

Made in Ireland 4

Benchmarking Ireland's SME's

The Thousand Benchmark Report



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Introduction: The Thousand Benchmark Report

Irish businesses compete on world Markets. To do this effectively they must be competitive to international levels of performance. Our island location means that they must also overcome the challenges of distance. Irish SME’s have taken on this challenge with exports from Irish SME’s exceeding €16.2 billion in 2012 and a further €15 billion in local sales, equalling total business over €30 billion .

Benchmarking helps our SME’s understand the true level of competition they face. It helps businesses identify their strengths and their weaknesses when compared objectively with their sector competitors. It also helps businesses allocate scarce resources in an effective and efficient way, based on objective facts, to drive improvement agendas.

This report, “**Made in Ireland 4, The Thousand Benchmark Report**”, marks a milestone in terms of Irish Benchmarking. One thousand benchmarks have been captured with Irish companies, part of a global effort where benchmark partners overseas share anonymous data with Enterprise Ireland.

The report highlights the importance of doing things right, where the data highlights the impacts on company performance. Companies who adopt good practice out-perform those who do not. We can see that Irish SME’s have made significant progress since the start of our benchmarking efforts in 1996 but there is no place for complacency, there is still a very significant opportunity for Irish SME’s to improve their overall competitiveness by continuing to adopt good practice.

Enterprise Ireland is committed to supporting our clients on their development journeys, to help them achieve increased employment levels, additional export sales, innovative new products and ultimately sustainable competitiveness.

Julie Sinnamon
Executive Director
Enterprise Ireland

Executive Summary

Enterprise Ireland has been producing “Made in Ireland” reports since 2001. Over this time we have observed an improvement in the Practices being employed by Irish business and the levels of Performance that they are achieving. The link between Practice and Performance is very important. In simple terms, it means that if a company “does the right things” then it will achieve good results.

We present the findings in this report, of an analysis of benchmarking data collected for Irish companies. The data-set is comprised of benchmarking information captured for 541 Irish companies, from 1996 to 2012. The main focus of the analysis is on investigating the link between company practice and performance, and determining what high performing companies do differently in comparison with their lower performing counterparts. In investigating practice and performance scores, the most notable observation was their volatility in recent years. To try and gain some insight this occurrence, the analysis in this report paid particular attention to the recent time period of 2006 to 2012.

In this report, **Made in Ireland 4**, we have introduced quantitative benchmarking analysis for the first time. The combined qualitative and quantitative analysis provides a strong degree for correlation between the two benchmarking systems. The analysis of the hard metrics from companies benchmarked strongly supports the assertion that the adoption of good practice leads to superior performance. Two benchmarking data-sets were used for the analysis. The PROBE benchmarking method is a self assessment process facilitated by trained and accredited benchmarking specialists. Winning Measures is a benchmarking process which collects objective company information regarding finances, customers, internal processes, and leadership. This report presents the findings from analysis of data from both benchmarking processes.

The rise in Practice - Performance scores over this time has not been completely smooth, but it has been positive.

The latest analysis of the data has shown a drop in the overall practice performance scores since the demise of the Celtic Tiger. A deeper analysis of the data indicates that the overall practice - performance result is impacted significantly by a drop-off in results for “new product development” practice and performance scores. The practice and performance results for manufacturing have been volatile in the most recent data set.

These results indicate that while progress has been made by Irish companies in developing their practices and consequently their performance results, there are further opportunities to improve overall competitiveness through the adoption of good and better practice.

It would be helpful for companies to re-focus their efforts on the area of business/operational excellence as well as developing an understanding of best practice in the product development areas leading to adoption of good and better practice.

This point is particularly important and relevant when the point regarding the recent poor practice and performance results on product development is considered. The Quantitative benchmarking analysis shows that where companies place an emphasis on R&D / New Product Development it contributes significantly to turnover with best practice companies seeing more rapid growth in terms of sales and customer base.

This analysis provides a number of key findings and conclusions. In summary, significant relationships were found:

1. There is a strong positive relationship between company practice and performance in the PROBE data-set.
2. Recent years have seen greater volatility in practice and performance scores, with a particularly notable dip in 2008.
3. In years that have seen poor practice and performance, NPD practice and performance have been particularly weak.
4. There is a large disparity between practice and performance in small firms (less than 20 employees). High performance has been observed without the corresponding levels of practice.
5. Examining the 2006 – 2012 period, high performing firms have consistently stronger practice scores than their lower performing counterparts.
6. NPD practices in particular are significantly stronger in high performing companies.
7. The size and sector of a company do not appear to be contributory factors for practice scores. There are few significant differences in practice scores between different company sizes and between different industry sectors.
8. Companies with high net profit margins were found to be particularly strong in the areas of investment practice and NPD practice.

This analysis of the “1,000 Irish Benchmarks” provides objective insight into the current and historical performance and development of Irish companies. It also provides clear guidance on the next wave of improvement activities for Irish companies. Enterprise Ireland is ready, willing and able to help its clients to take the next Step Up on their development Journeys.

1. Introduction

This study presents an analysis of over 1000 benchmark reports from 541 Irish manufacturing companies over the last 17 years. The focus of these benchmarking processes is on establishing the position of a firm in relation to company practice and practice and performance. This study examines in detail the relationship between company practice and performance, and analyses the links between best practice and high performance. While the data-set consists of companies from as far back as 1996, the primary focus of this study is on more recent times. In particular, the period of 2006 to 2012 is of most interest. The practice and performance scores of Irish companies saw a continuous and steady rise until the year 2008, where a dramatic fall in both measures was observed. A recovery in both measures was observed in 2009, which was subsequently followed by a slow but steady decline in the following three years. The period of 2006 to 2012 is therefore the main focus of this study, with the goal being to establish what differentiated best practice and high performing companies in this time period.

The analysis was conducted using two sources of benchmarking data, [1] PROBE and [2] Winning Measures. The PROBE benchmarking process measures company practice and performance under three main areas: Manufacturing, Stakeholder and New Product Development. These three main areas are also divided up into a number of sub-categories relating to individual practice and performance aspects. The framework and structure of the PROBE benchmarking process can be seen in **Figure 1**.

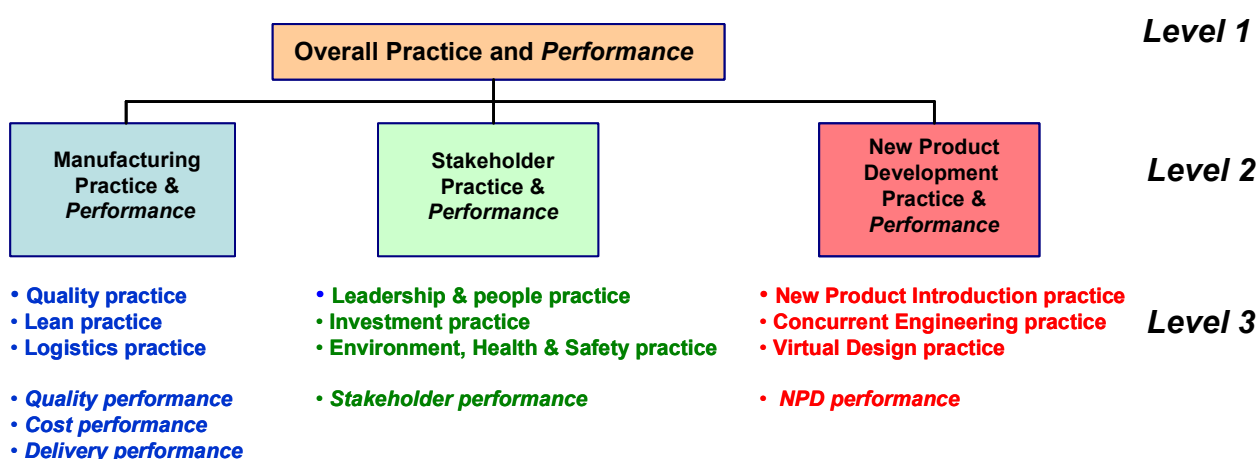


Figure 1: PROBE Benchmarking Framework

For each of the three levels of practice and performance, scores out of 100 are calculated based on the inputs provided for 52 individual questions in the benchmarking questionnaire. Each of the 52 questions falls into one of the categories in each level and respondents must provide scores for each question and how it relates to their own organisation.

The Winning Measures benchmarking process collects quantitative data relating to various aspects of practice and performance in an organisation. The information collected in the Winning Measures benchmarking process is broken down into four main areas:

- Financial perspective
- Customer perspective
- Learning & growth perspective
- Internal process perspective

The Winning Measures questionnaire collects a large amount of information that provides a participating organisation with a clear and concise understanding of how their company is doing in terms of various aspects of practice and performance. This knowledge can provide a company with the opportunity to sustain strong performance as well as identify aspects where improvement is needed.

2. The Sample

The main data-set used for the analysis consisted of 541 Irish companies who have participated in over 1000 benchmarking processes. Initial analysis of the data-set looked at the makeup of the sample and was conducted from three perspectives:

- **Time period** – When the benchmarking questionnaire was completed
- **Company size** – The number of employees in a company
- **Industry** – The business area in which a company operates

For consistency and clarity, five defined time periods were used in the analysis of the data-set. The PROBE for manufacturing questionnaire also captures information relating to the size of the company. This dataset consists primarily of SME organisations, thus the number of employees in the companies are relatively small. Three classifications of company size are used: less than 20 employees, 21 to 50 employees, and greater than 50 employees. Over this 16 year time period, the largest group that participated in the benchmarking process was the 21 to 50 employees group (207 firms, constituting 41% of the entire sample). The dataset also contained a number of companies (35 firms) where the number of employees was not captured. **Figure 2** shows the relative frequency of each company size in the five time periods. Looking at the relative frequencies (**Figure 2**), there is a clear trend of increased company size in the more recent time periods with a significant increase in the proportion of firms with more than 50 employees.

Also captured in the data-set is the Standard Industrial Classification (SIC) code for each participating company. Again to maintain consistency with previous reports, generic sector classifications are used rather than the specific industry in which a firm operates. The three largest representations in the sample are in the industries of food and kindred products (19%), fabricated metal (18%), and industrial machinery (17%). **Figure 3** shows the relative frequency of each sector in the five time periods. The proportion of firms in the 'Food & Kindred Products' sector has increased significantly in the latest time period in comparison with all other periods. However, other than that, there appears to be no discernible pattern in relation to the sector profile of the companies over the different time periods.

