

Something for nothing? A comparison of practice and performance in vulnerable and promising companies

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World-class standards: the theoretical foundations

There is considerable empirical evidence from the best UK and international organisations to identify the key features of truly world-class businesses. Several large scale studies (Womack *et al.*, 1990; Womack and Jones, 1996; Hanson *et al.*, 1994, 1996; Voss and Hanson, 1993; Voss *et al.*, 1998; Wheatley *et al.*, 1996; DTI, 1995; CBI, 1997) have identified these features and categorised organisations based on practices deployed and performance achieved. The “adoption of best practice will lead to improved operational performance” hypothesis was originally proposed by Hanson *et al.* (1994) in their Made in Europe study. Since then a number of other studies including Hanson *et al.* (1996), Voss *et al.* (1998), Prabhu and Yarrow (1998), Appleby and Prabhu (1998) have supported the findings. This notion is also reflected in the European Foundation for Quality Management (EFQM) Excellence and Malcolm Baldrige frameworks which call for continuous planned improvement of the “enabling practices” to yield superior “results” in operational and business performance.

Successful companies maintain competitive advantage over rivals through holistic management of best practice (Smith, 1995). Benchmarking has been used increasingly during the last ten years and has been recognised by Zairi (1992), Pryor and Katz (1993) and Cox and Thompson (1998) to allow firms to catch up and overtake competitors when applied appropriately. This is particularly true when focusing on activities critical to success in customer satisfaction, and research in strategic management has pinpointed various processes which are key to this, including: marketing (Porter, 1980), innovation (Ma,

1999a; Chaharbaghi and Lynch, 1999), and operational performance management (Williamson, 1991). Ma (1999b) talks of the need for a “constellation of competitive advantages” being traded-off for long term viability. Additionally, Hanson *et al.* (1996) and Voss *et al.* (1998) concluded in their benchmarking studies that competitive edge is maintained by investing in relationships with all stakeholders (suppliers, customers, employees and investors). The literature on competitiveness and sustainability suggests that to be successful, there are no shortcuts. All round excellence is needed to enable high, sustainable performance in key operational and overall business performance. This highlights a constant need to focus on customers, know-how and learning, constant innovation in product and process, and collaboration with all stakeholders.

As companies strive to increase their competitiveness, clear differentiation is emerging. Many organisations have followed a textbook total quality management (TQM) approach focusing on continuous improvement activities in practices, clearly believing that this will lead to better operational performance. Alternatively, there are other organisations which have focused only on outcomes to achieve better business results. Empirical evidence reveals a significant number of companies in this second category somehow achieving high levels of operational performance with little attention to best practice. These two different categories of organisation have been described by Hanson *et al.* (1994) as “promising” (18 per cent of their UK sample) and “vulnerable who won’t go the distance” (10 per cent of the sample). The benchmarking study on which this paper is based has identified an even greater proportion of “vulnerable” companies in the North East of England sample.

The paper attempts to answer a number of important questions such as, do “vulnerable” companies really get “something for

nothing"? If so, how can achievements be sustained? What can each category learn from the approaches of the other? The implications are discussed below along with proposed future agendas for change in such organisations.

Research methodology: the survey instrument and approach

This paper reports some of the findings from a study of manufacturing companies in the North East of England. The work is ongoing as part of a regional strategy involving a partnership of more than 20 publicly-funded business support agencies (Prabhu and Yarrow, 1998). The methodology used for the data collection builds directly upon the work of the "Made in Europe" and "Achieving world-class service" studies (CBI, 1997; Hanson *et al.*, 1994, 1996; Voss *et al.*, 1997, 1998), and was carried out with the support and assistance of the partners (IBM Consulting, London Business School, the Confederation of British Industry and West London Training and Enterprise Council). A scaled down version of the original PROBE (promoting business excellence benchmarking tool) instrument has been adapted by the University of Northumbria at Newcastle to be applicable to smaller businesses and more economically applied to a large sample concentrated in one region, and is known as PILOT.

