explosion in the volumes of data generated. All involved in the construction sector will need to increase their capacity to collect and assimilate data – without this skill, the information explosion simply increases the time taken to process it. It is widely recognised that the industry needs to improve its image and the quality of human resource management skills (recruitment, retention, training and supervision) will have to increase.

## How well is the industry able to respond to these changes?

Having defined the skills required by the construction sector in the future, we measured the current competence in the industry in these skills. Below we report on the skills gaps between current and future skills.

### The generic skills

The Foresight study identified information technology (IT) and language skills as important enabling skills for trading internationally and dealing with suppliers and clients from around the world.

### Our findings

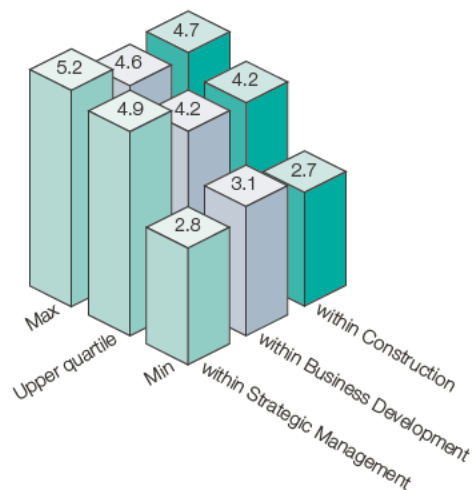
Our research showed that the construction companies needed to improve their IT skills. The lowest skilled companies used IT on only 50% of the occasions that they could. The benchmark score in IT skills, whilst higher for strategic managers, was only a little over 4 for other managers. Compare this with construction management skills for example where the benchmark score is over 5.

Language skills were, as expected, low, with benchmarks of around 1.5 out of 6. Again, compare this with the lowest benchmarks in other skills studied.

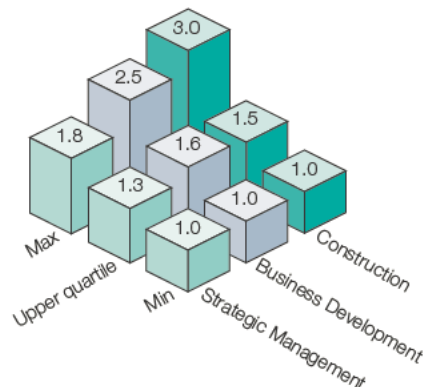
### Results in detail

The graphs below show the companies' current performance in these generic skills.

**Fig 7 – Information technology**  
Measures for skills involving IT



**Fig 8 – Language skills**  
Ability to conduct business in foreign languages





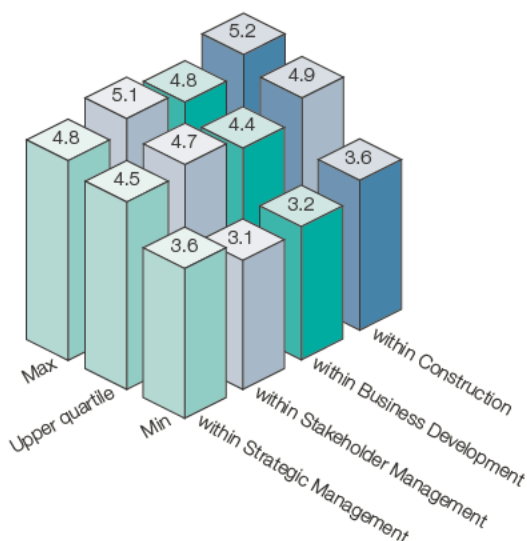
### The Foresight skills

In addition to the generic skills, we researched the specific construction Foresight skills.

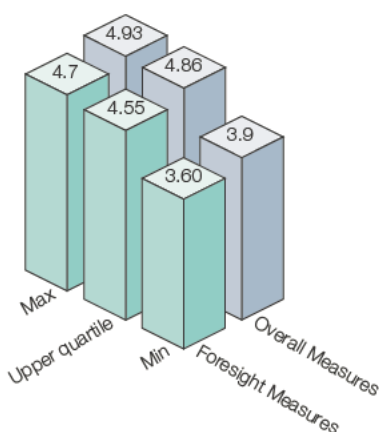
The graph below shows the performance of all the companies against those skills defined by the Foresight study.

