Cranfield University School of Management
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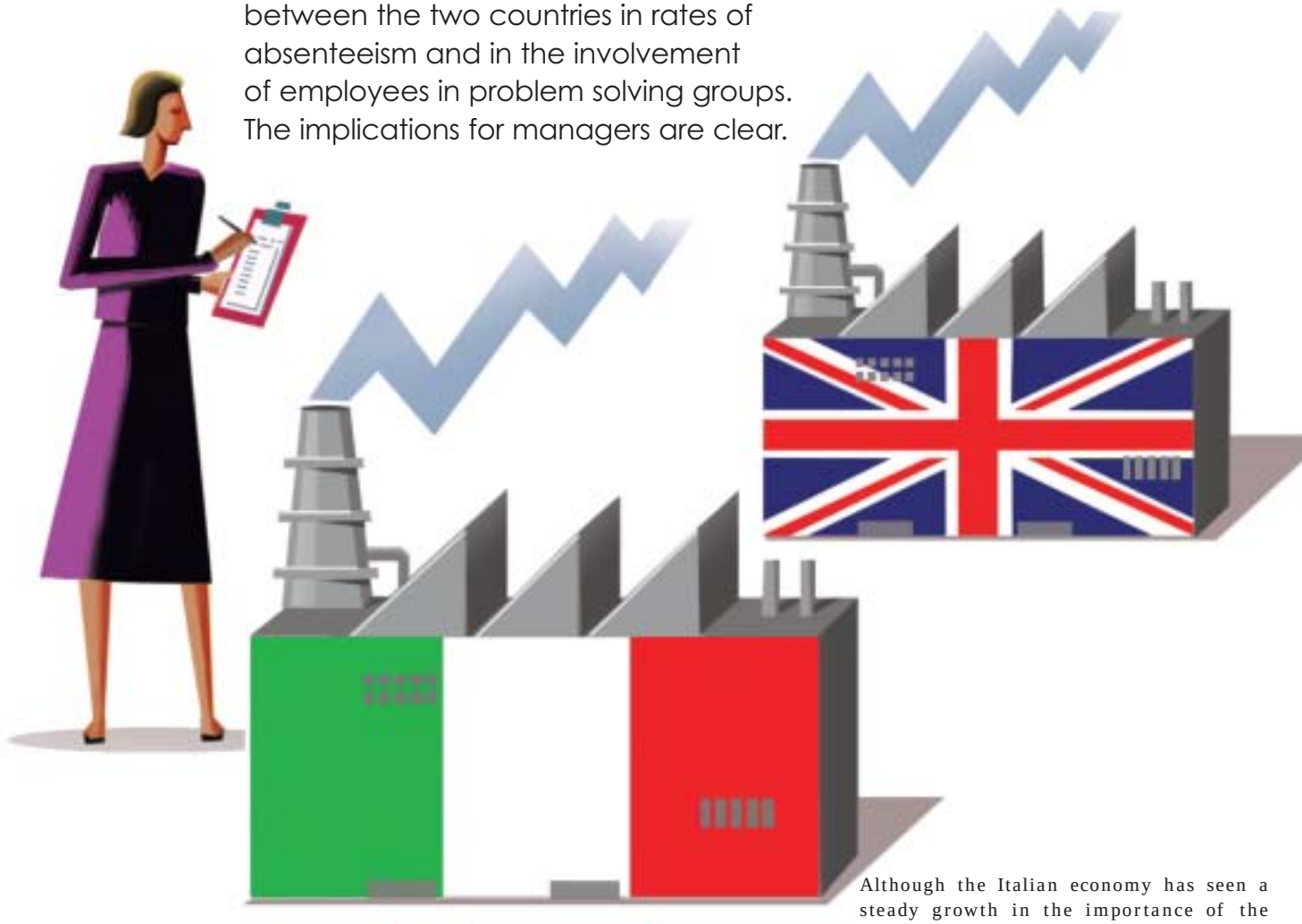
# Italian and UK manufacturing compared

Research has shown significant differences between the two countries in rates of absenteeism and in the involvement of employees in problem solving groups. The implications for managers are clear.



## Key messages

- This study compares the performance of Italy's manufacturers against their UK counterparts; insights gained from this benchmarking technique act as a major driving force for change at both the plant and national level.
- Plants in both countries appear to be on par with each other in areas such as 'lead times', 'flexibility', and 'quality' although the UK significantly outperforms Italy in the area of 'people management'.
- A number of Italian plants have been able to buck this trend by harnessing a continuous commitment to educating and training employees and a determination to invest in the professional development of their workers.