The tool has been used to make a diagnostic assessment, which compares practices and performance against world-class standards. Company personnel assign scores using a scale from 1 to 5, comparing their company's operational practices and performance against world-class standards. Maximum scores of 5 are awarded only for world-class achievements. This is undertaken initially by a small group of company representatives who, once they have completed the questionnaire, are invited to a workshop, which is facilitated by the research team. Here they work in small groups with other companies to calibrate their individual responses, which are quality-assured by the research team. To January 2001, 311 manufacturing and 512 service sector companies have participated, giving the North East the most intensive coverage of any region for a study of this kind. The sample covers every sector of the regional economy.

The following analysis is based on the above sample of over 300 companies which manufacture for a range of customers in a number of market sectors. The

benchmarking process uses the assessed practice and performance scores to categorise each company on world-class performance scales (see Figure 1). "World-class" companies achieve overall practice-performance scores above 80:80 (note: this is less than 2 per cent of the sample); "vulnerable" companies have performance scores (above 60 per cent) that lead their practice scores, whereas "promising" companies have practice scores (above 60 per cent) that lead their performance scores. It is also worth noting that companies achieving better than 60:60 are known as "potential winners". The scales and classifications are in agreement with those used by Hanson *et al.* (1994) in their world-class model.

Analysis

The first stage of the analysis was to test for associations between categorical variables using the chi-square test for statistical independence. Two were considered possible, first, the association between world-class status and company size, and second between world-class status and industry sector. Table I shows a high degree of association ($p = 0.002$) between the number of employees and world-class status for vulnerable and promising companies. However the association between world-class status and industry sector is not statistically significant. This may be due to the small sample size for promising companies in some of the market sectors as shown in Table II. Although not statistically significant, there is a high proportion of vulnerable companies in the fabricated metal products and miscellaneous manufacturing sectors.

By definition, there are significant differences in overall practice and performance between vulnerable and promising companies. It would appear that compared with promising companies, vulnerable companies do get "something for nothing" by achieving higher performance, apparently without applying "best" practice (at least in some measures). What are the differences? To identify these, each practice and performance measure of both vulnerable and promising companies was examined using a two-sample *t*-test. Significant differences were identified in 19 company practices and seven company performance measures. The mean scores for each of the measures are given in Table III, along with the level of statistical significance for each. These differences are considered under four headings corresponding to areas from the EFQM excellence framework: the

Figure 1

Scatter-plot output from PILOT showing vulnerable and promising categories of companies in the sample

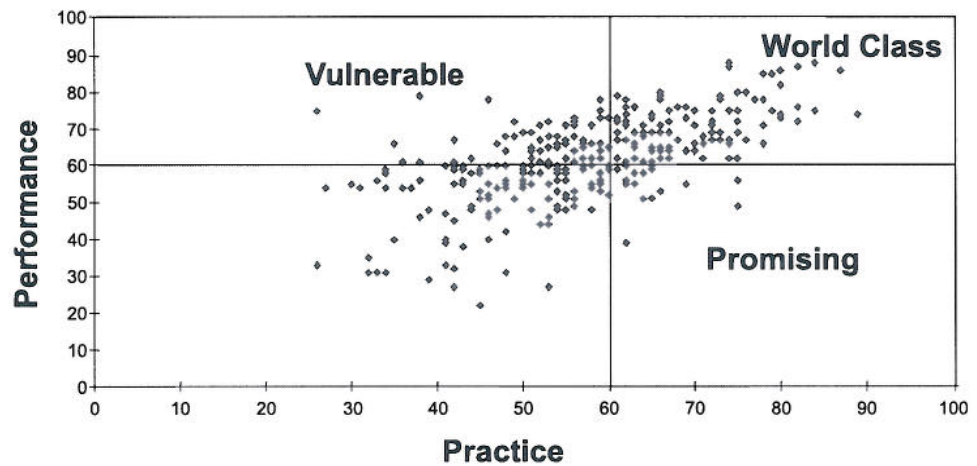


Table I

Association between world-class status and company size

Number of employees	World-class status		
	Vulnerable	Promising	Total
<20	19	1	20
21-50	27	1	28
51-200	15	6	21
>200	11	8	19
Total	72	16	88

Table II

Association between world-class status and sector

Sector	World-class status		
	Vulnerable	Promising	Total
Fabricated metal products	19	1	20
Industrial machinery and equipment	7	5	12
Chemical and allied products	5	4	9
Electrical equipment and components	7	1	8
Rubber and plastic products	8		8
Printing, paper and allied industries	4	2	6
Food and kindred products	5		5
Furniture and fixtures	2		2
Measuring instruments	4	1	5
Primary metal industries	2		2
Miscellaneous manufacturing	10	2	12
Total	73	16	89

companies in each of the performance measures (bottom group in Table III). It appears that they do so despite their significantly lower mean scores on all of the practices shown.