We observe that the benchmarks (upper quartile) in the Foresight skills are below those in the current skills. It is, however, more significant that the minimum scores are so well below other skill scores that we report. This suggests that the worst performing companies in the sample do not have the skills to deal with the future predicted by clients, contractors and suppliers. And remember this sample is taken from some of the UK and Ireland's best contractors.

**Fig 9 – Foresight skills**  
Measures of skills specific to Foresight



**Fig 10 – Foresight skills**  
Foresight skills v overall skill measures



**Performance in the Foresight skills (by process)**

Having looked at the overall picture, we now compare the Foresight skills with the present skills in each of the four processes.

**Commentary on the Foresight skills**

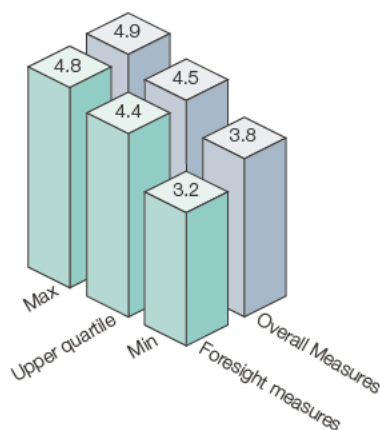
These comparisons suggest that:

- construction managers are best placed to deal with the future changes in their environment
- strategic managers are least well placed to deal with future changes in their environment
- perceived ability levels are higher than actual measured skills levels
- in all the areas the Foresight skills are lower than the current operational skills
- it is anticipated that the changes at the strategic level of business will be greater than those in operations

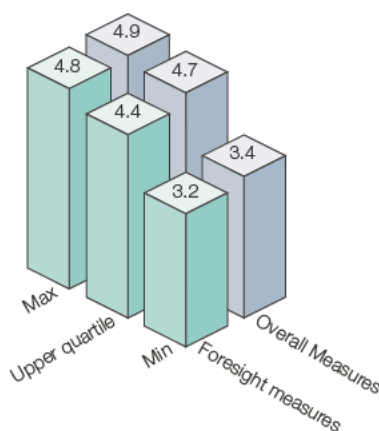
**Fig 11 – Foresight within strategic management**  
Foresight skills v overall skill measures



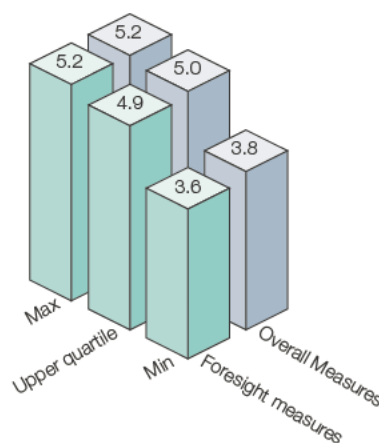
**Fig 12 – Foresight within stakeholder management**  
Foresight skills v overall skill measures



**Fig 13 – Foresight within business development**  
Foresight skills v overall skill measures



**Fig 14 – Foresight within construction management**  
Foresight skills v overall skill measures



## So what can we do to prepare for the future?

The sector generally is not ready for the changes predicted by the Foresight study.

Clients, contractors and suppliers to the sector predicted changes in the structure of the industry:

- more global with fewer but larger players
- the technology of construction – more modular building
- application of information technology and industrial type procurement and less site work
- a change in the relationship between contractor and client – more service type agreements involving finance and facilities management

Our analysis of the skills required to make this change and the skills present in the sector shows gaps across the board. Generally, IT and language skills are weak, the skills for partnership are not widely used and techniques for procurement are new to many.

If the UK construction industry is to operate alongside the global players and create strategic alliances with clients, suppliers and other contractors it must:

- focus training on the identified 'Foresight Skills', set targets and monitor improvement over the next two years. Skills within business development should be a priority; these employees are at the forefront of seeking opportunities and improvements are critical to the UK industry in order to compete globally
- focus on the generic skills for information technology and languages; ensuring staff can use computer aided design, management and reporting packages successfully and communicate with international partners
- put in place a comprehensive training development programme not only to raise the IT literacy of the whole workforce but also to encourage employees to use the power of IT to pervade the technical processes where IT can provide a company with competitive edge
- encourage a suite of IT qualifications within the construction framework
- change attitudes of employees to envelop new language and cultural skills to enable companies to trade globally
- encourage contractors to adopt a more forward looking approach to skills
- seek ways to develop the skills of partnering, joint venture and negotiated work

# Do skills make a difference?

The analysis showed that the companies with higher skills had better performance.