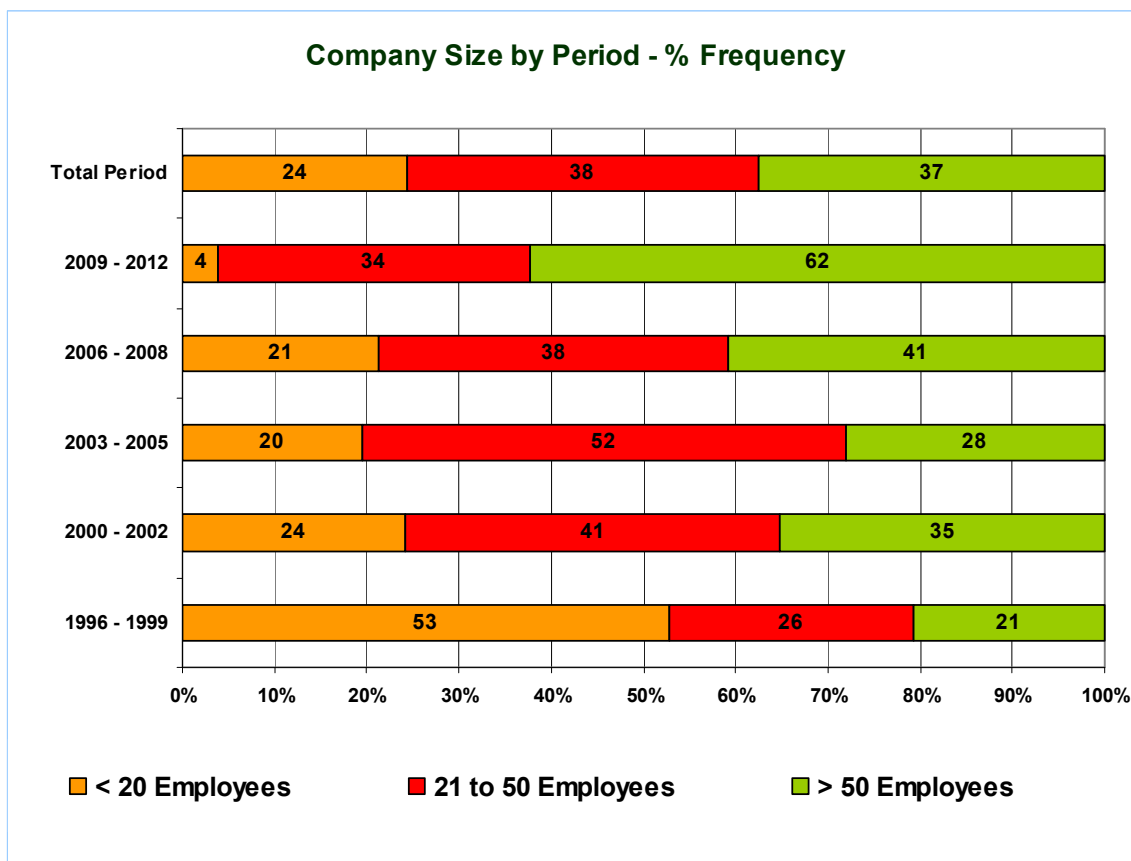


Figure 2: % Frequency distribution: Company Size by Period cross-tabulation

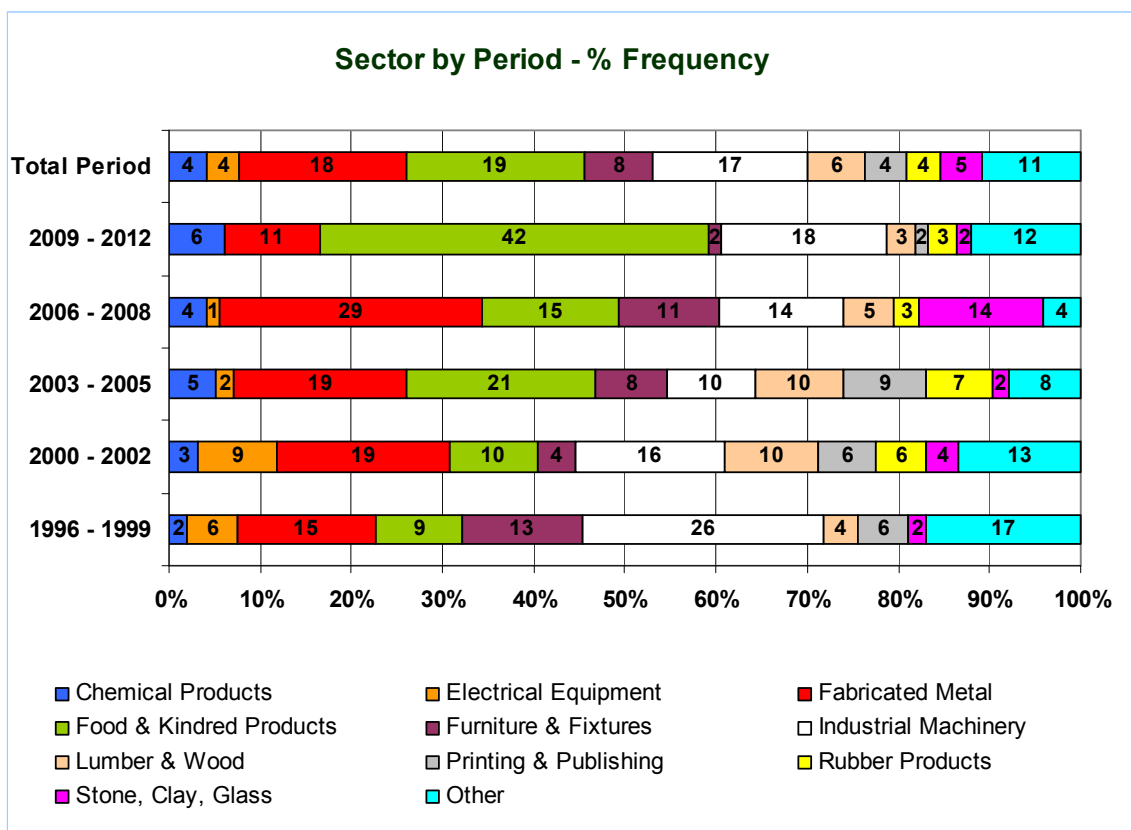


Figure 3: % Frequency distribution: Sector by Period cross-tabulation

3. Practice vs. Performance

The PROBE benchmarking process provides participants with a score out of 100 for both practice and performance, based on the information captured in the PROBE questionnaire. The first phase of analysis examines the top level scores produced by the PROBE process, i.e. overall company practice and performance.

The average company scores through the years can be seen for both overall company practice (**Figure 4**) and overall company performance (**Figure 5**). Examining these trends, there is a steady increase in the practice and performance of Irish companies, from 1996 to 2007. For both measures, a notable decrease was observed in the year 2008 (compared to the previous year, an 11.5% decrease in practice and a 10.7% decrease in performance). For both measures, 2009 sees a rapid recovery followed by another period of steady decline in the years 2010 to 2012.

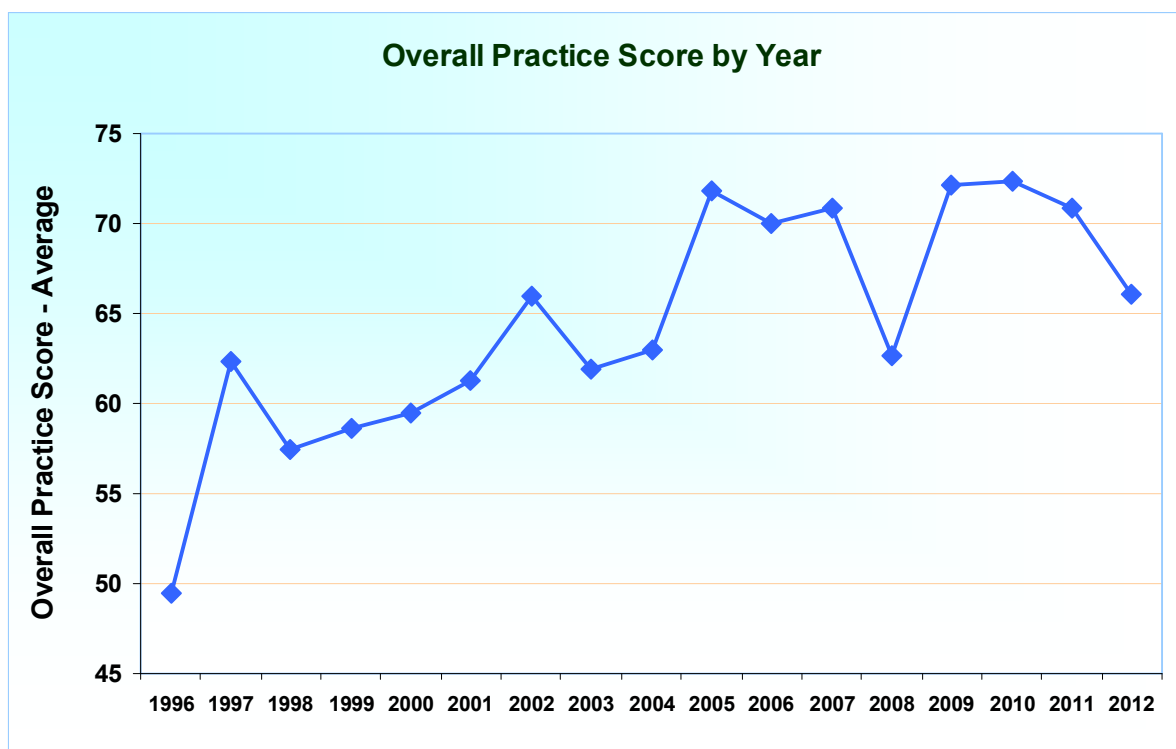


Figure 4: PROBE: Average Practice Scores by Year

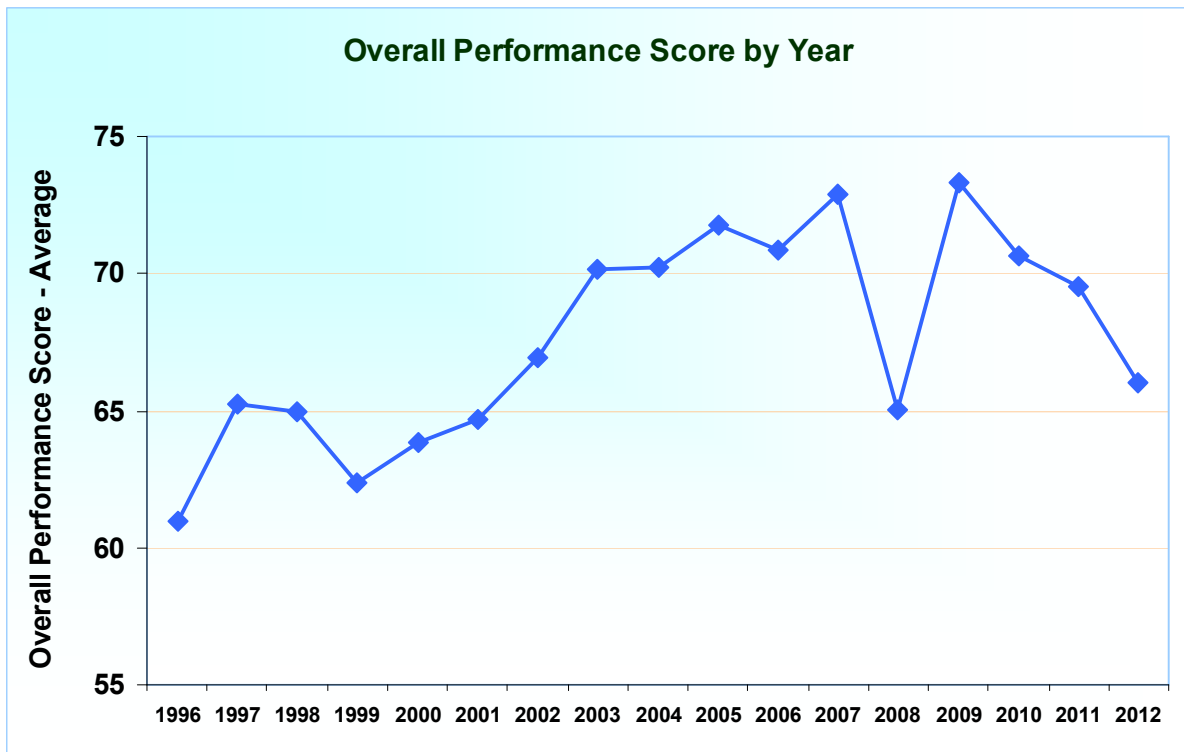


Figure 5: PROBE: Average Performance Scores by Year

Practice and performance scores were also analysed based on company size (**Figure 6**). Analysis of the scores shows that performance is greater in the smaller companies, while practice is greater in the larger companies. An interesting observation is that practice and performance scores are more closely aligned for larger organisations, while smaller companies have a bigger disparity between the two measures. One possible explanation could be that smaller firms are more focused on performance due to financial needs and a need to survive. As a result and out of necessity, small companies may invest less time and resources in improving the practice elements of their business. On the other hand, larger companies may have more time and resources to focus on improving the practice elements of the organisation. This could result in more parity between practice and performance in larger companies.