The organisation and its people

There are clear differences between vulnerable and promising companies in the way managers share their vision, mission and goals. Half of vulnerable organisations report that they pay little attention to this, which contrasts strongly with promising companies, where 88 per cent report they have a written mission statement, clear management commitment to sharing vision, and employee involvement. Half of the vulnerable companies report that their manufacturing strategy is mainly based on output and cost targets and use a short planning horizon of one year or less. Only 19 per cent of promising companies report such limiting practice; a much higher proportion of them (44 per cent) use a business led strategy with a three to five years horizon.

Few vulnerable companies report use of teams and empowered individuals throughout the business, whereas 38 per cent of promising companies report significant teamworking activity and employee involvement. This perhaps reflects the different approaches taken towards human resource (HR) strategy, where 71 per cent of vulnerable companies report that they give little or no thought to such planning. This differs greatly from promising companies, where 71 per cent do have a HR strategy and most of these say it is linked or is integral to their business strategy.

organisation and its people; the organisation and its operations; the organisation and society; the organisation and its performance. Further definition of each practice and performance measure is given in the following analysis under each of the above headings. The mean scores show that vulnerable companies lead promising

Table III

Practice and performance mean scores for vulnerable and promising companies

Practices measured	Vulnerable companies' mean scores	Promising companies' mean scores	Significance
<i>The organisation and its people</i>			
Shared vision	2.3472	2.9375	0.0092
Manufacturing strategy	2.3056	3.3750	0.0006
Employee involvement	2.2500	3.1875	0.0019
HR strategy	1.9677	3.4286	0.0028
Skills assessment	2.3000	3.4286	0.0064
Personal development needs	2.5667	3.4182	0.0003
Training and education	2.2740	3.0625	0.0025
<i>The organization and its operations</i>			
Product development process	2.2941	2.9231	0.0363
Quality processes	2.4658	3.3125	0.0004
Supplier relationships	2.7917	3.3125	0.0211
Equipment layout	2.5224	3.1875	0.0238
Kanban	2.4444	3.0396	0.0061
Maintenance	2.3714	2.8750	0.0375
Housekeeping	3.0000	3.5625	0.0331
Performance measurement and reporting	2.0685	3.2000	0.0000
<i>The organisation and society</i>			
Strategy towards social responsibility	2.2333	3.7500	0.0013
Involvement in local community	2.2667	3.3750	0.0183
Emissions and hazards	2.4000	3.3750	0.0429
Sustainability	1.9667	2.8750	0.0203
<i>The organisation and its performance</i>			
Equipment changeover time	3.9538	3.2857	0.0307
Product reliability in service	3.6027	2.4615	0.0003
Internal defects	2.7391	1.7500	0.0094
Customer delivery commitments met	3.6438	2.5000	0.0003
Age of capital equipment	3.4789	2.8125	0.0261
Customer satisfaction	3.2192	2.5625	0.0061
Inventory turns	3.1972	2.5714	0.0247

Over half of vulnerable companies report that they do little to assess their skills base. In comparison, all of the promising companies say that they assess skill needs and many consider it as part of their business planning processes. Almost half of vulnerable companies say that they develop individuals only in response to specific problems, whereas all promising companies say that personal development needs are part of an appraisal process linked to business needs. Over half of vulnerable companies have no training plan whilst most promising companies provide development training for all employees, including specific training for quality.

The organisation and its operations

Most vulnerable companies declare that new products just “emerge”; they have no defined process and no clear strategy for product development. In contrast most promising companies report that they have a new product strategy with a documented process

and clear roles between functions (ISO 9000 accredited). Some of these companies (32 per cent) believe that the process is adaptable to different project types and technologies.

