



Manufacturing - a sector study
The performance of manufacturing companies within Benchmark Index



Foreword

Patricia Hewitt Secretary of State

Manufacturing matters to Britain. It creates a fifth of our national output, employs 4 million people and produces the majority of our exports. It supports well-paid jobs in all regions. It can make a very substantial contribution to improvements in our economy's productivity. The success of United Kingdom manufacturing is crucial to our country's prosperity, now and in the future.

We recognise that the sector has been facing difficult conditions. There is intense competition in every market, compounded within the euro zone by the persistent weakness of that currency. In recent times, manufacturers around the world have all faced very difficult trading conditions, as a result of the global downturn in manufacturing.

Looking to the future, however, the potential of the sector is strong. The United Kingdom is part of the world's largest single market as well as being one of the world's most open trading nations. This brings extra competition, but also extra opportunity. Recent surveys of industrial confidence have been positive, and there is evidence of improved global conditions.

Many UK manufacturers are world leaders. We excel in sectors such as car manufacturing, aerospace, pharmaceuticals, the electronics industry and food production. But despite its many strengths, UK manufacturing also suffers from long-standing weaknesses - lower levels of skills, investment, R & D and innovation - that contribute to lower levels of productivity than in France, Germany and the US.

I want to help all our companies become as good as the best. We are publishing this report to make it easier for individual firms to compare their performance with that of their competitors. It will help manufacturing SMEs learn from each other, and to identify market trends early. Government must promote the take-up of best practice to help ensure the success of our manufacturing base. This report is part of our drive to do just that.



Executive summary

How to improve performance is an issue that concerns every manager in every manufacturing business. Performance in this context can mean financial or non-financial performance. In fact, it is now widely accepted that the key drivers of future financial performance are non-financial. For example, employee satisfaction and supplier reliability today will affect the level of customer service delivered. If suppliers let you down with late deliveries or poor quality materials and components or if your own internal processes are weak and poorly co-ordinated; then customer satisfaction will be adversely impacted. Their satisfaction with today's transactions will, in turn, affect whether they award repeat and additional business. So one of the best ways to ensure good financial performance in the future is to provide excellent products and services to customers today.

Of course, it may not be that simple and there are numerous other considerations to take into account along the way, but that is the essential business philosophy and approach that this benchmarking analysis adopts.

This report, developed by Cranfield School of Management's Centre for Business Performance by analysing and interpreting Benchmark Index data, builds on these themes and explores the levers that managers in small businesses can pull if they want to improve financial performance in their business.

The report is structured to address, firstly, the relationship issues that a company has with each of its key stakeholders – its investors, customers, employees and suppliers. It then goes on to dissect essential performance measurement issues that pertain to implementing strategies and then, importantly, the business processes and capabilities that must be put in

place in order to deliver the strategy.

The report concludes by taking a look inside the most financially successful companies and also provides a high level review of techniques used to aid improved performance, including the vital area of better performance measurement. Since its launch in October 1996, Benchmark Index has established itself as one of the most comprehensive sources of small business performance data anywhere in the world. To date, over 6000 companies have benefited from the service through a network of specially trained advisors operating out of business support agencies across the UK.

Benchmarked companies submit data that allows over 60 key performance measures to be calculated, under the general headings of Finance, Management and Business Excellence. Every company that participates in the process receives a customised benchmarking report that enables them to compare their performance with that achieved by similar organisations. Companies can quickly establish whether they fit in the upper, median or lower quartile. Differences between the extremes can be dramatic.

Gaps between company performance and best in class in any particular dimension highlights what can be achieved. Company specific, focused and actionable improvement programmes can then be constructed in light of the insights provided by the benchmarking data with the help of the company advisers.

In this way, the benchmarking process not only helps individual companies achieve higher levels of performance, but also raises the UK's competitive position as a whole.

For further information, visit www.benchmarkindex.com

Case Study

East Midlands Coatings

"No woman in her right mind would put on her make-up without looking in a mirror," observes Dennis Nind, managing director of East Midland Coatings. "Trying to improve your company's performance without first undertaking the Benchmark Index would be just as daft. You

could only guess what really needed attention and any changes would be as cack-handed as applying make-up in the dark."

Nind has increased sales by 28% and improved profitability at his company by 80% over 18 months. "Focusing on the key issues has been critical," he says, "and that has only been possible because of Benchmark Index. I wish I'd known about it earlier!"

Since it was founded in 1984, East Midland Coatings has been based in Hinckley, Leicestershire. It applies low-friction, non-stick, corrosion

protective coatings to products as diverse as baby bottle warmers and the collapsible elements in steering columns for cars such as the Ford Mondeo, Mini and Jaguar X-type. The automotive industry accounts for sixty percent of its work. Eleven staff work in production, applying the thermoplastic and fluoroplastic surfaces by dipping or coating, while five deal with sales, administration and management.

As a second-tier supplier, the firm was encouraged by its trade association and one of its largest customers to consider Benchmark Index as part of a programme of continuous improvement. East Midland Coatings followed their advice by joining the motor industry's Accelerate programme.