In our sample, we saw significant variances in skill; the important question is, do these variances translate into differences in performance? We found that they did and that those companies with better skill levels enjoyed greater success.

Companies should be made aware of these links and use management tools (such as skills benchmarking) to assess how their own human resource development strategies should be improved.

## The links between skills and performance

The received logic is that:

- higher performing companies require higher skills
- the more one spends on training the greater the skill level
- the greater the skill levels the higher the performance

The statistics health warning must be taken seriously here. Whilst we do find positive correlation, we have not isolated all other variables that affect the correlation and the two variables we correlate may have no direct influence on each other. Put simply, a correlation between the colour yellow and bananas would suggest that everything that is yellow is a soft fruit from a tropical climate!

## Summary of correlations

The positive correlations we expected, and found, were:

- more profitable companies had satisfied employees, delivered contracts on time and had satisfied customers
- more highly skilled companies were more profitable
- more highly skilled business developers aimed for higher mark up on jobs, won more jobs (by number), and were more profitable
- more highly skilled construction managers completed more jobs on time
- those investing more in training had higher skill levels

The negative correlations that surprised us were:

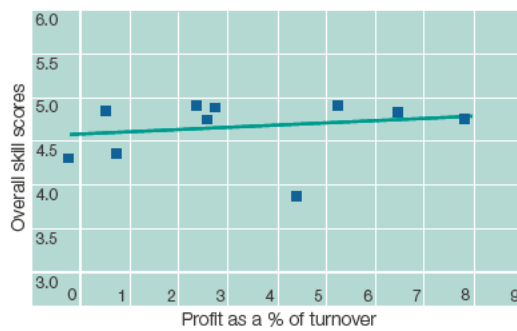
- the more highly skilled staff the lower the turnover per employee
- more highly skilled business developers had a lower hit rate on bids by value (perhaps the higher mark ups, aimed for above actually lost work)
- highly skilled stakeholder managers result in lower employee satisfaction

Overall, more correlations support the received logic than bucked the trend.

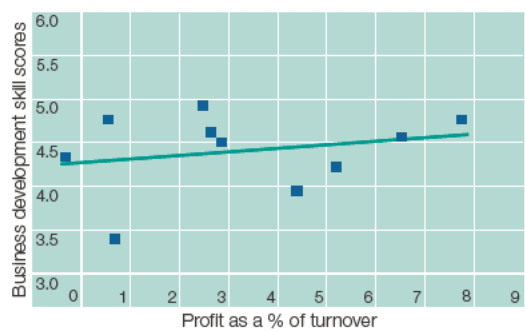
## The correlations

### Performance & skill measures

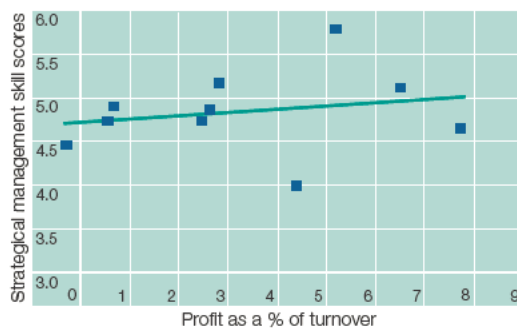
**Fig 15 – Profit v overall skill scores**



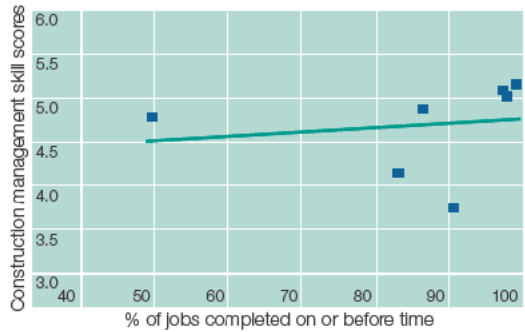
**Fig 17 – Profit v business development skill scores**



**Fig 16 – Profit v strategic management skill scores**



**Fig 18 – % of jobs on time v construction management skills**



## So what is possible ?

The best performing construction companies from our study<sup>1</sup>:

- generate almost £14k of profit per employee and £566k of sales per employee
- see profit increase by 64% year on year
- win one in five jobs quoted spending less than 0.2% of actual sales on business development activity
- intend to make 7% mark up on jobs and actually achieve 9%
- under-spend each job by 1% and complete 98% on time
- waste 3% of materials
- satisfy 8 out of 10 customers
- retain staff for over 16 years and have a staff turnover of less than 14%

No single company achieves all of these measures but one or more achieves each of them proving that they are possible. It is important that a company improves against all of the measures; it may be possible to achieve one or two at the expense of the rest and, as a result, slow down the progress of the company.