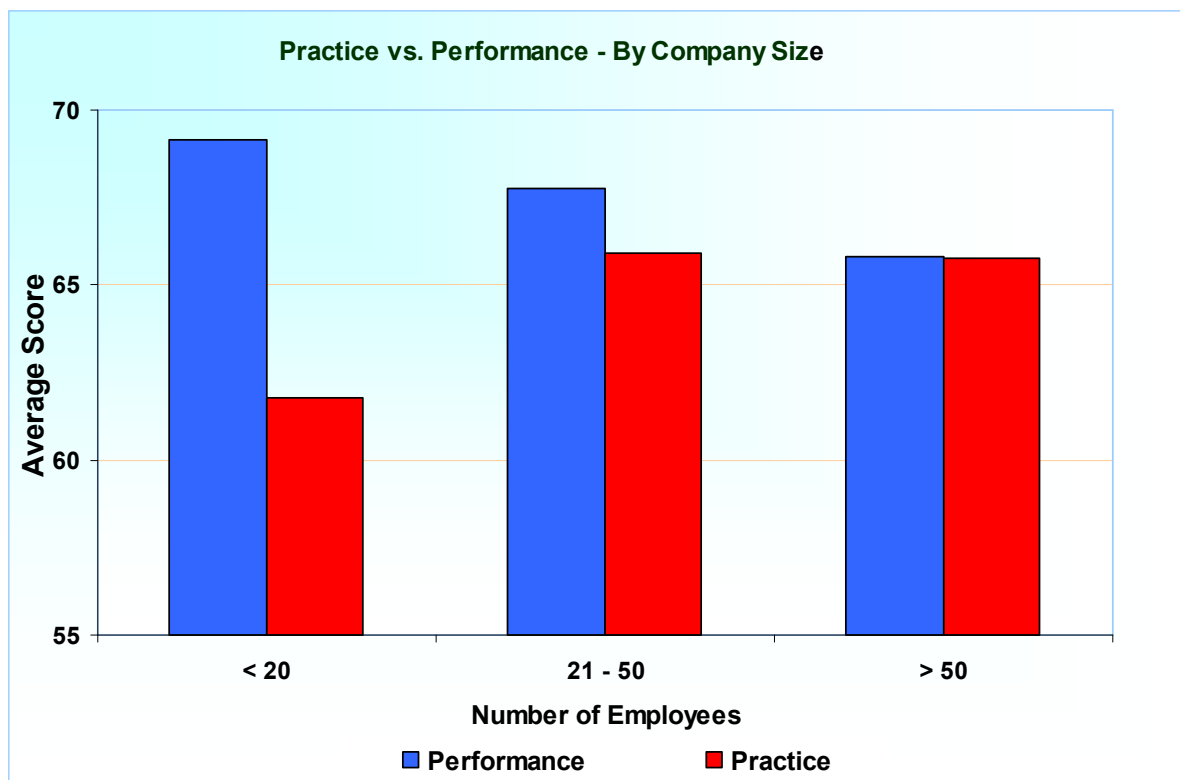


Figure 6: PROBE: Practice vs. Performance by Company Size

Examining the practice and performance scores for the different industry sectors does not reveal any obvious pattern (**Figure 7**). One observation from these scores is that the food and kindred products companies are significantly stronger than most other industries in both practice and performance. This may be due to the highly regulated nature of the food industry.

The initial analysis of the benchmarking data revealed a particular volatility in recent years. Practice and performance scores have fluctuated in the years 2006 to 2012, with an especially obvious reduction in 2008. A possible explanation on the variance in these years may be that the uncertainty caused by the wider economic situation was an influencing factor. Subsequently, the focus of this report now shifts to examine in detail the practice and performance scores in the 2006 to 2012 time period.

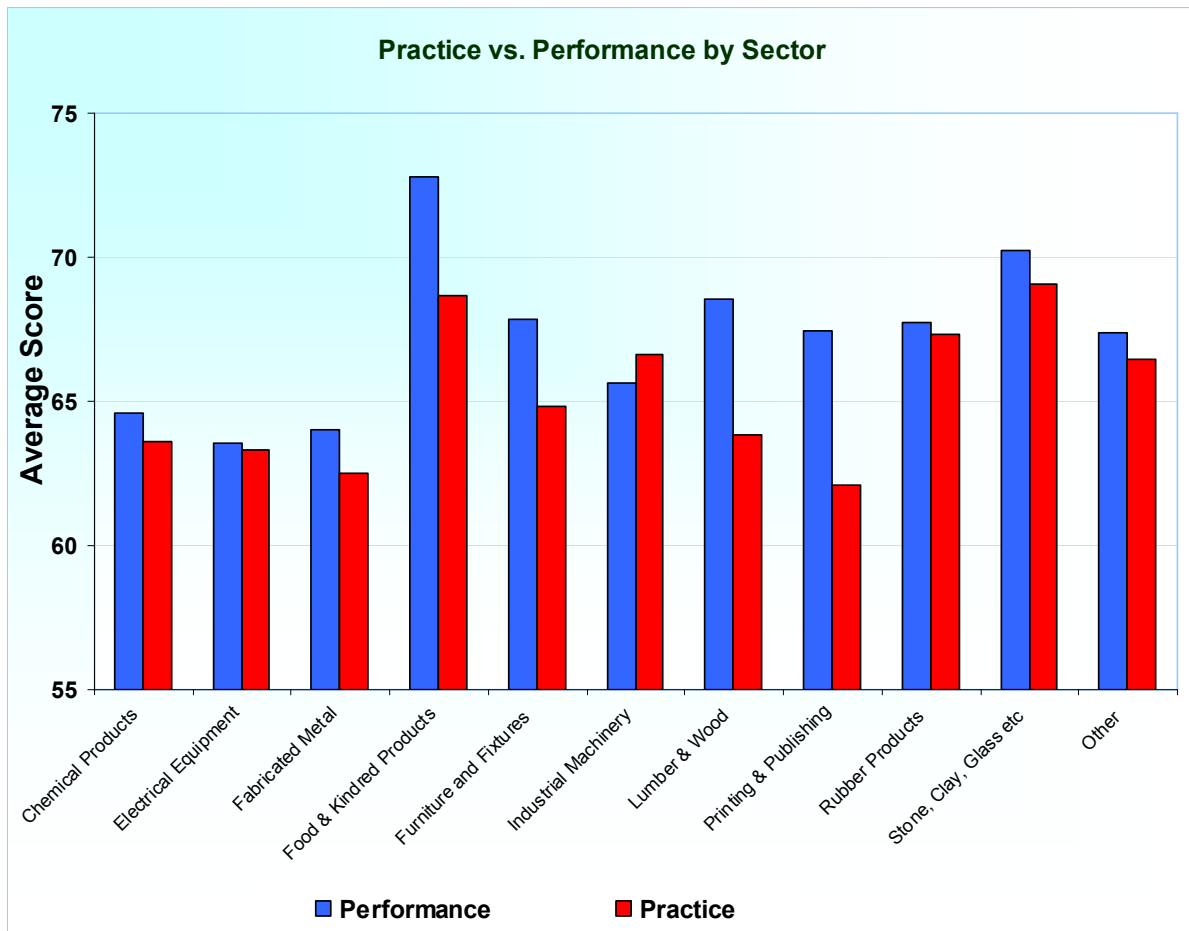


Figure 7: PROBE: Practice vs. Performance by Industry

4. Practice and Performance: 2006 – 2012 Focus

Analysing the practice and performance data throughout the years, there is an obvious point of interest around the 2006 to 2012 time period (**Figure 8**). Both company practice and performance have followed the same trend in this period:

- An increase in both measures from 2006 to 2007.
- 2008 saw a dramatic fall in the scores for both measures.
- 2009 saw a large increase in the scores for both measures (back to 2007 levels).
- Since 2009, scores for both measures have seen a gradual but steady decline.
- For years with poor performance scores, NPD practice and performance have been consistently low and the main cause of poor scores (which can be seen in **Figure 9** and **Figure 10**).
- Stakeholder performance scores were, for the most part, consistently high.
- Manufacturing performance scores were quite volatile, with particularly poor scores in 2008.