Although the Italian economy has seen a steady growth in the importance of the service sector, manufacturing still plays a key role in the economy. It employs 32 per cent of the active population and accounts for about 33 per cent of the country's gross national product. For this reason, the performance of Italian manufacturing plants relative to their international counterparts is of considerable domestic importance, as well as highly relevant for those interested in wider European comparisons and benchmarks.

This article reports on a research project that looked at the performance of manufacturing plants in Italy, and in the UK.

**Table I: Comparisons of Italian and UK engineering plants**

| Categories and descriptions of variables (units) | ITALY | UK |
|---|---|---|
| **1. Lead times** | | |
| • Procurement (days) | 52.9 | 65.8 |
| • Average assembly lead time (days) | 7.1 | 4.4 |
| • Average quoted customer lead time (days) | 37.4 | 33.0 |
| **2. Flexibility** | | |
| • Average component set-up time (mins) | 52.1 | 64.2 |
| • Average assembly set-up time (mins) | 26.3 | 12.5 |
| • Stockturns (p.a.) | 7.9 | 10.1 |
| **3. Quality** | | |
| • Scrap rate (%) | 2.6 | 3.0 |
| • First time pass rate at final test (%) | 96.1 | 93.7 |
| **4. Labour** | | |
| • Average length of service (years) ** | 14.4 | 10.1 |
| • Average rate of absenteeism (%) * | 5.7 | 3.3 |
| • Average annual employer turnover (%) | 9.8 | 8.2 |
| • Per cent of employees involved in problem solving (%) ** | 19.8 | 47.2 |
| **5. Innovation** | | |
| • Time-to-market (months) | 11.6 | 14.7 |
| • Innovation rate [new products introduced as % of existing product range (average % change p.a.)] | 1.91 | 3.26 |

**Key:** ** p value <= 0.001 * p value <= 0.01

Source: International Best Factory Awards - 1998 & 1999

By using data from the International Best Factory Awards Programme, it was possible to compare the two countries' manufacturing plants in a number of areas, including production lead times, flexibility, labour trends and innovation.

## Research design

Data for the research was taken from the International Best Factory Awards programme (IBFA) – also known in the UK as 'Management Today Best Factory Awards in association with Cranfield School of Management'. The awards started life in the UK, and have been running in their current form since 1992. The purpose of the awards is to recognise and reward manufacturing excellence. The programme was extended to Germany in 1996 to enable international comparisons to be made, and was subsequently launched in Italy in 1998.

The awards are open to any manufacturing plant. A plant is defined as a relatively self-contained unit with its own management staff, which can be identified either by separate facilities, by separate products or by separate management structure. To enter the competition the plant has to complete a detailed 16-page questionnaire. The information collected in the questionnaire covers descriptive data (e.g. cost structure) management policy data (e.g. market positioning) and performance data (e.g. delivery reliability). The questionnaire focus is on obtaining objective, verifiable data on key manufacturing variables. The approach has enabled an extensive database to be created against which individual plants can be judged. In addition, it allows for international comparisons to be carried out. The data provided by the plants is treated as confidential.

The plants have two incentives to encourage them to complete the questionnaire. First, there is the possibility of winning an award (for example, 'best engineering plant'), and second, all plants that enter receive a 'personalised' benchmarking report that compares their performance against other plants in their industry sector.

Several features of the IBFA approach ensure that the data between the three countries is comparable and that a high response rate is achieved. The programme, for example, uses identical collection methods in Italy, Germany and the UK and focuses on obtaining verifiable quantitative data on key manufacturing variables. This ensures that if a plant is short-listed for an award, a team of judges will visit it and verify the data: plant management understands that it may be cross-examined on the data and required to substantiate its entries. The IBFA questionnaire has been extensively tested in the UK and before being used in Germany and Italy was translated by a native speaker and reviewed by academics and potential users.

## Comparison of Italian/UK manufacturing

So how do Italian manufacturing plants compare with their UK counterparts? To investigate this question it was decided to compare the performance of Italian and UK engineering plants. The sample that was used in the research contained 45 Italian engineering plants (which had completed the questionnaire in 1998 and 1999) and 51 UK engineering plants (which had completed the questionnaire in 1998). The two groups of plants were compared on several variables, grouped into five categories; the comparison is summarised in Table 1, left.