Benchmark Index analysis by Business Link Warwickshire was the starting point in May 2000. "I knew we needed to change," says Nind, "but it came as a real surprise to know exactly where the changes were required."

He was pleased by proof that suppliers were working well and customer satisfaction levels were high. The Benchmark Index also showed that cash flow was well controlled and the company was making respectable profits on annual sales of £550,000.

Nind was startled, however, to discover deep levels of dissatisfaction amongst his staff. "We were nowhere as happy a company as I had thought," he says. "It was clear there were major problems with training, communication and people management." Immediate action was required.

The company embarked on a programme of continuous improvement with its suppliers and quickly signed up for the Investors In People initiative, which proved "highly worthwhile" in identifying where training was required.

Better communication with staff quickly revealed changes that were required to the layout of the factory. Personnel were encouraged to attach red tags to anything that was in need of improvement and began to film each other's work to identify where efficiency could be increased.

"We invested more on changing the factory in the next 18 months than we had in the previous eight years," says Nind, "including building an extension to the factory. The secret was to encourage frank criticism and be prepared to listen."

"Now it is a completely different place to work," he says. "When we went through the Benchmark Index process again in October 2001 it was clear the staff management problems had been overcome. People are now queuing up to work here."

The changes resulting from Benchmark Index analysis had also brought direct benefits to the bottom line. The value added by each staff member had risen by 18%, turnover per employee had trebled and profit had grown by 22%.

"Benchmark Index has made us much more efficient and competitive," says Nind. "It only required a small investment in terms of time and expenditure, but brought huge improvements as a result. No business manager should be afraid of finding out more about the positives and negatives of their business. Indeed, for any company genuinely looking to make improvements, there is no better starting point than Benchmark Index."

Capabilities are frequently designed in response to one of three strategic intents that serve to differentiate a company's market offering. These are:

operational
excellence
product
leadership
customer
intimacy



Performance from our Investor's viewpoint

Risk and Reward - Although some small businesses are listed on the stockmarket, most aren't and therefore do not have to respond to the whims of fund managers and equities analysts. Nevertheless, they are still answerable to their capital providers, such as banks and venture capital investors, and of course their owners – often the founders of the business.

Investors, by definition, expect a return on their investment through interest payments or via a share of the profits and/or, where applicable, via share price appreciation. Reward though is not without risk – investors reasonably need to know just how viable their investment is now.

In terms of profitability, as measured by pre-tax return on sales turnover and by return on capital employed, the median performance companies are more than four times more profitable than lower quartile performers.

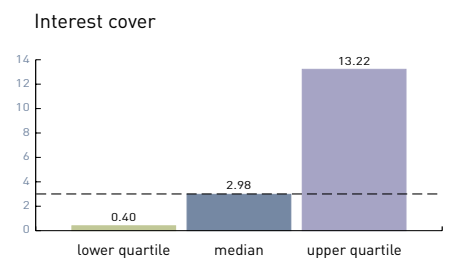
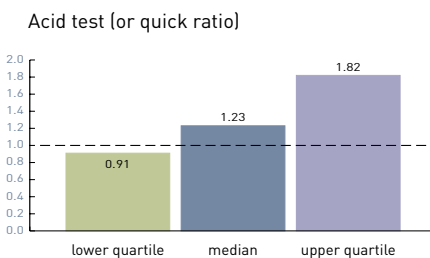
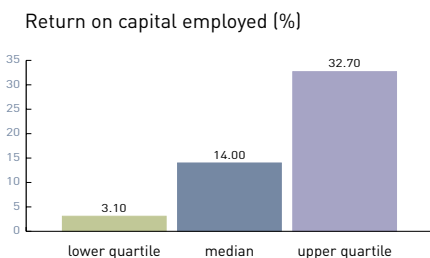
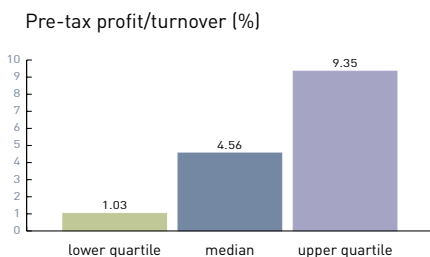
The upper quartile companies, on the other hand, are more than twice as profitable than their median level counterparts. Worryingly, some 4 out of every 10 of the companies in the manufacturing sector that provided data for Benchmark Index have a return on capital employed that is less than 10% - that is to say, they are destroying investor value by not even covering the normal average cost of capital.

On the risk side of the equation, the liquidity of the upper quartile companies was double that of the lower quartile as measured by short-term assets (debtors, cash and marketable securities, but not stocks and work-in-progress) divided by current liabilities, sometimes known as the 'acid test' or 'quick

ratio'. If the ratio is less than 1 it means that the organisation does not have enough liquid assets to cover its current liabilities. More than a quarter of manufacturing companies in the Benchmark Index fell into this category – if their creditors decided to call in their debts tomorrow (and stocks proved stubbornly hard to sell), they would simply go bust.