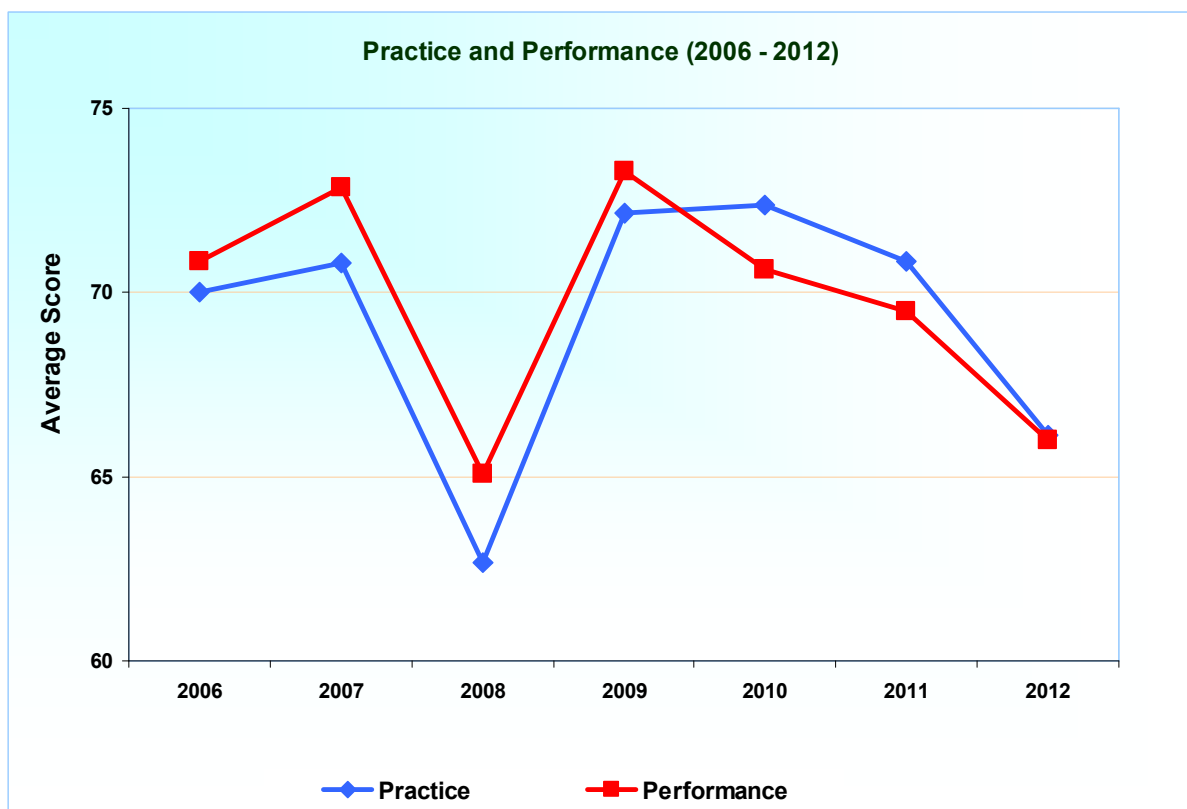


Figure 8: PROBE: 2006 to 2012 Practice and Performance Scores

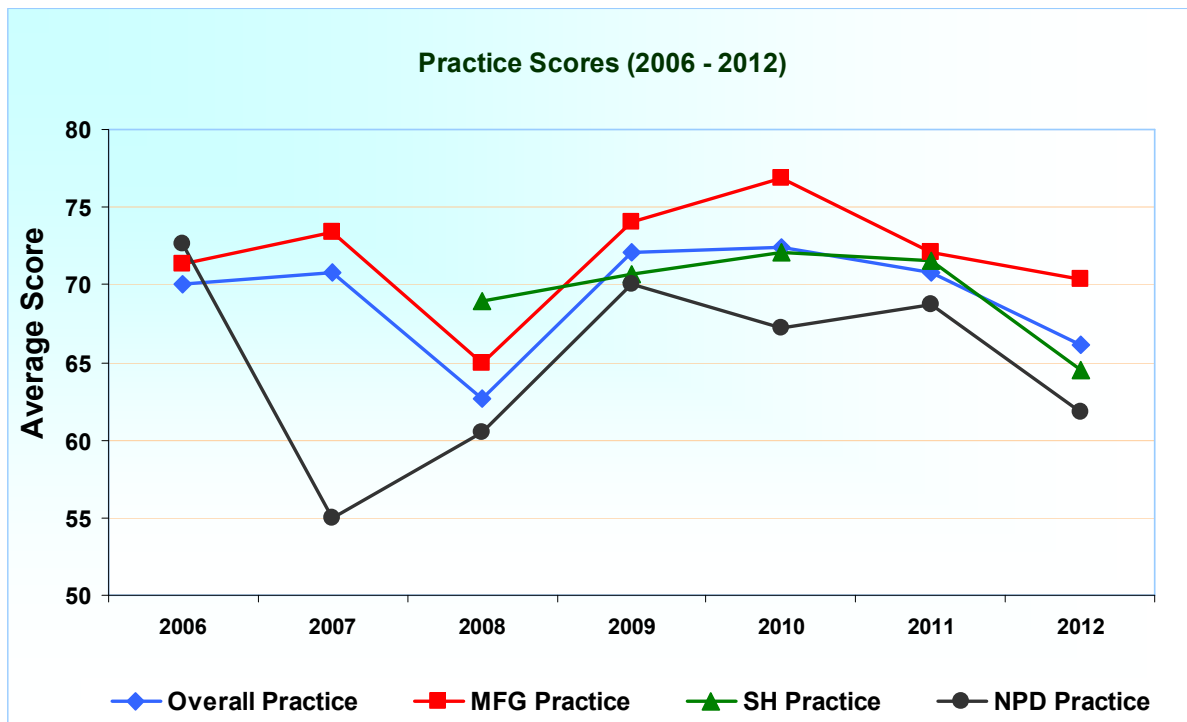


Figure 9: PROBE: Practice Scores (2006 – 2012)

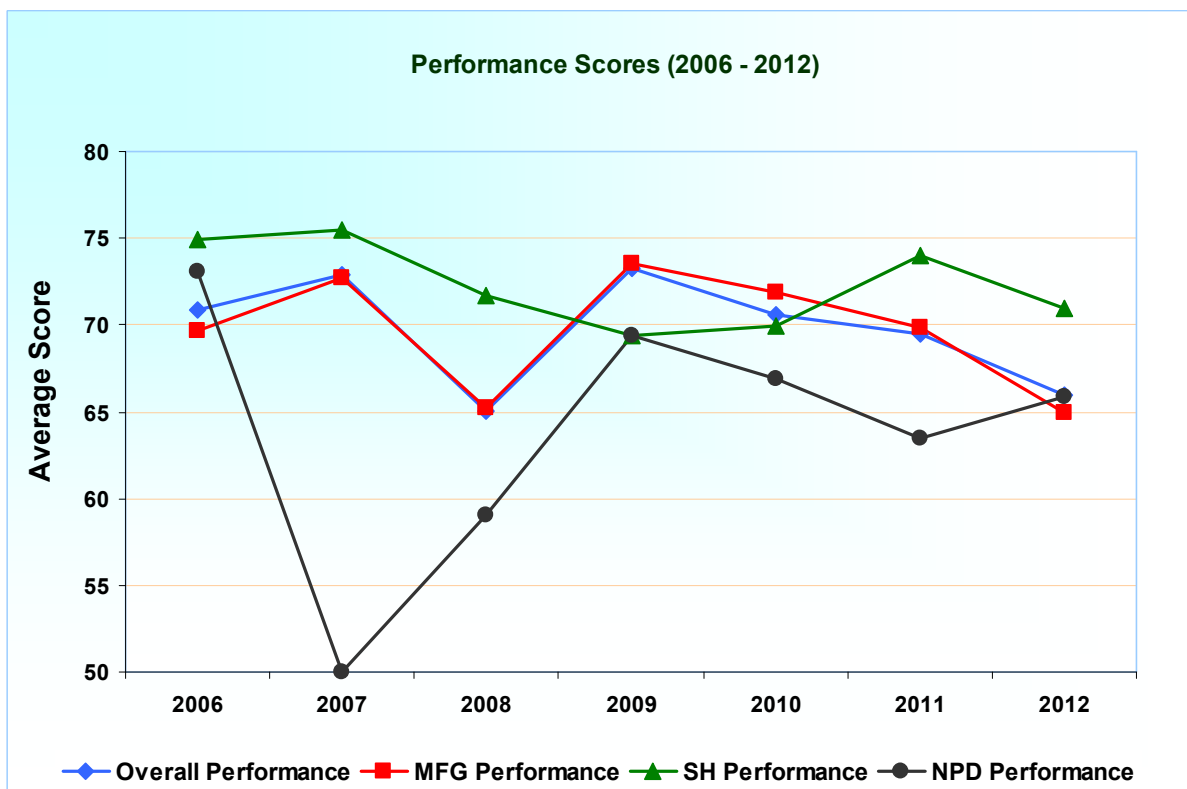


Figure 10: PROBE: Performance Scores (2006 – 2012)

Examining the evolution of practice and performance in this time period, the influence of the three PROBE areas on overall practice and performance follow a similar trend. NPD

practice and performance scores are generally quite weak in the poorer performing years. Stakeholder practice and performance are, for the most part, relatively strong. Manufacturing practice and performance have been volatile and generally in line with overall scores.

4.1 Practice and Performance: Looking Deeper

The focus of the analysis is now on providing an in depth examination of practice and performance in the 2006 to 2012 time period. The objective of this analysis is to obtain a deeper understanding of the data-set through statistical analysis and provide insight into potential explanations for strong company performance. The first step was to examine in more detail the relationship between overall company performance and company practice. **Figure 11** shows the scatter plot of overall practice vs. performance for the time period in question. A clear positive relationship between practice and performance can be seen (i.e. as practice score increases, so does performance score). The associated R2 value indicates the strength of the relationship between the two variables. The higher the R2 value, the more evidence there is that two variables are related to each other. The value here of 0.562 indicates that 56.2% of the variation in company performance scores can be explained by company practice scores. This suggests that, on the whole, companies which engage in better practice achieve higher levels of performance.

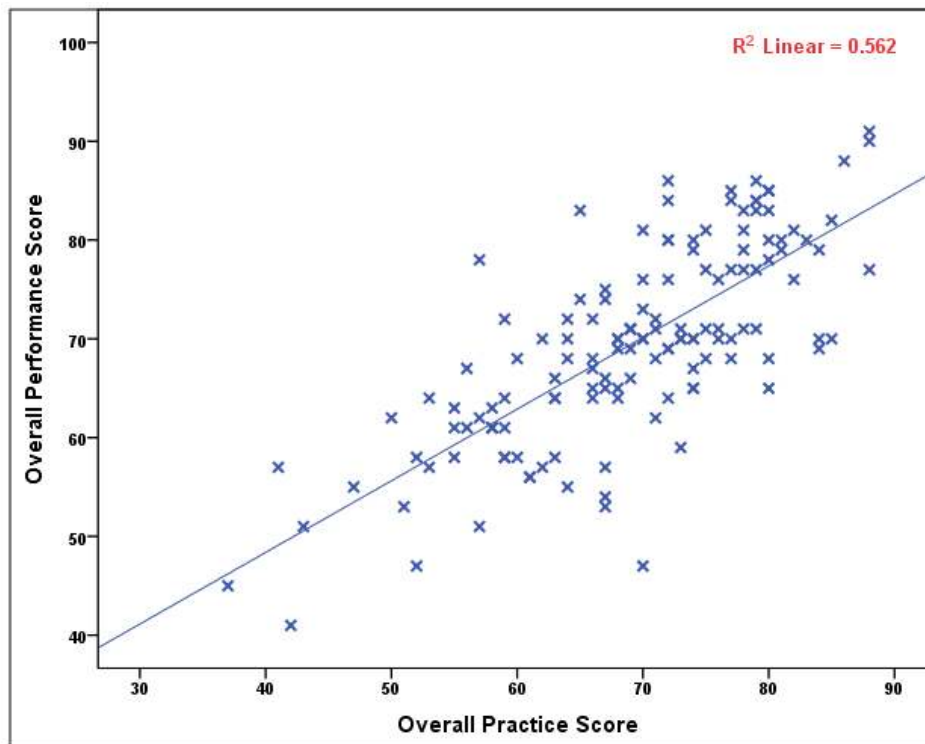


Figure 11: Overall Practice vs. Performance – Scatter Plot

So while it seems that practice and performance are inherently linked to one another, can we gain any additional insight into how company practice is related to performance, and what practice areas in particular appear to be most important?

The first step in this further investigation is to go a level deeper in terms of company practice and look at the three main practice areas defined in the PROBE questionnaire, i.e. Manufacturing (MFG), Stakeholder (SH) and New Product Development (NPD). A regression model was constructed to evaluate the relative impact that these three practice areas have on overall company performance (**Figure 12**). Regression modelling is a statistical technique for evaluating relationships among variables and their relative influence on each other. The dependent variable in the regression model is overall company performance score with three independent variables (predictors) of: [1] manufacturing practice score, [2] stakeholder practice score and [3] NPD practice score. The findings from this regression analysis are:

- $R^2 = 0.558$, i.e. 55.8% of performance variability explained by the three predictors.
- $p\text{-value} = 0.000$, i.e. the model can be said to predict performance with statistical significance.
- The coefficient values in Figure 12 tell us that: NPD practice has the biggest influence on performance, followed by stakeholder practice, with manufacturing practice having the smallest influence of the three predictors.