The results of the comparison shown in Table 1 are as follows:

- **Lead times.** Italian plants have shorter procurement lead times than UK plants (52.9 days compared to 65.8 days) – the greater use of local suppliers in Italy gives them an advantage. However, UK plants had much shorter average assembly lead times than Italian plants (4.4 days compared to 7.1 days). And, UK plants quoted a slightly shorter customer lead time than Italian plants.

- **Flexibility**. The average component set-up time among the Italian plants was only slightly lower than the UK plants (52.1 minutes compared to 64.2 minutes). UK plants achieved set-up times in assembly that were half (12.5 minutes) of those achieved by the Italian plants (26.3 minutes). Moreover, UK plants achieve a higher number of stock turns (just over 10 turns per annum compared to 7.9 turns per annum)

- **Quality.** Italian engineering plants produced a slightly lower level of scrap than their UK counterparts – 2.6 per cent compared to 3 per cent, while 'right-first-time' quality was, on average, marginally better in Italian plants than UK plants (96.1 per cent compared to 93.7 per cent respectively).

- **Labour.** This is the area where the main differences between the two countries were present, with three out of four performance measures being statistically significant.
  - In Italian plants the average length of service of the employees was longer than in UK plants – 14.4 years compared with 10.1 years. This is due in part to the fact that Italy has a much older workforce.
  - The average rate of absenteeism in Italy was twice the level of that in UK plants, explained perhaps by the greater impact of 'peer pressure' to come to work in the UK, itself associated with more widespread use of autonomous teams. The teamwork approach appears more common in UK than in Italian factories – a conclusion backed up anecdotally during a visit to an Italian plant by the authors.
  - UK plants involved more than twice the number of employees in problem-solving groups than their Italian opposite numbers.
  - The average employee turnover rate for the two groups of plants was broadly similar (9.8 in Italy and 8.2 in the UK).

- **Innovation.** Innovation performance was measured in two ways. Firstly, 'time-to-market' data measures how long it takes to get a significantly new/different product to market. Secondly, the rate of product innovation is measured as the number of significant new products introduced over the last three years as a proportion of the existing product range – converted to an annual rate. The Italian plants brought new products to market in less time than UK plants (11.6 months compared to 14.7 months), while the mean annual innovation rates of 1.91 per cent for Italy was lower than the 3.26 per cent being achieved by the UK plants. The low level of innovation in Italian plants may be due to a managerial approach that is 'incremental' (i.e. managers tend to make modifications) or react to new innovations in the market.

## Best practice – examples from Italian manufacturing

The information presented in this article provides an insight into the levels of performance that are being achieved and as such, provides an agenda for change. Quantitative benchmarking (provided its limitations are acknowledged) can be a major driver for change at both the plant and national level. Table 1 indicates the areas where Italian companies were significantly different from their UK counterparts, namely labour (i.e. people management) and more particularly the level of absenteeism and the involvement of employees in problem-solving groups. For any manufacturing plant which, as a result of a benchmarking exercise, recognises that its performance is poor in the area of people management two key questions arise: can improvements be achieved and who can we learn from? For the Italian manager there are several companies he/she can learn from.

The four Italian plants which won awards as part of the Italian Best Factory Awards in 1999 – Graziano Trasmissioni plant, Cascine Vico, the Unilever plant (part of the Elida Faberge group), Gaggiano, the Ucar International Inc. Plant, Caserta, and the Sachs Automotive Italia plant, Villaperosa – all represent examples of best practice in Italy that other manufacturing organisations can learn from. In all cases they have introduced many technological and organisational innovations, most notably a strong focus on the management of their human resources. They all exhibited a continuous commitment to educating and training their employees and a strong will to invest in their professional development.

The Graziano Trasmissioni plant, Cascine Vico, manufactures gears for off-road vehicles. From 1996 to 1999, they have reduced absenteeism by 30 per cent, improved delivery performance by 19 per cent, increased productivity by 15 per cent, and increased stock turnover by 40 per cent. The company redesigned the factory layout to achieve better product flows and introduced product-focused cells. The managers at the plant attribute the improvement they have made to the active and enthusiastic involvement of the

# In my opinion...

by Jean-Michel Vanderhofstadt

This comparison of Italian and UK engineering plants comes to the rather surprising conclusion that there is no significant statistical difference where indicators such as quality or lead times are concerned. However, there are significant differences in the field of people management, notably in rates of absenteeism and levels of involvement in problem-solving groups.