Another risk-related measure that investors commonly apply to test financial strength is the level of interest cover. This relates a company's pre-tax profits to the amount of interest it has to pay on its total borrowings. This provides a view of a company's ability to withstand operating setbacks. Research has shown that few successful companies operate at a value of less than 3 times. Yet 50% of small business manufacturing companies operate below this level. The upper quartile companies, however, achieve an impressive 13 times interest cover.

The top 25% of companies achieve profit levels that are **ten times** more than those achieved by the bottom 25%!



Performance from our customers' viewpoint



Customers pay the bills. If SMEs don't generate sufficient Free Cash Flow they will soon be wound up by the administrators. A loyal core of regular customers is often the antidote to such drastic action. But research has shown that only those customers that describe themselves as 'very satisfied' are likely to show loyalty characteristics by placing repeat orders.

Those that are merely 'satisfied' tend to be relatively promiscuous in their choice of suppliers. In the last decade or so, getting to know what your customers think of you has been, and continues to be, one of the essential mantras of business thinking. A vital business measure, therefore, is

The best companies provide quality and service to their customers that is 6 to 8.5 times better than the worst.

customer satisfaction. The starting point for this – and it must be stressed that it is only a start – is to measure customer complaints, delivery to promise and levels of warranty problems.

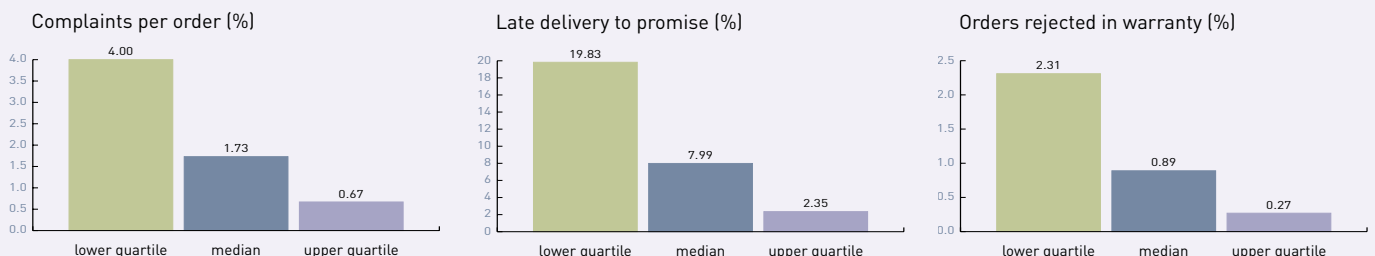
Upper quartile companies perform six to over eight times better for their customers than the lower quartile. Median firms are more than twice as good as the lower quartile performers. The latter are likely to receive customer complaints about 4 per cent of their orders, deliver 20% of orders later than they promised (never alone what the customer wanted) and experience warranty problems in over 1 in 40 orders.

The cost to the poorly performing companies of resolving quality problems and expediting late deliveries must inevitably have a negative impact on their profitability. But everyone can improve; getting complaints about 1 in 150 customer orders and delivering over 2% of orders late isn't going to impress the most demanding of manufacturing customers much.

Companies should be aware that research has also shown that only a small proportion of customers bother to complain – the majority just take their business elsewhere.

Best practice organisations have evolved more sophisticated ways to monitor customer satisfaction with the products and services it provides than these rather internally focused performance measures, which do not essentially capture the customer point of view of their transactions with the company. Independent customer surveys will usually provide, when well executed, the necessary insights into customer perceptions.

The majority of customers don't bother to complain... they just take their business elsewhere





Performance from our Employees' viewpoint

The 'war for talent' is joined. Whatever their business, firms need a range of skills in sufficient quantity in order to plan and manage the business, create new products, generate demand for them, and to fulfil customer orders and enquiries. However, if employees are dissatisfied with their employer's people policies and practices or their working environment, they will leave. And it is usually the best people that go first too.

Symptoms are the levels of employee attrition and, epidemics apart, the absenteeism rate. While some manufacturing businesses are inherently more dangerous than others (e.g. where hazardous chemicals are involved), companies that care for their employees apply rigorous health and safety procedures in order to minimise the number of accidents at work. Firms that adopt a cavalier attitude towards their workers' welfare simply won't attract and retain the best people.

The lower quartile firms have a staff turnover level of almost 1 in 4, compared with 1 in 15 for the upper quartile group. Median companies lose 1 in 8 of their staff every year and have to recruit replacements and provide the training they need to do the job properly. The more vacancies you have to rehire for, the more it costs.

Fed-up and overly work-stressed employees take a "sicky" more often too. Absenteeism rates are more than four times higher in lower quartile organisations than they are in upper quartile companies.

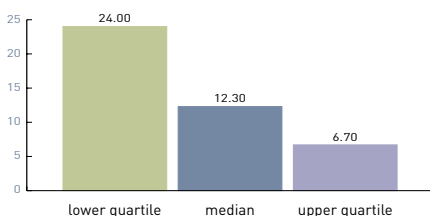
Or maybe they took more time off because they had received an injury at work? The level of accidents per employee is more than five times better in upper quartile companies than in lower quartile ones. Employees in median firms are half as likely to be involved in an accident at work than their counterparts employed by lower quartile companies – a good question for confident job interviewees to ask perhaps?