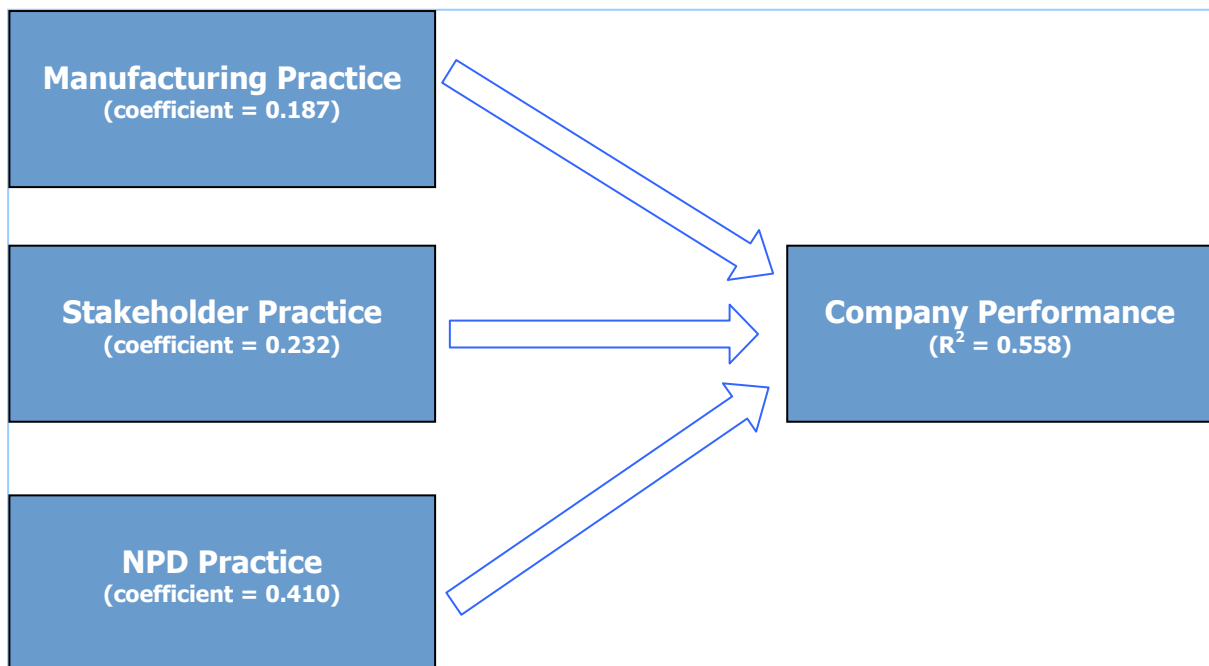


Figure 12: Regression model overview

4.2 What High Performing Companies Do Differently

Next under examination is what high performing companies do differently in comparison with lower performing firms. The first step in doing this was to analyse the overall performance scores for the entire data-set. This enabled the classification of what constituted high performing and non-high performing firms in the Irish context. The performance quartiles can be seen in **Figure 13** and are as follows:

- 25% of the firms have a performance score less than or equal to 60
- 50% of firms have a performance score less than or equal to 68
- 75% of firms have a performance score less than or equal to 74

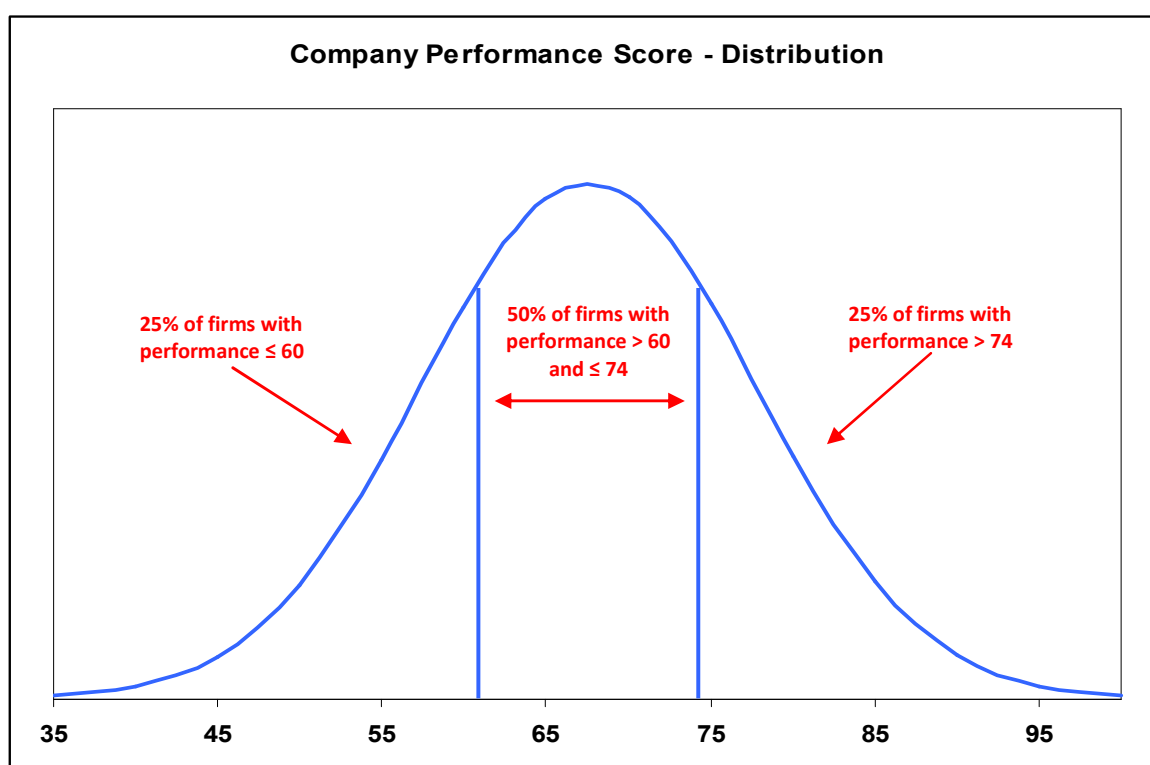


Figure 13: Performance scores – distribution and quartiles

In examining company practice two levels are used. The PROBE benchmarking questionnaire has 32 specific questions relating to company practice. These questions are answered on a scale of 1 to 5 by a participating company. The specific questions are grouped into a number of categories, which in turn fall under one the three main areas. The analysis looks at both levels of practice for different performance levels, i.e. the 9 practice categories and the 32 specific practice questions. The structure of the practice measures is as follows (see also **Figure 1**):

- Manufacturing Practice
 - Quality Practice (3 specific questions)

- Lean Production Practice (4 specific questions)
- Material Logistic Practice (3 specific questions)
- Stakeholder Practice
 - Leadership & People Practice (6 specific questions)
 - Investment Practice (2 specific questions)
 - EHS Practice (4 specific questions)
- NPD Practice
 - New Product Introduction Practice (5 specific questions)
 - Concurrent Engineering Practice (3 specific questions)
 - Virtual Design Practice (2 specific questions)

Practice Categories - Analysis

The first step in this analysis compares practice category scores between high performing firms and the rest of the sample. This grouping provides a comparison of the top 25% of firms, in terms of performance, with the remaining 75% of firms. As with overall practice, for each of the 9 practice categories, scores are measured out of a possible 100. Examining the mean scores for both groups, it can be seen that high performing firms have higher scores for all of the 9 practice categories (**Figure 14**).

To examine if these observed differences between the two performance groups could be said to be significant, statistical testing of the two populations was conducted (using the Mann-Whitney U test). The result of this testing found a statistically significant difference between the two groups for all 9 practice categories. These results indicate that companies that scored higher than 74 in overall performance, had significantly higher scores in all 9 practice categories.

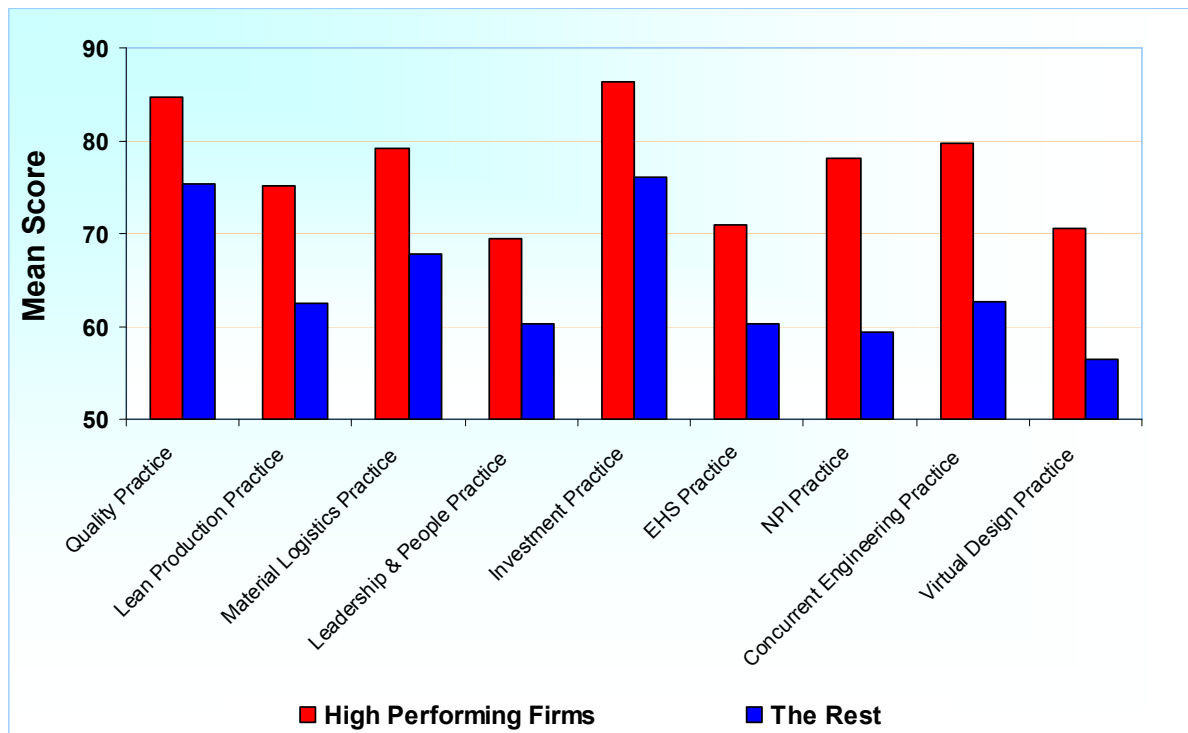


Figure 14: Practice categories – mean score comparison (High Performing companies vs. the rest of companies)

Specific Practice Questions - Analysis

The manufacturing practice question mean scores for both groups of firms are shown in Figure 15. It is clear that high performing firms score higher for all 10 manufacturing questions. Of the 10 manufacturing practice questions, 6 were found to have statistically significant differences between the two groups, while the difference in values for 4 questions were not found to be not significant. High performing companies were found to significantly stronger in the areas of:

- Customer orientation
- Supplier relationships
- Equipment layout
- Batch sizes
- Maintenance
- Housekeeping

High performing companies appear to spend a significantly greater amount of effort in understanding customer requirements and fostering good relationships with their suppliers. The high performing firms are also significantly stronger in traditional manufacturing good practices, such as efficient layout of equipment and a strong preventative maintenance approach.