The importance of formal quality systems is recognised by many companies in the sample. Overall almost two thirds report that they have documented systems such as ISO 9000 in place (57 per cent vulnerable and 87 per cent promising). The differences here lie in the fact that there is still a significant proportion of vulnerable companies that do not use any kind of documented system. Furthermore, 44 per cent of promising companies report that, in addition, they have customer emphasis in all processes and use quality frameworks such as EFQM or Baldrige.

When asked about supplier relationships, a significant proportion of vulnerable companies (38 per cent) report the use of many suppliers, buy mainly on price and do not use a certification programme. Similar proportions of vulnerable (42 per cent) and

discussed above there are many hidden cost implications for these companies.

If vulnerable companies aspire to become world-class organisations and more sustainable, they should be guided by the experience of others. The literature demonstrates that to do so, they must fulfil all of the elements of the world-class model. In particular, this research shows that they have a long way to go in the way they manage their people, their operations and their external, environmental and societal links. Further qualitative and action research in each of these areas would benefit these companies by reducing the practice performance gap which exists.

This benchmarking study has created a wealth of regional information across all industrial sectors and there are many learning opportunities available. By establishing and maintaining this benchmarking database, the regional partnership (of support agencies) has been able to help organisations identify their areas for improvement and more importantly, show them where to find best practice. Best practice benchmarking gives companies an opportunity to learn about themselves and work with others to improve how they go about their business. There is a real opportunity for inter-firm networking and learning in a non-competitive environment, which must not be missed. Therefore, perhaps there are opportunities for organisations in each of these categories (vulnerable and promising) to work together and learn from the approaches of the others.

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Further reading

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planning ahead? What operational (and investment) mistakes might they be making without a clear strategy to guide them to new markets, new technologies and new materials? Similarly, they have no HR strategy, which means that they do not forward-plan their people needs, for example with regard to recruitment, personnel development and employee motivation. So, what are the hidden costs for a company which recruits badly or does not plan and provide for the skills and employee capabilities it needs? What are the hidden costs of poor staff moral, and reduced motivation? The managers of vulnerable companies do not share their company vision (assuming they have one) or the aims for the business with their employees. They do not use team working nor do they have empowered staff. Training needs are not identified and training effort and resource is very low, particularly little time being spent on training for quality. What hidden costs does this imply? Employees may have no common direction and little understanding or willingness to take responsibility for quality issues. Employees may be unable or unwilling to make decisions leaving little effort for continuous improvement.

The second area of poor practice in vulnerable companies is the organisation and its operations. Vulnerable companies have no repeatable product development process, "new products just emerge" so to speak. Can they really be responding to new market opportunities as they arise? What opportunity costs are there here? Too many of them report that they do not have documented quality systems in place. Does this really fit with their claim that they have high performance with regard to internal defects? Very few vulnerable companies use any kind of self-assessment framework for quality (e.g. EFQM). What missed opportunities does this suggest for involving employees in continuous improvements to their businesses? Vulnerable companies admit that they have little synergy with their suppliers. This probably implies low purchase value and missed opportunities for product developments. They have little vision with regard to manufacturing layout or the associated benefits efficient layout can bring. This is also reflected in the fact that vulnerable companies do not use JIT or kanbans. Use of such systems may not always be appropriate but where they are, surely they imply opportunities to identify and remove "waste". When it comes to looking after plant and equipment, most vulnerable companies rely on crisis maintenance. This may be an option in the short term but

examination of the true total cost of such a strategy would not stand scrutiny. They also admit to untidy plants, which can be disruptive to the flow of work and the efficiency of their processes. Additionally, this will be less than impressive for visitors and potential customers, so may be costing them through loss of potential orders.