In practice, however, companies need to have a better handle on employee satisfaction than just the 'lagging' measures of attrition and absenteeism. They need to find a way to monitor and capture employee morale.

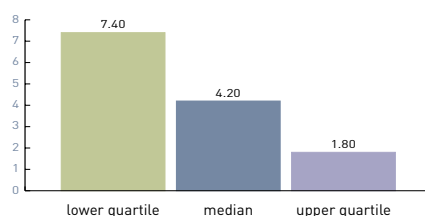
24/7

Employee morale has a direct impact on customer satisfaction – the bottom quartile of companies have a **24%** staff turnover, for the top quartile it's less than **7%**.

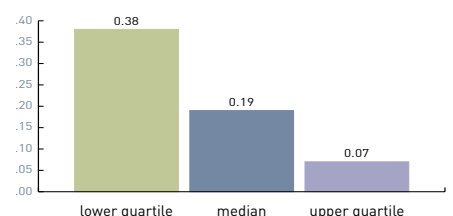
Leavers/employees (%)



Absenteeism days/employees



Accidents/employees



Performance from our suppliers' viewpoint



Who cares what suppliers think?

Traditional arm's-length relationships with suppliers are still commonplace within many industries today. But, increasingly, companies are realising the benefits of building closer reciprocal relationships with their major suppliers. The results are better quality goods and services, more reliable deliveries and lower levels of inventory.

For most manufacturing companies bought goods and services represent their largest single cost item and, therefore, one of the most lucrative areas for seeking cost savings in a downturn.

Companies today are reducing the number of suppliers they buy from, negotiating better unit prices by spending more with fewer vendors while at the same time lowering the ongoing administrative costs in their purchasing and accounts payable departments caused by supplier proliferation. Unit price is by no means the only purchasing decision, levels of quality and service are key considerations too because of their hidden downstream impact costs.

Upper quartile companies enjoy higher quality supplies to the tune of six times better than that experienced by lower quartile companies. They also receive 95% of supplier deliveries on-time compared with just over 60% by lower quartile firms and over 85% for the median companies.

Confidence in their suppliers' ability to provide quality goods that are delivered on-time allows upper quartile companies to hold three times less raw materials inventory than their lower quartile counterparts.

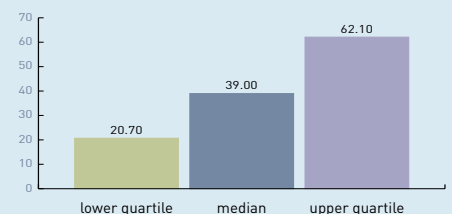
Median companies are nearly twice as efficient as the lower quartile in this respect.

Care needs to be taken to compare apples-with-apples, since some companies may purchase inherently more expensive raw materials (precious metals, for example) than others. Nevertheless, with their smaller – but carefully

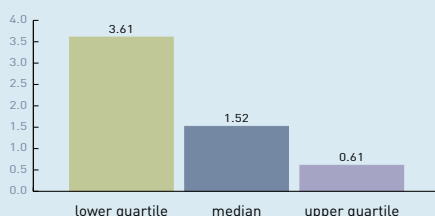
selected – band of suppliers, the upper quartile companies on average spend more than twelve times the amount per supplier than lower quartile firms do. The median companies spend just three times more.

Suppliers want to be treated in the same way that you would like to be treated by your own customers... simple really!

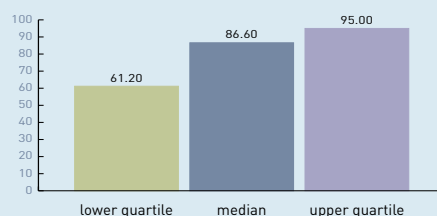
Raw material stock/stock turnover (%)



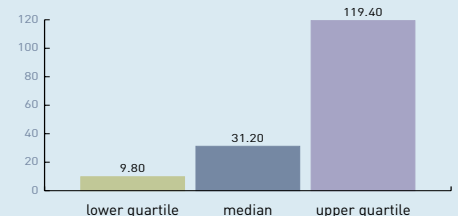
Sub-standard/bought materials (%)



On-time/bought materials (%)



Bought-in materials/no. of suppliers





Strategies for growth & renewal new product development

Most products have a limited lifecycle. In order to create medium to longer term growth for their investors and keep customers loyal, companies need to have a continuous stream of new products and/or business services. The rate at which firms can develop these and bring them to their markets successfully is often a critical factor that distinguishes a company from its competitors.