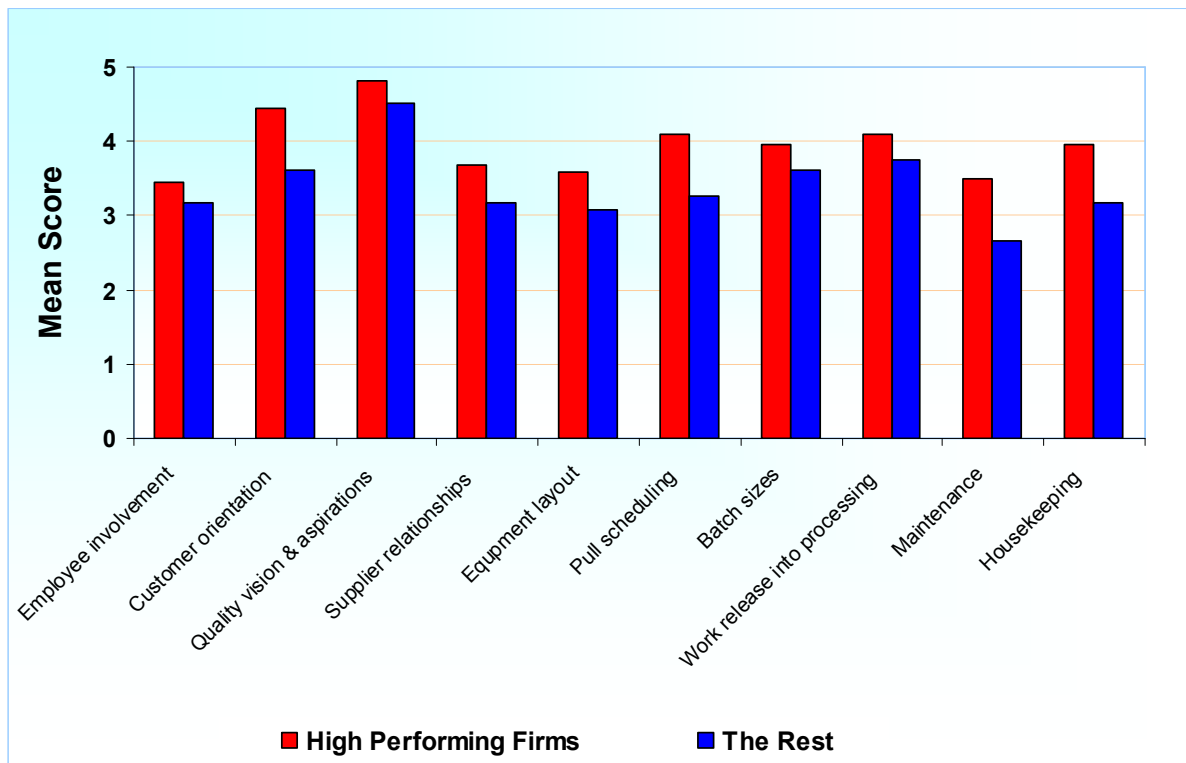


Figure 15: Manufacturing practice questions – mean score comparison (High Performing companies vs. the rest of companies)

There are 12 individual stakeholder practice questions in the PROBE questionnaire. The mean scores for these questions, for both performance groups, can be seen in **Figure 16**. As with the manufacturing questions, each stakeholder practice question has a higher mean value in the high-performing group of firms. The analysis found that 6 of the 12 questions had significant differences in values. The disparity in values of the remaining 6 practice questions was not found to be statistically significant. The 6 stakeholder areas in which high performing firms are significantly stronger are:

- Shared vision, mission & goals
- Investment for capacity
- Investment in technology
- Pollution control
- Management of solid waste
- Performance measurement

High performing firms are particularly stronger in fully developing their company vision, and involving their employees in this process. High performing firms are also significantly better at proactive investment in technology and for increasing operational capacity. The high performance group were also significantly stronger in environmental issues, such as pollution control and advanced waste management.

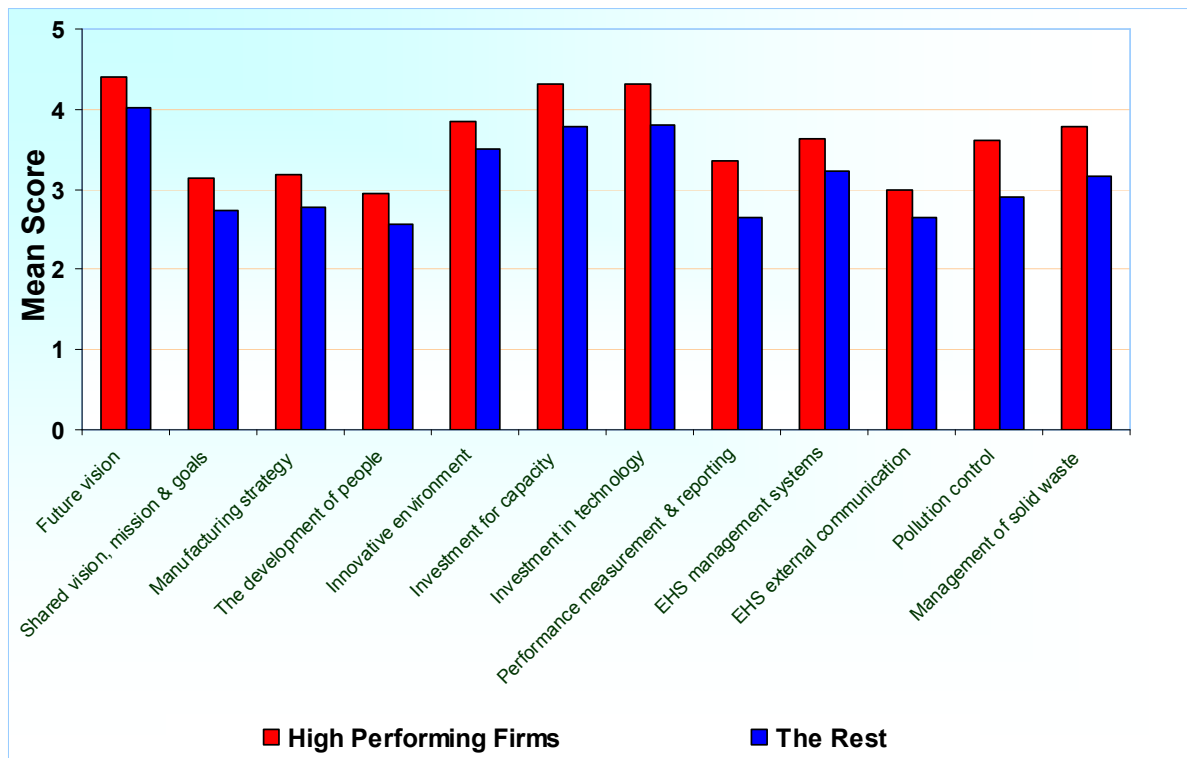


Figure 16: Stakeholder practice questions – mean score comparison (High Performing companies vs. the rest of companies)

Ten specific questions in the PROBE questionnaire are related to the area of NPD. The mean scores for these questions, for both performance groups, can be seen in **Figure 17**. As with the other two areas, all of the NPD practice questions have higher mean scores in the high performing group of firms. Unlike the previous two areas, all values for the NPD practice questions were found to differ significantly between the two groups. Therefore, there are 10 NPD areas in which high performing firms have been seen to be significantly stronger:

- Generation of innovative concepts
- Product lifecycle planning
- Product technology strategy
- Concurrency in NPD process
- Use of external expertise
- Product change and release process
- NPD communication tools
- Monitoring of specification
- Product development processes
- Design for production

High performing companies were particularly stronger than their lower performing counterparts in all areas of new product development practice, from idea generation and design practices through to effective management of the NPD process. This follows the trend of the analysis so far, which indicates that high performance is particularly associated with strong NPD practices.

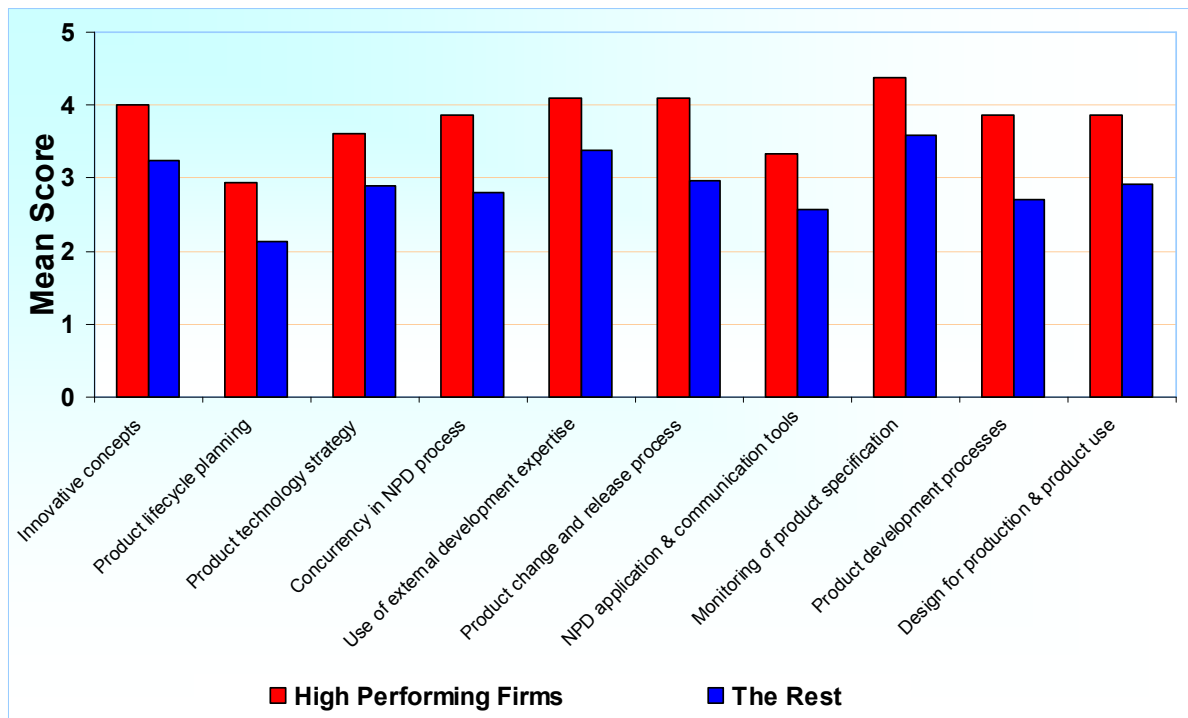


Figure 17: NPD practice questions – mean score comparison (High Performing companies vs. the rest of companies)

4.3 Comparing Practices for Different Company Sizes

The next focus of the analysis is on exploring any differences in practices based on company size. In this case company size is defined by the number of employees in a firm. Within this data-set there are three classifications of company size: [1] less than 20 employees, [2] between 21 and 50 employees, and [3] more than 50 employees. The analysis of practice measures for the various company sizes is again broken into two parts: analysis across the 9 practice categories, and analysis across the 32 specific practice questions.