The final area of practice looks at the organisation and society. Vulnerable companies show that they have little or no involvement in the community. This may impact on their ability to influence and recruit future employees. By non-involvement, they may unwittingly foster a poor reputation as a company. Potentially, this could affect their overall sales and market positioning. Non-involvement may also mean that they do little networking and could be missing out on regional business support opportunities. They show little regard for the environment and do only the bare minimum to satisfy legislative requirements, for example on disposal of hazardous waste etc. What priority do vulnerable companies place on the safety of their employees and the general public? Surely, paying little attention to such issues increases the possibility of mistakes or unnecessary accidents, leaving them open to legal action and litigation costs. Very few vulnerable companies minimise and control waste, or conduct life cycle analyses. The costs of such in-action may not be measured but what are they likely to be? Finally, they do not conduct life cycle planning for their products or markets and give little thought to their sustainability as a company. For this, they may pay the ultimate cost of losing their business to smarter competitors.

Both authors have spent many years working in manufacturing industry and the above findings reflect our personal experience, particularly in SMEs and subcontract type organisations. There are many vulnerable companies around us, all of which avoid spending time or resources on the enabling practices identified here. In our view not only does better practice lead to better performance but additionally, good practice needs to be much more widespread. To be successful in the longer term there are no shortcuts.

Conclusions

At first sight vulnerable companies do appear to be getting something for nothing. However their enviable success on results should not be taken at face value. As

discussed, most vulnerable companies do not use kanbans). This is not so with promising companies: 43 per cent recognise that they have inventory problems and carry between one to two months stock (WIP, purchased and finished goods).

Product reliability appears as another real strength for most vulnerable companies where 92 per cent report low rates of unit failure (less than 1.0 per cent). Promising companies (62 per cent), on the other hand, report unit failure rate greater than 2.0 per cent, with frequent recalls and product returns. Vulnerable companies also lead on internal defects performance, where 59 per cent report that they achieve less than 1,000 defective parts per million. Conversely, 83 per cent of promising companies say that they produce more than 10,000 defective parts per million.

With regard to meeting customer delivery commitments, over half of promising companies fail to deliver on up to one fifth of their orders per month. This contrasts strongly with vulnerable companies, where most claim success on better than 95 per cent of customer orders per week, every week. A similar picture emerges with levels of customer satisfaction: most vulnerable companies report that they have few complaints; however over half of promising companies say that they do get customer complaints which often need to be resolved by management action.

A final measure in which vulnerable lead promising companies, is in the age of their capital equipment. Most vulnerable companies say that the age of their essential plant and equipment is less than ten years old (a high proportion say that it is actually less than five years old). In contrast nearly half of promising companies declare that the average age of their plant and equipment is between ten and 20 years old or more.

Discussion

The results show clear association between world-class status (vulnerable and promising) and company size as measured by the number of employees. There are more small companies in the vulnerable class. Perhaps this reflects the high demands often placed on employees by (owner) managers in smaller companies. Small organisations require employees to operate flexibly, fulfilling many different roles and in many cases “beyond their contract” to ensure that customer orders are met, often at any cost (a “needs-must” culture).

A second association between status and industry sector was examined and shown to be not statistically significant. However, it is clear in this sample that a high proportion of companies which manufacture fabricated metal products and those described as miscellaneous (typically sub-contract manufacturers) are in the vulnerable category. This may be due to the jobbing-shop nature of such companies where customer requirements are not always fully documented and where changes are frequently communicated verbally. Such manufacturers rely on their ability to “respond against all odds” to satisfy customer demands. It is also worth noting that many fabricators and sub-contract jobbing shops are small companies, which fits with the first association.

This paper was borne out of the notion that some companies (vulnerable) achieve high levels of performance without good practices (Hanson *et al.*, 1994), hence the “something-for-nothing” idea. This research in the North East of England has revealed a high proportion (24 per cent) of such vulnerable companies. It is important that the implications of this are fully understood; do vulnerable companies really get something for nothing?

At first sight the analysis shows that vulnerable companies lead promising companies in all seven performance measures reported. But do they? Recall that, when asked about how they measure performance, most of them do little more than measure costs and outputs. With regard to non-output measures such as customer satisfaction or employee moral, very few adopt such practice. It begs the question “do they really know how well they are performing?” They admit that they do not have the measurements in place. So, just how good are vulnerable companies with regard to measures such as product reliability, customer complaints, internal defects, or for that matter, any other non-direct cost area? Do even they know?