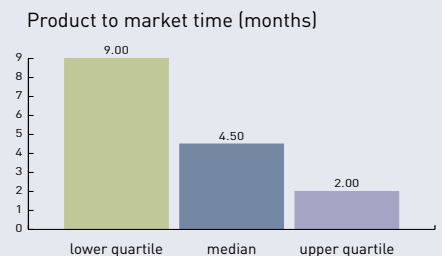
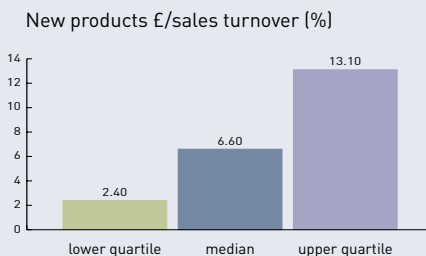
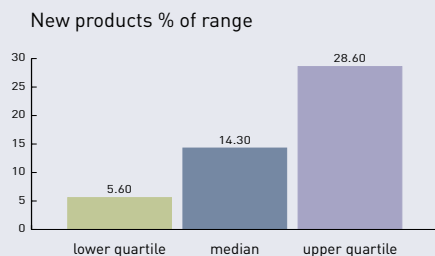
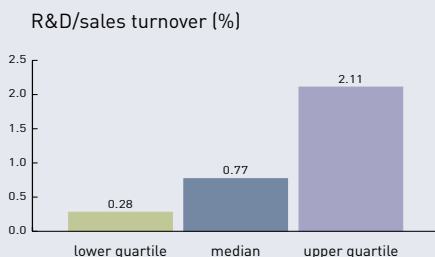
While the level of R&D expenditures will not guarantee commercial success (for example, if it is directed in the wrong areas), it is an indicator of the level of input into new product development. Measures of the success of recent past efforts in this area provide indicators of whether renewal strategies are delivering the anticipated results. How long it takes from concept to income – the speed to market – is a further key management issue for manufacturing companies. Delays mean that income projections will be postponed.

The upper quartile companies spend 7.5 times more than the lower quartile on research and development and almost 3 times that of the median firms. Nevertheless, even the best only spend just over 2% of sales on R&D.

The best also introduce and generate income from new products more than 5 times more effectively than lower quartile companies, and twice as much as the median firms.

While product complexity can be a significant determinant, on average the upper quartile are able to bring their products to market faster too – in around 2 months, as opposed to 4.5 months for median companies and 9 months for lower quartile firms. However, the very best do not sacrifice the debugging of new product quality problems just for the sake of speed to market.

Whatever the economic environment, **new product development** needs to be maintained for companies to be sustainable – that doesn't mean to say they can't do it smarter though.



Strategies for growth & renewal people, technology & infrastructure



Competitive Advantage

Companies that cut-back capex on vital production equipment and distribution networks in the quest for cost savings risk losing their competitive edge in the markets they serve.

On the other hand, they need to be careful how they spend their money – “investments” in new computer software, for example, does not always produce the Anticipated benefits.

Clearly nevertheless, investments for which there is a substantiated and genuine business case (that exceeds the cost of capital needed to acquire and install them) for

improving levels of efficiency, effectiveness and market coverage that provide a significant competitive advantage need to be made. Technology and infrastructure are not the only investments in the future of the company that need to be made.

Upper quartile companies make roughly four times the investment in their futures with both capital expenditure and employee training than the lower quartile companies do. Median firms make just under half the level of investment that is made by the upper quartile firms.

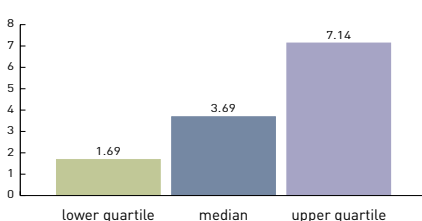
The value of training is under-appreciated across the whole SME manufacturing sector though – the £68 per employee per annum “invested” by the lower quartile firms is absurdly short-sighted and simply inexcusable. But even the £291 per employee achieved by the upper quartile companies is still derisory.

Upper quartile companies enjoy higher quality supplies to the tune of **six times** better than that experienced by lower quartile companies

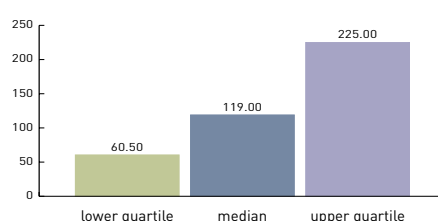
Employees need (and usually want) to be developed too through education and training programmes.

Failure to invest at least the current cost of depreciation in new equipment and infrastructure will lead to a gradual decline and the ultimate demise of a company

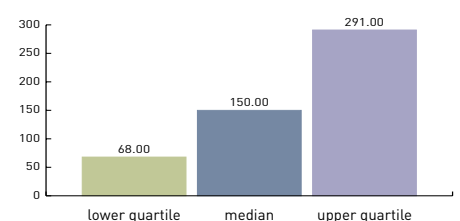
Capital expenditure/turnover (%)



Capital expenditure/depreciation (%)



Training £/employees





Business Processes

Production Efficiency & Effectiveness

Factories that cannot consistently make what they are scheduled to produce are ineffective. Factories that produce too much scrap and whose output requires significant amounts of rework before it can be shipped to customers are both inefficient and ineffective.