Using a similar process the worst of all results is a company that:

- generates a little over £2.2k of profit and £192k of sales per employee
- is seeing profit fall by 3% year on year
- wins one in six jobs quoted spending almost 0.5% of actual sales on business development activity
- intends to make 4% mark up on jobs and actually achieves 5%
- overspends each job by 1% and completes 85% on time
- wastes 7% of materials
- satisfies 6 out of 10 customers
- retains staff for 6 years and has a staff turnover of 22%

Thankfully, no one company in our sample achieves this.

*1: using the upper quartile of the performance figures returned*

**The benchmark performance**

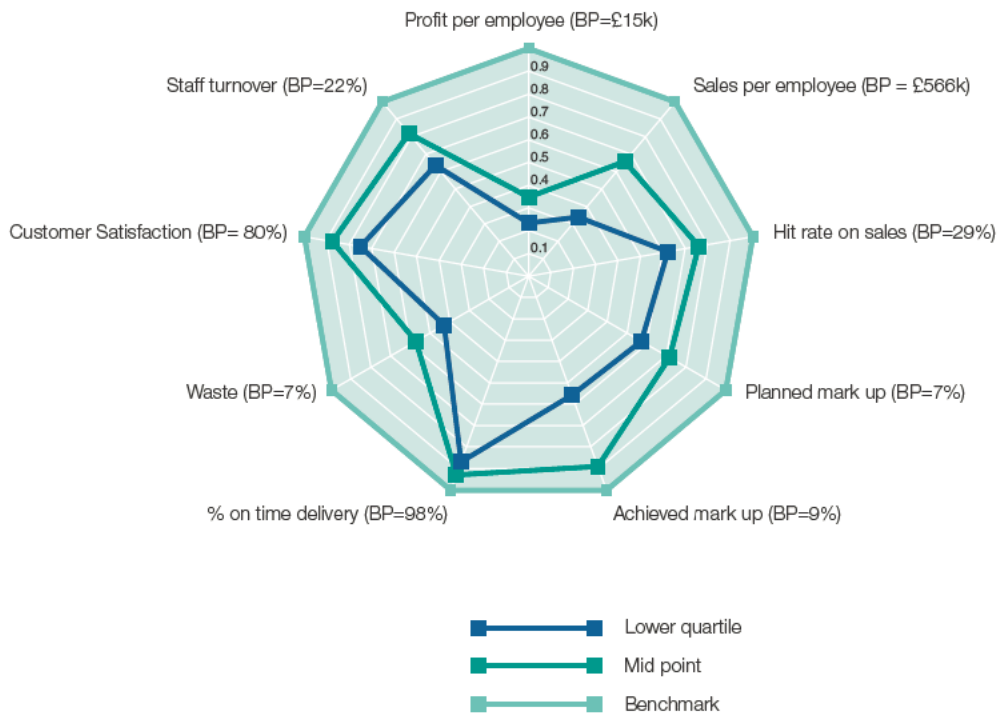
The graph below shows the Benchmark Performance (BP) for a range of measures and how these vary in the sample. We have normalised the graph points i.e. the Benchmark Performance is always represented as 1 to allow such a wide range of statistics to appear on the same graph. The blue point is the lower quartile of the sample. Companies should aim to be at, or above, the upper quartile point. In the case of waste and staff turnover, one should aim for the lower quartile of performance.

Take, for example, on time delivery.  
From the sample:

- the benchmark performance indicator is 98% i.e. the top 25% of our sample completed 98% or more projects on time
- the mid-point and low-point are all quite close to the benchmark performance, indicating little variance in the sector.

In contrast, the benchmark indicator for profit per employee is £14k with a mid point at less than half that and a low point at around 25% of the benchmark. This indicates a wide variation in this measure.