In addition to commenting on the scientific findings of the project, I will highlight what I consider to be two particularly interesting aspects of this article and I will conclude with a question.

The first comment is that the study has developed a statistical tool of analysis by using a well-explained IBFA questionnaire (International Best Factory Award programme). This questionnaire was translated into local languages and explained in detail to the managers of the plants undergoing evaluation. By doing so, the authors have sought to make a valid, objective and measurable comparison. For those of us who work in a manufacturing environment and are frequently interested in benchmarking other companies rather than merely analysing the plants in our own group, such an objective tool ought to be helpful and instructive. Subjective measures are too often found when managers embark on benchmarking exercises, creating the risk that the process becomes biased and deviates quickly from its primary purpose of inspiring improvement.

Leaving aside the statistical analysis, my second comment is focused on the important observation in the article that at the end of the day it is the management of people that makes the biggest difference. In the past I have worked in a production environment in Ireland and enjoyed the privilege of running a factory in Belgium for several years; today I manage a plant in the eastern part of the Czech

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production employees

The Unilever plant (part of the Elida Faberge group), Gaggiano, produces toothbrushes, toothpastes, and perfumes. In the last three years the plant has reduced the scrap rate by 66 per cent and cut manufacturing lead times by 57 per cent. The management of the plant contend that the reorganisation of the workforce into teams played a key role in their success. For example, with the introduction of teams there was almost immediately a reduction in the rate of absenteeism by 20 per cent and an improvement in the participation of production employees in TPM projects of around 35 per cent.

The Ucar International Inc. Plant, Caserta, produces artificial graphite for blast furnaces. Over a 10-year period the plant has pursued a strategy of improvement based on the application of the principles of 'total quality', 'team working', 'continuous improvement' and 'investment in new equipment'. The introduction and development of 'empowered teams' helped to maintain high levels of commitment by the employees, especially at a time when the workforce was being reduced. Over the 10-year period, absenteeism actually fell by 44 per cent. In addition the plant achieved a record 1,000 working days without accidents of any sort, minor or major.

The Sachs Automotive Italia plant, Villaperosa, produces shock absorbers for cars, motorcycles and industrial vehicles. Management has achieved increased employee participation in continuous improvement. This has lead to improved labour flexibility, an increase in the number of multi-skilled employees, and a reduction in absenteeism of 24 per cent over a four-year period. In addition, the plant has seen a significant increase in production output over the four-year period.

## Conclusion

The results of the research suggest that the performance of Italian engineering companies is similar to that of UK companies. The research points to the fact that the Italian companies are not as advanced as the UK companies in the area of labour management (e.g. absenteeism, involvement in continuous improvement teams). However, this is an area where Italian companies can make improvements in a reasonably short period of time. The four award-winning plants covered earlier in this paper provide examples of how the introduction of team working on the shopfloor can improve performance – and changes in the way they manage shop floor employees could enable companies to gain a competitive edge. The adoption of team-working can improve motivation and lead to team members taking on much greater responsibility for improvement in performance.

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Republic. My conclusion from these different experiences is that, notwithstanding their cultural differences, people and employees the world over tend to behave the same way at work. By nature, I believe, human beings are always trying to do their best and perform as best they can – provided that everything is done to encourage them to take their own initiative and to develop themselves in the workplace. Providing this stimulation, of course, is the key challenge for a well qualified management team. For this reason it is my belief that a company's management style, its corporate culture and its ability to communicate a vision and strategy – in a single phrase its leadership capability – will have a much stronger impact on relative plant performance than the cultural differences between countries where those factories are located and from which their employees are drawn.

Another significant aspect of the article is its conclusion which I believe will raise questions in the minds of those managers who read it. How come that the two groups of plants in Italy and the UK have similar results when it comes to so-called 'hard' performance measures when one group is so significantly weaker than the other in the human resource field? I do not have the answer, but I would suggest that it has something to do with our European diversity which is so rich that it can accommodate these wide cultural differences. The rational part of my brain would suggest that in the long run, though, the management which cares most about people have a better chance of thriving on sustainable success. On this point perhaps you the reader should form your own opinion!

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