Scrap and rework wastes money and adds to the cost of making products, which in turn reduces the profit margin for which they can be sold. Rework (and scrap replacement) conducted on a normal production line where there is also a capacity constraint is also preventing production of further new product – and so almost certainly upsetting the schedule adherence.

Schedule adherence can be upset by many other factors too, including supplier transgressions, machine breakdowns and fundamentally unstable production processes. Set-up and changeover times are an important factor in both process re-engineering and continuous improvement programmes, but they are highly specific to the process in question and, again, are best addressed where there is a significant capacity constraint.

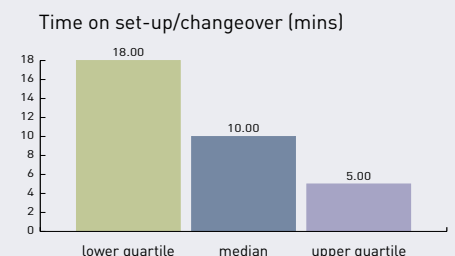
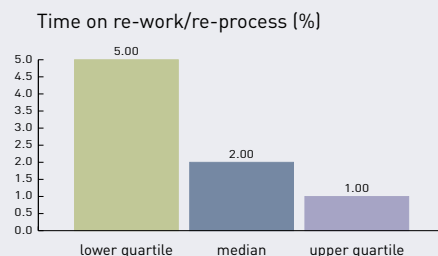
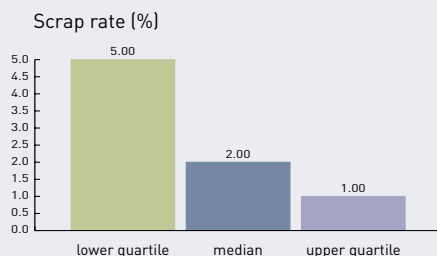
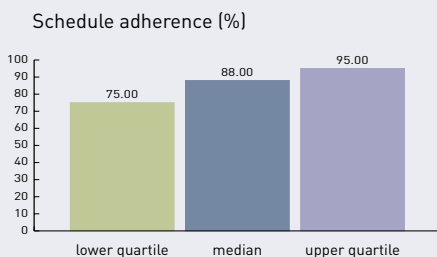
Upper quartile companies achieve levels of scrap and rework of about 1% on each count, while lower quartile organisations manage to achieve only a rate of 5%. Median firms are only half as good as the upper quartile.

Set-up and changeover times, while process specific, were on average twice as fast at upper quartile firms than at median companies and took almost twice as long again at lower quartile firms.

Upper quartile companies achieved schedule adherence levels of 95%, compared with just 75% at lower quartile manufacturers.

Factory managers must work towards stabilising both their own internal production processes and collaborate with suppliers (and purchasers) to achieve process input consistency for raw materials and/or finished components for assembly.

Britain's better factories are **5 times** as efficient as poorer performing ones!



Business Processes working capital management



Operating Cash Flow

Quality, speed and schedule adherence are not the only processes that factories need to be excellent at. Manufacturing managers need to be skilled at managing the firm's working capital – its inventories, trade debtors and creditors – too.

They need to manage not only raw materials inventories (see Page 7), but also levels of work-in-progress on the shop floor and, most importantly, the amount of unsold finished product stock in warehouses. It is easy to make factories seem efficient by making as much product as possible, but it is pointless and dumb to do so if there is insufficient demand for that output. Conversely, have too little inventory and customer service will be impaired due to stock-outs.

Upper quartile companies have a composite stock turnover of over 22 times per annum versus less than 8 times for the lower quartile. Finished product stock represents just under 16% of total inventory for the upper quartile performers, but over 30% for median companies and nearly 50% for the lower quartile.

Upper quartile companies get paid by their customers within 60 days, but for the lower quartile it's over 92 days. Lower quartile businesses pay their suppliers on average in just over 76 days, but median companies pay in 52 days and upper quartile ones in just 34.5 days. Interestingly, the differential – between debtor and creditor payment days – is 25 days for upper quartile companies and 23.8 days for the median, but only 16.4 days for the lower quartile, reflecting the latter's stressed cash flow position.

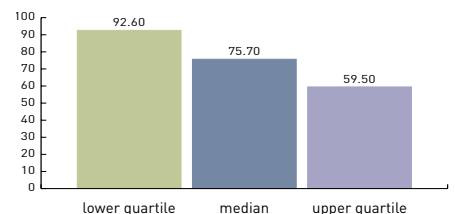
The best companies provide quality and service to their customers that is 6 to 8.5 times better than the worst.