The analysis shows significant differences between the practices of vulnerable and promising companies under three broad headings. Vulnerable companies are significantly worse at all 19 practice measures reported. It is our view that these poor practices may result in many hidden costs. Let us first consider the organisation and its people; what hidden costs might be present? Overall, vulnerable companies report that they do not have a manufacturing strategy and use very short planning horizons, typically less than one year. What opportunities are they missing by not

promising (44 per cent) companies report that they have rationalised their supplier base. However, there are many more promising (44 per cent) compared with vulnerable companies (21 per cent) reporting that they use a just-in-time (JIT) philosophy with certified suppliers and are developing “partnerships”.

With regard to manufacturing facilities layout, 87 per cent of vulnerable companies state that they use functional layouts. Conversely 52 per cent of promising companies say that they have tried to adopt multi-purpose layouts with “in-process” control. Linked to the previous two practices, the use of *kanbans* has been adopted by many manufacturers to ensure a “pull production” approach. This of course is not always a viable option as it depends on the type of manufacturing process and “smoothness” of flow. Nevertheless the analysis shows that fewer vulnerable companies use *kanbans* compared to promising companies.

With regard to planned maintenance of plant and equipment, it is somewhat worrying that most vulnerable companies rely on little more than crisis maintenance. Promising companies are significantly ahead with 44 per cent, claiming that they use preventive maintenance, while only 31 per cent of vulnerable companies adopt this practice. Very few companies (19 per cent promising and 9 per cent vulnerable) claim to be moving beyond this towards total preventive maintenance. Linked to this is the issue of “housekeeping”. A significant proportion of vulnerable companies (31 per cent) admit their plants are cluttered and disruptive. Only 26 per cent claim that their factories are clean, orderly and approaching “tour-ready” status, compared with 50 per cent of promising companies.

Finally in this section, we consider the way the organisations measure and report their performance. It is notable that 73 per cent of vulnerable companies do little more than measure costs and outputs. Only 22 per cent of them attempt to measure process outcomes compared with 67 per cent of promising companies. With regard to other wider measures, such as customer satisfaction, market share and employee moral, very few of either category adopt such practice (20 per cent promising and only 6 per cent vulnerable).

The organisation and society

In recent years, there has been an awakening by organisations of how they are viewed by society. This is probably due to the emphasis placed on such issues by the self-assessment quality frameworks such as the EFQM

excellence model (EFQM, 1999). The results show that 60 per cent of vulnerable companies have no strategy towards corporate responsibility. Conversely, 75 per cent of promising organisations do have an agenda for this. Over half of vulnerable companies do nothing to encourage individual involvement in the local community (e.g. schools, welfare, sports, and voluntary work), whereas nearly all promising companies do adopt inclusive activities.

With regard to protecting the environment and the emissions of hazardous waste, 50 per cent of vulnerable companies together with 25 per cent of promising report that they do nothing more than comply with minimum legal requirements. At the other end of the scale, 50 per cent of promising companies as opposed to 13 per cent of vulnerable companies claim that they minimise and control waste, conduct life cycle analysis and place priority on the safety of all employees and the general public. The responses as to how the companies view their sustainability (e.g. goods, staff transport, siting policies, supply chain issues and materials) show that only 33 per cent of vulnerable companies are aware of the need to address such issues. This number rises to 63 per cent in promising companies.

The organisation and its performance

In the above analysis, promising companies have scored higher than vulnerable companies. The theme of this paper was to examine whether vulnerable companies get “something for nothing”. It appears that they do – higher performance. This section considers the differences in performance measured on seven parameters, which are key indicators for manufacturers. Three of these are “external” customer related results and four are “internal” operational performance.

Flexibility is a major issue for most manufacturers in today’s competitive environment. The speed of equipment or tool changeover is important, especially with regard to minimising lead times and reducing batch sizes. It is clearly linked to the type of manufacturing process and not all manufacturers have a need for “slick pit-stop” type changes. The results show that most vulnerable companies report that they achieve their changeover time in minutes, whereas most promising companies measure this in hours or days. Results on inventory turns support this, where 83 per cent of vulnerable companies say that they use smaller batch sizes and achieve ten to 15 turns per year or better (yet as previously