Looking at the 9 practice categories, the mean scores for the three classifications of company size can be seen in **Figure 18**. Examining these mean values, there does not appear to be any obvious pattern. In some cases, a higher mean was seen for the smallest firms (e.g. ‘Quality Practice’). While in other cases, the 21 to 50 group had the highest mean value (e.g. ‘Investment Practice’). An interesting observation for this time period is that the largest firms did not register a highest mean for any of the 9 practice categories. For this time period, the size of a company does not seem to have a bearing on the score for practice category. The next step involved examining the significance (or non-significance) of the differences in values across the three company size classifications. This was done by running a Kruskal-Wallis test (a non-parametric analysis of variance) to determine whether the size of a company has any significant effect on the practice category scores.

The results mainly confirm that significant differences in practice category scores are not seen between the three size classifications. The only exception being ‘Investment Practice’, where the observed values were found to be significantly higher in the ‘21 to 50 Employees’ group, compared to the two other company size groups. Further investigation found that the ‘21 to 50 Employees’ group had statistically significant higher scores in ‘Investment for capacity’ and ‘Investment in technology’ than both of the other two groups. This indicates that companies of this size (21 to 50 employees) are significantly better at investing for future capacity in their business as well as investing in technology for process improvement purposes.

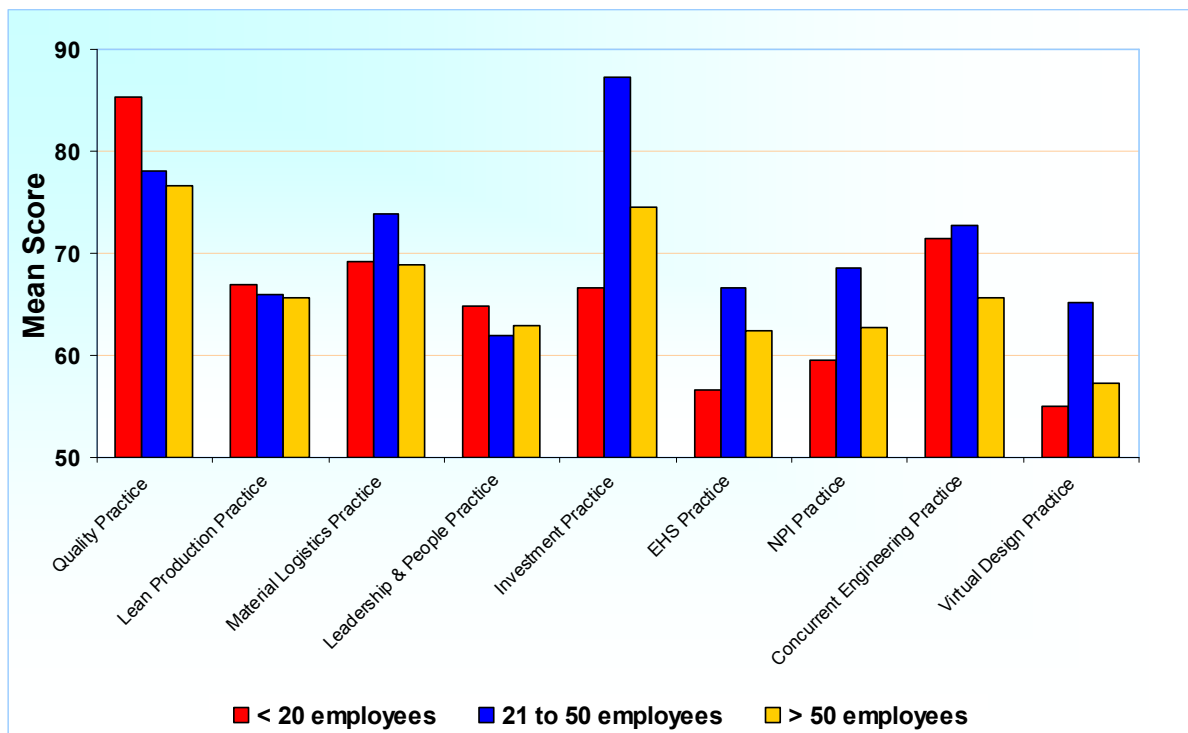


Figure 18: Practice categories – mean score comparison (by company size)

4.4 Comparing Practices for Different Industry Sectors

Another aspect of the analysis focussed on analysing the practices of companies across different industry areas. For the purposes of this analysis, the companies in the data-set are classified into one of three types. These three areas best reflect the firms who participated in the benchmarking process in recent years. These classifications are:

- Heavy industry
- Food & kindred products
- Other Manufacturing

The mean values for the 9 practice categories, across the three sector groups, are shown in **Figure 19**. Examining these average scores, there does not appear to be any noticeable trend among the three industry sector classifications. Further testing found a statistically significant difference in just one of the 9 practice categories, i.e. ‘Quality Practice’. Further investigation found that this significant difference in ‘Quality Practice’ was observed between the ‘Food products’ group and the ‘Heavy industry’ group. In this case the food products firms had significantly higher scores in terms of quality practice.

The mean scores for the specific practice questions, for each of the three industry sector classifications, found significant differences in the following areas:

- **Employee involvement** - ‘Food products’ & ‘Other Manufacturing’ significantly higher than ‘Heavy industry’
- **Customer orientation** - ‘Food products’ significantly higher than ‘Heavy industry’
- **Supplier relationships** - ‘Food products’ & ‘Other Manufacturing’ significantly higher than ‘Heavy industry’
- **Equipment layout** - ‘Other Manufacturing’ significantly higher than ‘Heavy industry’
- **Work release into processing** - ‘Other Manufacturing’ significantly higher than ‘Heavy industry’ & ‘Food products’
- **Housekeeping** - ‘Food products’ significantly higher than ‘Other Manufacturing’ & ‘Heavy industry’

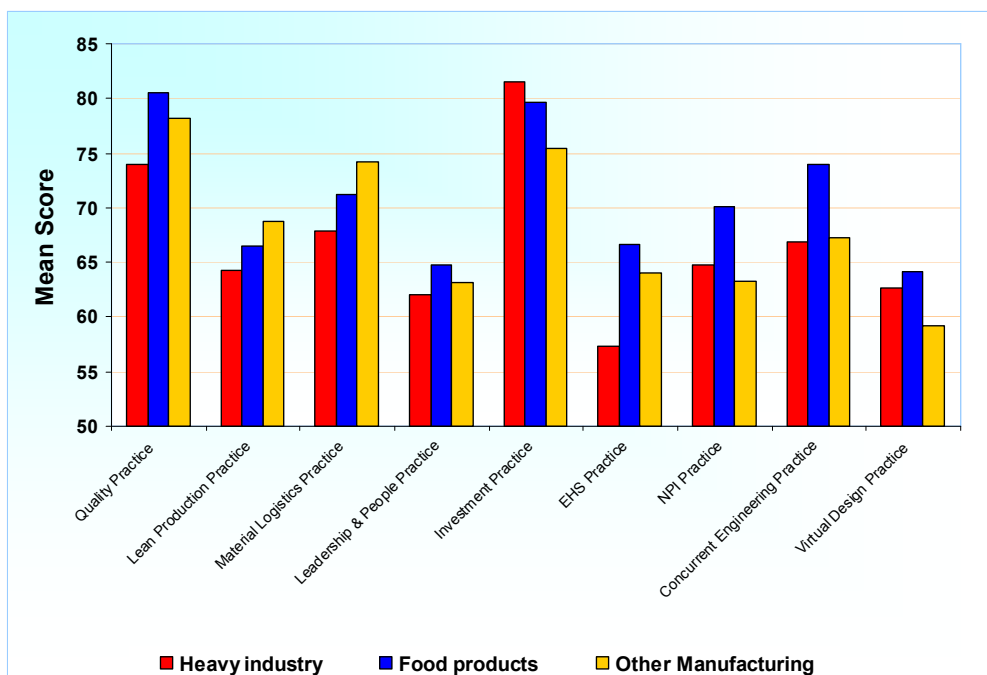


Figure 19: Practice categories – mean score comparison (by industry sector)

5. Winning Measures Analysis

Additional analysis of company practice and performance was conducted using the Winning Measures benchmarking process in conjunction with the PROBE data. This analysis was facilitated by establishing links between the two data-sets and analysing companies who participated in both. 93 companies were identified that completed both benchmarking processes since 2006. The Winning Measures benchmarking process captures more objective company information from four perspectives: financial, customer, learning & growth, and internal process. The aim of analysing the combined data-set is to further investigate the relationship between practice and performance using the more objective Winning Measures data.

5.1 Best Practice Companies – Analysis

In this section, best practice companies are defined as ones who are in the top 25% of PROBE overall practice score. This best practice group is compared with the rest of companies in the sample. In comparing these two groups, a number of metrics from the Winning Measures benchmarking questionnaire were used. The results of this comparison can be seen in **Table 1**, which shows the mean values as well as percentage differences between the two groups. While the best practice firms do not out-perform the rest of the firms in all categories, in the main they do perform better.

The key areas where best practice companies have been seen to do better are:

- Complaints per customer
- Delivery schedule deviation
- Orders rejected during warranty
- Net profit margin
- R&D expenditure to turnover
- R&D expenditure to profit
- Turnover from new products
- Turnover from new markets
- Training expenditure to turnover
- Sales growth
- Customer growth
- Time spent on rework
- Assembly setup time
- Production schedule adherence

Table 1: Winning Measures metrics – mean scores comparison (best practice firms)

	Best Practice Firms	Other Firms	% Difference
Complaints per customer (#)	0.5	0.6	20
Delivery schedule deviation (%)	5.1	5.8	14
Orders rejected during warranty (%)	0.1	1.6	1500
Net profit margin (%)	6.7	3.9	72
ROCE (%)	8.8	10.2	16
RONA (%)	7.2	8.1	13
R&D expenditure to turnover (%)	2.4	1.6	52
Training expenditure to turnover (%)	2.5	0.3	793
Turnover per employee (€)	€124,980	€139,686	12
Value added per employee (€)	€67,521	€66,698	1
Profit per employee (€)	€5,844	€5,570	5
Sales growth (%)	16.1	10.1	59
% turnover from new products	13.7	6.2	121
Customer growth (%)	19.7	14	41
No. of employees per manager	13.8	12.1	14
No. of graduates per employee	15.5	9.8	58
R&D expenditure to profit (%)	204	85	140
Turnover from new markets (%)	12.6	9.2	37
Time spent on rework (annual hrs)	696	1015	46
Assembly setup time (mins)	23.61	68	188
Production schedule adherence (%)	93.1	89	5

One interesting observation in this examination of best practice firms is the fact that more emphasis is placed on R&D expenditure, and NPD contributes more to turnover. Best practice companies have also seen more rapid growth in terms of sales and customer base. While there is very little difference in the financial figures for both groups the best practice group have a significantly higher net profit margin. The lower return on capital employed (ROCE) seen for the best practice firms could be explained by the retention of profits and a rapid increase in shareholder value. A possible explanation for the lower turnover per employee is the existence of firms in the sample with very low numbers of employees relative to turnover. The turnover per employee for industries such as milk production and certain chemical companies may be skewing the figures.

The best practice firms do perform better in terms of the customer performance metrics such as order rejection rate and customer complaints. Another interesting observation is in relation to the staff in both groups. The best practice firms have a slightly higher number of employees to manager ratio as well as having a significantly higher percentage of employees with a third level qualification.