When a customer places an order, the order fulfilment process does not end when the product is delivered – it is only complete when the customer has paid for it (sometimes called the 'order-to-cash cycle'). Firms need to keep a

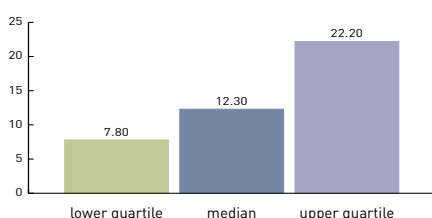
tight reign on how long they let their customers defer payment for the goods and services provided since this has a direct impact on their cash flow. More controversially perhaps, they also need to act in a responsible manner when paying their own suppliers.

managing
cashflow
is a top priority

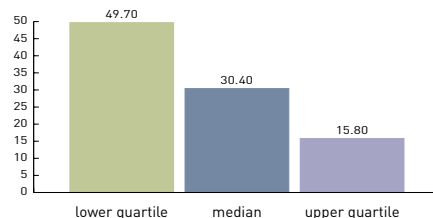
Debtor payment days



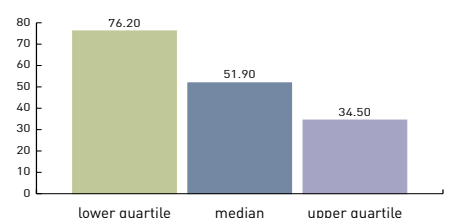
Total stock turnover



Finished product % of stock



Creditor payment days





Organisational capabilities productivity and value creation

Winners and Qualifiers

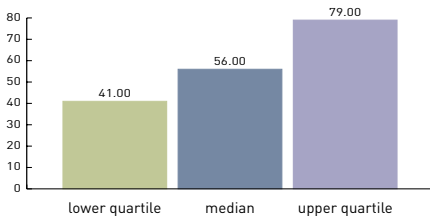
To be successful, manufacturing companies need to assemble a range of capabilities – i.e. bundles of people skill-sets, best practices, leading technologies and physical infrastructure – in specific parts of their business that collectively allows them to beat their competitors.

Some capabilities (say, for example, product design or production flexibility) must be highly distinctive in order to differentiate the organisation from its competitors, while others need to be maintained at no worse than industry norms or trade qualifying standards. Nobody can be excellent at everything. The importance and strength of each capability will be particular to the individual company, its competitive environment and the market sectors in which it operates. The net effect, however, must be that an organisation's collective capabilities make it more effective and efficient at winning business and creating value for customers and investors. Its overall performance, therefore, must be measured and compared with its peers.

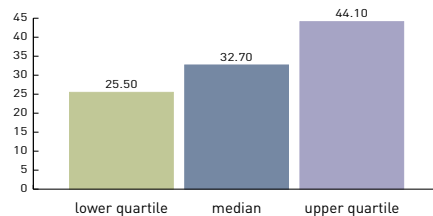
The upper quartile companies have a sales per employee performance that, at £78.8k, is almost double that of the lower quartile (£41k). Median companies' overall productivity by this measure is 37% higher than the lower quartile and 29% lower than the upper quartile.

Value added per employee, a key measure of competitiveness, is 73% higher at the upper quartile companies than the lower quartile. For the lower quartile organisations, their value added performance is only about equal to their net assets; median companies' performance is 60% higher; but upper quartile companies really sweat their assets, achieving a performance that is an impressive 170% better than the lower quartile.

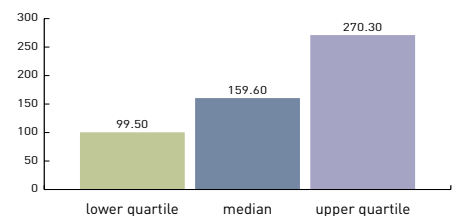
Sales per employee (£k)



Value added per employee (£k)



Value added/net assets (%)



Case Study

Catomance

Catomance was a company with a long history. It was started in 1936 as a specialist manufacturer of chemicals that were applied to fabric to prevent rot. The company's turnover and profitability were falling fast. It was on a slippery slope that took it from £140,000 profit on a £5 million turnover for 1998

to a loss of £300,000 on a £4 million turnover in 1999.

While the profitability was poor other numbers were high: employees peaked at around 140

although by 1997 the total had dropped to 72, yet the business still had four executive and two non-executive directors. "One of the key things the Benchmark Index highlighted was the need to develop a flatter management structure," says Woods.

Woods had been managing director of the business since 1990 and finance director before that so he knew value was there if the business could be re-organised. He led a management buy out (MBO) on May 1, 2000 and quickly

implemented recommendations made by Sunil Mistry arising from the Benchmark Index analysis. "We had been advised to come down from four to three levels of management. In fact since the MBO we have come down to two."

The Benchmark Index was an invaluable tool in many of the changes that have been made. "The Benchmark Index confirmed a lot of what we thought was wrong. It gave us the unbiased evidence of problem areas. It pointed us at issues we knew had to be addressed," says Woods. Among these was bringing in new people who were able to make changes without any "emotional baggage" associated with long-standing experience of the business.

One of Catomance Technologies' strengths is that as a small company – now with just 40 employees – it can react much faster than their competitors, who are mainly divisions of major European chemical manufacturers.

"We can be more pro-active, and we can get our technical people on to meeting a detailed technical specification - for a US military supply contract for instance - very quickly" says Woods.