**Fig 19 – Benchmark Performance of the Construction Companies**





# Does training make a difference?

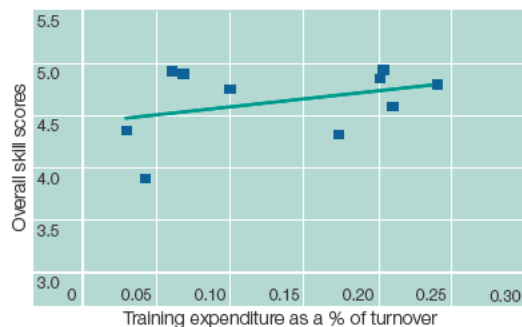
The final piece of the jigsaw is training. Knowing that one is ahead or behind the pack is useful but knowing what to do to change the position is of more value. The final part of the study was to see what impact training had on skills.

We found positive correlation between the amount spent on training and the skill level in the employees. This suggests (as one might expect) that training improves the skills base of a company. Given the relatively long service records of many construction employees the investment in training is worthwhile and will produce a return.

The important message for employers is the value of training. Training drives up skills, which in turn drives up the performance of the company.

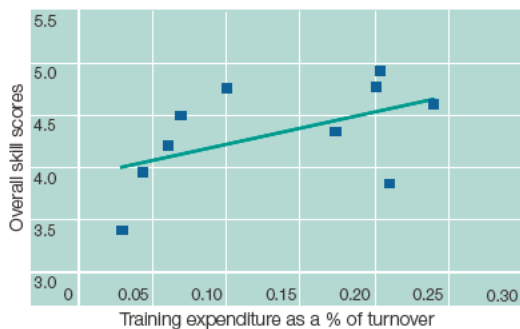
## The link between training and skills

**Fig 20 – Training expenditure & overall skill scores**

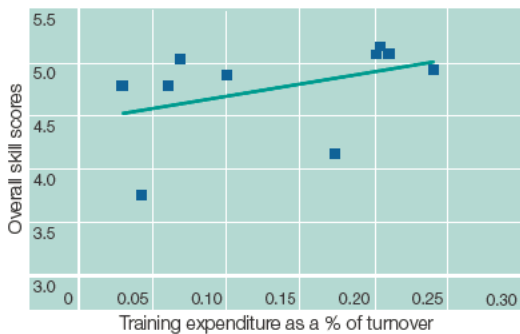


Further correlations of specific training against specific skills show a similar correlation.

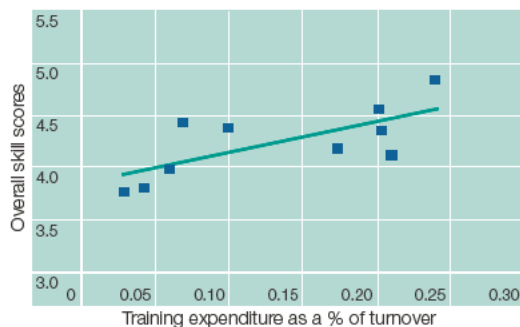
**Fig 21 – Training expenditure & business development skill scores**



**Fig 22 – Training expenditure & construction management skill scores**



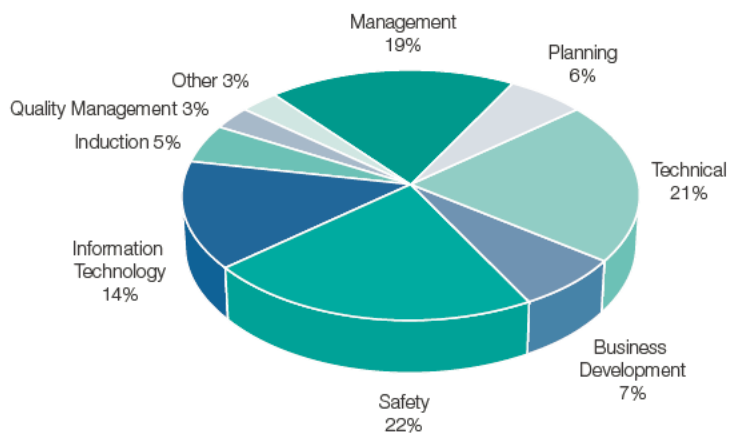
**Fig 23 – Training expenditure & stakeholder management skill scores**



## Current training practices

The current focus of training is on technical or safety training; information technology and management training come third and fourth in the rankings.

Fig 24 – Breakdown of training budget



Training drives up skills that in turn drive up performance.





**£25**

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