5.2 High Performing Companies - Analysis

The Winning Measures company information was also used to provide another perspective for defining high performing companies. The first step involved defining high performance companies based on their recorded net profit margin. Based on net profit margin performance, the top 25% and bottom 25% of companies were defined. Companies in the top quartile had a net profit margin of greater than 8.14%. Companies in the bottom quartile had a net profit margin of less than 1.18%. Using this objective means of differentiating between high and low performing companies, the PROBE practice scores for the two groups are compared. The first comparison analyses overall company practice, manufacturing practice, stakeholder practice, and NPD practice. The comparison of practice scores for the two groups can be seen in **Figure 20**. The results show that the high profit margin companies score higher in overall practice and all three practice areas. While the difference is marginal for manufacturing practice, high performing firms are significantly stronger in the areas of stakeholder practice and NPD practice.

To gain further insight into the types of practice areas where the two groups differ, a comparison was also conducted for the 9 practice categories defined in PROBE (**Figure 21**). Analysing the results for the two groups, the high profit margin companies outscore the low profit margin companies in 6 of the 9 practice categories. In particular the high profit margin group are significantly stronger in the area of investment practice, i.e. strong investment strategies for increasing capacity as well as in new technology for process improvement. The high performing companies are also significantly better in all three of the NPD practice areas, i.e. NPI, concurrent engineering, and virtual design.

Using the objective measure of net profit margin as means of defining high performance has had similar results to the PROBE analysis. That is, high performing companies (i.e. higher profit margin) are, for the most part, stronger in terms of practice

activities. In particular, NPD practice areas are significantly stronger in high performing organisations.

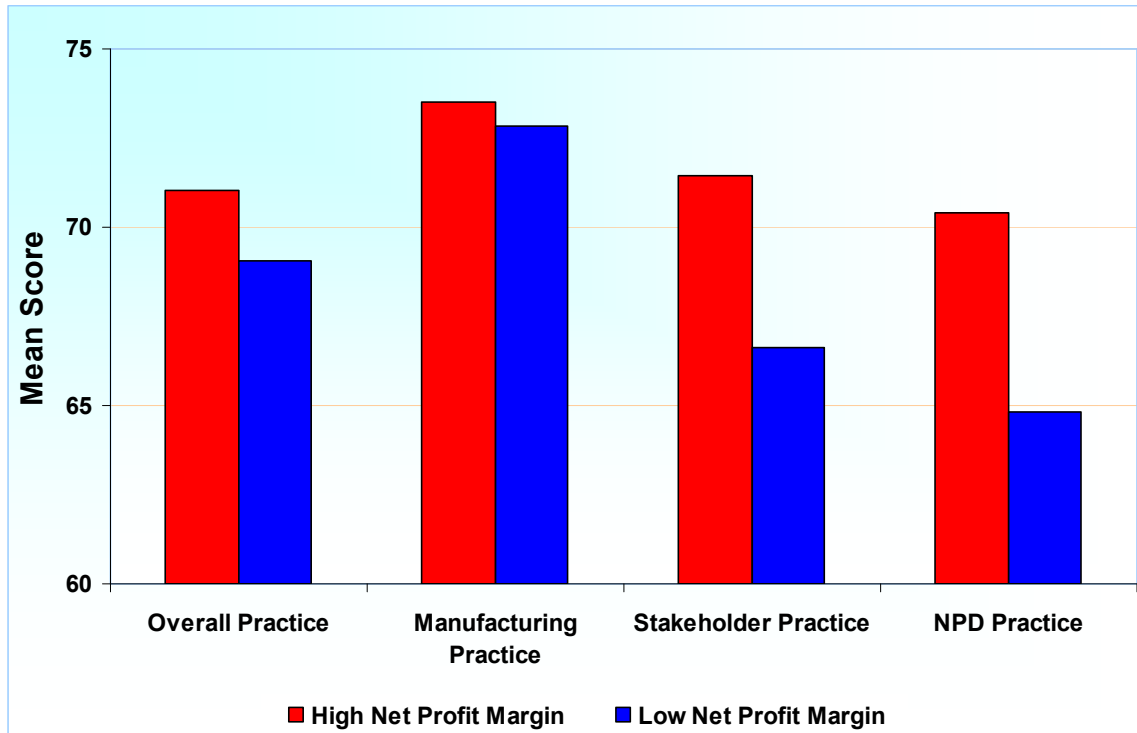


Figure 20: Top level practice scores – mean comparison (by net profit margin performance)

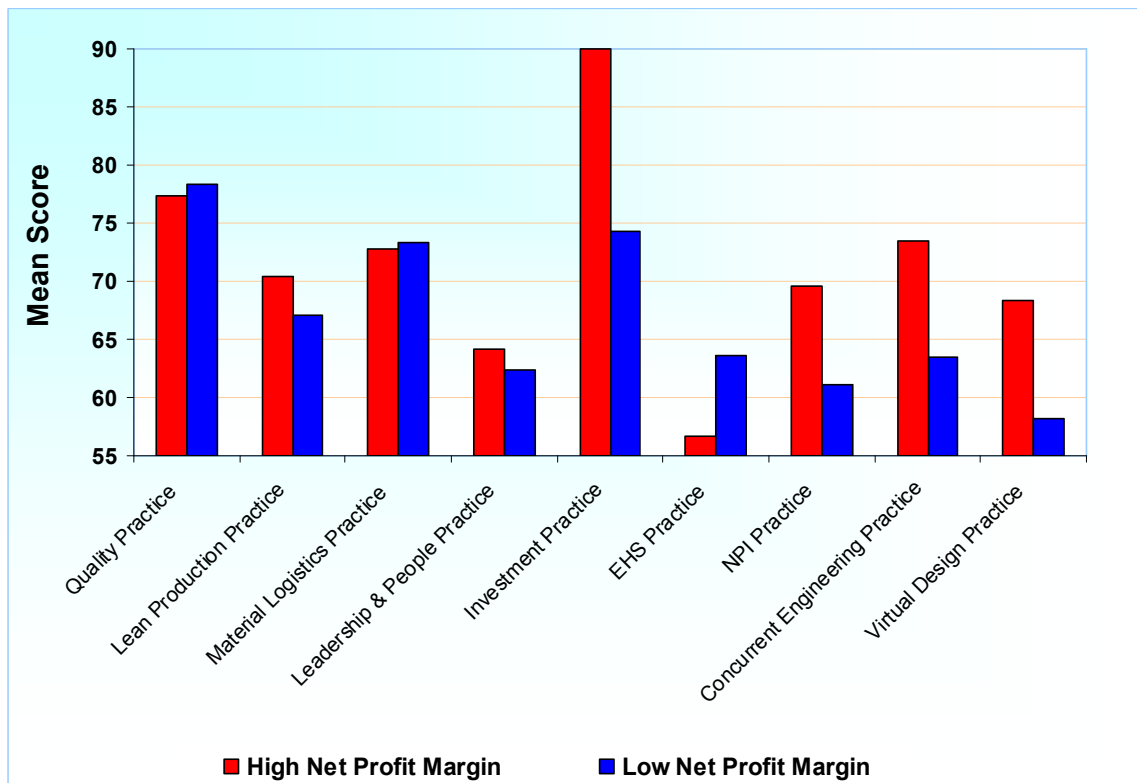


Figure 21: Practice categories – mean comparison (by net profit margin performance)

The next stage of the analysis consisted of further investigation of the relationships between different areas of practice and performance. This was done by examining the correlations between the various benchmarking metrics¹. The analysis found a number of significant relationships, the most notable of which are:

- Good customer service practices, such as on time delivery and low customer complaints, are positively associated with company performance.
- Strong performance in a company's return on capital employed is positively associated with the value added by employees.
- Having a large proportion of staff with third level qualifications is positively associated with R&D expenditure.
- Investment in R&D by a company is positively associated with growth in customers.
- There is a positive association between R&D investment and investment in staff training.
- Good manufacturing practices, such as low setup times and high production schedule adherence, are positively associated with overall company performance.

¹ For detailed information concerning the correlation analysis contact Enterprise Ireland or Enterprise Research Centre, University of Limerick

6. Summary

This report has examined benchmarking data for Irish companies that spanned a 17 year period from 1996 to 2012. The benchmarking processes aim to capture information regarding company practice and performance across a range of categories. The analysis also looked at different aspects of the participating firms, including company size and industry sector.

In looking at the average scores for overall practice and performance throughout the years, the obvious observation is the large fall in score for both measures in 2008. Previous to this point there had been a relatively steady increase year on year. After 2008 the trend shows a large increase in 2009 (back to 2007 levels) followed by a gradual but steady decline in the years 2010 to 2012. Analysing the time period of 2006 to 2012 in more detail, there are some common threads. In years which have seen particularly poor overall company performance scores, new product development practice and performance have been consistently poor. In this time period stakeholder practice and performance have been relatively high and stable. While manufacturing practice and performance were quite volatile during this period.

An interesting finding from the analysis was in relation to company size. A common observation was that for small firms (less than 20 employees), while they reported high performance scores, there was a large disparity between practice and performance scores. It was found that the larger a company is, the closer alignment there is between practice and performance. One explanation could be that smaller firms are more focused on performance due to financial needs and a need to survive. As a result, small companies may have less time and effort to invest in improving their practice measures. On the other hand, larger companies may have more time and resources to focus on improving the practice elements of the organisation and as a result there is more parity between practice and performance in larger companies.

A more in depth analysis of the 2006 to 2012 time period was conducted with the aim of gaining a better understanding of practice and performance in this volatile period. The first key finding from this analysis was that there was a strong statistical link between overall company practice and performance. During this uncertain period, companies who engaged in better practice achieved high levels of performance. The

objective of the further analysis was attempting to gain a better understanding of how different groups differ in terms of their company practices. Using the PROBE benchmarking data, a series of statistical tests were conducted to determine if any inferences could be made in relation to company practices. The approach taken analysed company practices from three perspectives:

1. High performing companies (performance score > 74) vs. lower performing companies (performance score < 74).
2. Across three company size classifications (< 20 employees, 21 to 50 employees, > 50 employees).
3. Across three general industry classifications (heavy industry, food products, other manufacturing).

For each of these three perspectives, the analysis consisted of looking for significant differences in practice scores among the groups. The key findings from the analysis of the data are:

- The most significant differences exist between the high performing and lower performing firms.
- High performing firms have consistently higher practice scores than lower performing firms.
- NPD practice in particular, is much stronger in high performing firms.
- Specific NPD practices also appear to be of a lot more importance to high performing firms.
- Very few significant differences in practices observed when looking at different company sizes.
- Some significant differences in manufacturing practices observed when looking at different industry classifications.
- Companies in the food and kindred products industry are significantly stronger in many manufacturing practices.

Further in depth analysis of the benchmarking data was conducted using information from the Winning Measures questionnaire. The metrics collected in this questionnaire offer different insights into the practice and performance of a company. The data-set was first analysed from two perspectives, [1] best practice firms and [2] high performing

firms. In the main, best practice firms scored higher in the Winning Measures metrics. In particular, the best practice companies are stronger in the areas of:

- Customer service / quality
- Net profit margin
- Investment in R&D
- Profit from R&D
- Investment in staff training
- Company growth
- Graduate employment
- Manufacturing practices

Using the Winning Measures data, high and low performing companies were defined based on the objective measure of net profit margin (%). Using this criterion, high performing firms were found to score higher in all practice areas. Companies with a high profit margin were found to be particularly stronger in the areas of investment practice, lean practices and NPD practices. Correlation analysis also found a number of significant relationships between various benchmarking measures. The findings of this analysis underlined the previous findings that engaging in good practices, such as a strong customer focus and good manufacturing practice, are positively associated with strong company performance.

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