The Benchmark Index confirmed a lot of what we thought was wrong

Drivers of superior business performance



Lifting the lid – inside the most profitable companies

What characteristics did the most profitable companies display? Based on the benchmark data, some of the more predictable features of the upper quartile profitability companies were that they showed strong correlations with the following ten performance criteria:

- Low levels of late deliveries to customers
- Higher employee training spend (£80 per employee more)
- Greater proportion of graduates (as % of workforce)
- Low absenteeism rate
- Higher levels of marketing expenditure (as % of sales, but still less than 1%)
- Higher levels of capital expenditure (as % of sales and relative to depreciation)
- Higher levels of R&D expenditure (as % of sales, but only just over 1%)
- Higher stock turns
- Higher cash balances
- Lower levels of debt (that is more short-term than long-term).

The more profitable companies also tend to enjoy larger customer order sizes (in terms of £ per order) than their less profitable counterparts. However, the most financially successful companies are not the best at everything of course – their very success can make them complacent or inattentive towards some aspects of performance (such as income from new markets, for example).

Small is Beautiful

An unexpected discovery, however, was that it turns out the most profitable companies have a strong tendency towards being much smaller companies than their less profitable counterparts – on average about half the size, both in terms of sales turnover and number of employees (see table below).

There was, however, no significant difference in sales per employee between the upper and mid-upper quartiles and only a little difference in the levels of value added per employee. It appears then that they are tightly focused companies with highly profitable market niches. What the Cranfield analysis revealed though was that value added as a proportion of sales turnover was markedly higher for these upper quartile companies – on a return on sales basis, over 65% versus just 51 to 53% for the others.

This, in turn, led to a further discovery. The most profitable companies work on average with between 27 and 29 suppliers (depending on whether RoS or RoCE is used) versus an average of 37 to 49 for the less profitable firms.

What is the explanation? The most profitable companies need fewer suppliers because they spend only around 34% of sales turnover on purchasing goods and services versus nearly 50% for the rest. In other words, they outsource less and retain direct control of the work that needs to be done to satisfy their customers' wants and needs (i.e. the value added).

While speculative, it seems likely that this is not a deliberate policy of outsourcing less but one of being unable to outsource more. Because they satisfy a very specific niche in the market, the specialist skills and technologies needed are hard to come by and are, therefore, developed in-house. This would also explain why their average sales are around half that of the other segments but their headcount is only about 40% lower.

| Medians for: | Return on sales | | | Return on capital employed | | |
|--------------------|-----------------|---------|--------|----------------------------|---------|--------|
| | RoS | Sales | Emplys | RoCE | Sales | Emplys |
| Lower Quartile | -1.52% | £3.711m | 60 | -4.34% | £3.884m | 61 |
| Mid-lower Quartile | 2.66% | £3.959m | 63.5 | 8.71% | £3.963m | 63.5 |
| Mid-upper Quartile | 6.59% | £4.023m | 60 | 20.83% | £3.972m | 60 |
| Upper Quartile | 14.80% | £1.935m | 34 | 53.86% | £2.179m | 34 |



Benchmark Index Analysts

Data analysis in this publication has been carried out by the Centre for Business Performance at the Cranfield School of Management, Cranfield University. The analysis has been headed by the Centre's Director, Professor Andy Neely with support from Chris Adams.

Andy Neely BEng, MA (Cantab), PhD

Director, Centre for Business Performance Operations & Project Management Group

Andy Neely is Director of the Centre for Business Performance at Cranfield School of Management and Professor of Operations Strategy and Performance.

Prior to joining Cranfield University he held a lecturing position at Cambridge University, where he was a Fellow of Churchill College. Andy has been researching and teaching in the field of business performance measurement since the late 1980s. He chaired the first and second international academic conferences on performance measurement, in July 1998 and July 2000 respectively and co-ordinates the Performance Measurement Association, an international network for those interested in the subject.

He has completed numerous research and consulting projects and authored over 100 books and articles, including "Measuring Business Performance", which was published by the Economist. He has consulted to and worked with a wide variety of organisations including 3M, Accenture, Aventis, British Aerospace, British Airways, British Telecom, DHL, Diageo, Hogg Robinson, KPMG, NatWest, Pilkington, Posten, Reckitt and Colman, Rolls Royce Aerospace and Schering.

Chris Adams

Chris Adams is a Visiting Fellow at Cranfield School of Management's Centre for Business Performance and an independent consultant.

From 1988 until 2001, he worked at Accenture, providing strategy, process and capability performance improvement consultancy services to client organisations in a broad spectrum of industries. Latterly, he led the firm's Managing With Measures thought leadership development initiative - a joint venture with Cranfield School of Management.

With Professor Andy Neely he has co-authored a number of articles and white papers, including the application of the Performance Prism framework - these include The Performance Prism Perspective, The Performance Prism in Practice, Measuring eBusiness Performance and Measuring Business Combinations and Alliances. They are also authors of the forthcoming book on the Performance Prism to be published by Financial Times Prentice Hall in 2002.

Prior to his consulting career, Chris gained 22 years of experience in industry with DuPont in a broad variety of customer service, logistics supply chain, quality management and internal support management roles.



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