THE VOYAGE TO EXCELLENCE: A QUANTITATIVE STUDY FROM REGIONAL AND SECTORAL BENCHMARKING INVESTIGATIONS

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Declaration

I declare that no outputs submitted for this degree have been submitted for a research degree of any other institution

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ABSTRACT

The published work in this thesis is based on a number of studies that utilise a suite of (related) *"best practice"* benchmarking tools, providing an evaluation of the North East England's manufacturing and service sectors and the UK Further Education sector. Within this submission, a supporting commentary in the form of a critical literature review is provided.

The complementary review initially provides an introduction and background to the studies that as a whole comprise this PhD by publication. Consideration is then given to the literature specific to benchmarking, particularly in terms of its role in facilitating organisational improvement and learning, as well as its take-up and applications. The studies described above relate to the implementation of related *"best practice"* frameworks, yielding data from the self-assessing participating organisations. This leads to the third part of the literature review where the association between practice and performance is assessed relating to certain connected themes. The final part of the commentary assesses the contribution to knowledge that is made by this PhD submission in terms of the literature that existed at the time the constituent papers and reports were developed, along with my specific contribution to these outputs and the potential future research that could lead from this contribution.

A key contribution of this work to the benchmarking literature rests in the deployment of a framework in two new sectoral contexts, the regional application being underpinned by a novel approach to supported self-assessment. This complemented the case-based literature dominant at the time, the review providing a critical comparison of *"best practice"* frameworks and the adoption of generic benchmarking metrics. The empirical assessment of practice against performance suggests that the former does impact on the latter, but with greater influence internally. The association between excellence achievement and stakeholder satisfaction is holistically positive, although the findings are perhaps both less than clear-cut and unexpected. The contribution to knowledge provided here relates to the assessment of the broader service sector, including dual consideration with stakeholder perception and examination of additional performance areas, such as corporate social responsibility, thus moving this evaluation into areas under reported at that time.

ACKNOWLEDGEMENTS

CONTENTS

RESEARCH REPORTS AND ACADEMIC PAPERS

1.   INTRODUCTION AND CONTEXT

1.1.   Background to the Studies

The research presented in this PhD by publication is based on a number of related projects that sought to develop regional and sectoral profiles of organisational excellence attainment within specific UK-based contexts.   The submission commenced in 2008, hence the publications presented fall within the eight year time limit allowed under the University Regulations relating to a PhD by published work. The work was undertaken within the Centre for Business Excellence (CfBE), based in Newcastle Business School, from 2000 to 2007.   CfBE was set up to support the excellence agenda within the local and national context, contributing to research and providing benchmarking consultancy and included my co-authors David Yarrow, Vas Prabhu, Ed Mitchell and Alex Appleby.   As a central member of CfBE, my primary role was to provide analysis of the data generated from the projects described below.

The principal research carried out within the CfBE centred on the "*regional competitiveness project*".   This project was undertaken as a partnership between the region's academic institutions and various support organisations, this being part of a larger development initiative in the region, the remit of which was to make more effective the support provided to businesses and organisations in the North East of England. The two research reports and Papers 1 to 5 inclusive are based on data collected in the late 1990s as part of this regional project, the two reports providing specific project details.

The regional competitiveness project entailed almost 300 manufacturing companies and 450 service organisations located in the North East of England undertaking a benchmarking exercise to assess their practices and operational performance relative to established world-class standards.   The benchmarking process provided each participating organisation with a diagnosis of their operational strengths and challenges both in absolute and relative terms and afforded the research team an opportunity for publication.   An analysis of the regional strengths and challenges specific to the service and manufacturing sectors respectively can be found in reports 1 and 2.

The second and complementary area of study, comprising papers 6 and 7, involved a benchmarking study centred on participants from the UK Further Education sector and work-based learning providers, via the "*raising quality and achievement programme*", based on a partnership with the Learning and Skills Council (LSC). These participants undertook a similar exercise to the regional organisations above using an adapted benchmarking tool, customised to the role of this particular sector. Details of this project and associated findings based on 48 participating organisations are outlined within Owen *et al*. (2003).

The aim of these studies, through consideration of new regional/geographical and sectoral contexts, was to contribute to an existing and established body of knowledge by providing an understanding of the levels to which excellence has been achieved within the sectors, the impact of practice on organisational performance both internally and externally and by assessing the effect of this voyage to excellence on key stakeholder groups. *My contribution within these projects involved the preparation and development of the papers, but primarily, the analysis, synthesis, evaluation and contextualisation which is central to the body of work presented, and by doing so, further enhancing the arguments related to the associated research aims. As such, the focus and evaluation presented within this submission relates to the recognisable analytical components of the published work*. This significant contribution has led to the title of this PhD submission, *The Voyage to Excellence: a Quantitative Study from Regional and Sectoral Benchmarking Investigations*.

1.2.   Objectives of the PhD submission overview

The academic objective of this commentary that supports the PhD submission is to provide a complementary, critical literature review, which supplements my explicitly analytical contribution in the associated papers and reports that were either led by me or involved joint contribution from myself and my co-authors.

This critical literature review will consist of three components; an evaluation of benchmarking literature considering frameworks, benchmarking interventions and issues of implementation and best practice dissemination, an assessment of the regional and sectoral profiles of excellence provided in the published work against

academic literature as it was at the time of these studies, alongside subsequent research and an assessment of my personal contribution to the published work contained within this PhD submission. The contents of this literature review are consistent with the title of the work presented. The assessment against literature as available at the time of the research and the indication of the contribution to knowledge provided by the work presented within this submission are in line with the University requirements for a PhD by published work, as is the need for the submitted published work to represent a coherent or "*whole*" contribution. The last requirement is met by the work contained in the PhD submission being centred on a single academic area.

The complementary critical literature review starts with an evaluation of current benchmarking literature and the ongoing development and application of "*diagnostic*" or "*best practice*" benchmark tools. Through the assessment of the papers that are central to this PhD submission, the assessment of excellence realisation and the nature of association between organisational practices and a range of performance indicators by various organisations and business sectors are also critically reviewed. The latter is undertaken through reference to and comparison with, the quantitative evaluation developed by me within the published work presented. The review is completed by means of a concluding section that summarises the contribution of the work within the submission at the time of its publication, my personal input and potential future research that could build on the research presented here.

1.3.   Overview of the "*best practice*" benchmarking tools employed

The reports and papers that comprise this submission were based on my analysis of data generated using benchmarking instruments that were variants of the established PROBE (Promoting Business Excellence) tool (see below). The regional data sets were created via two self-assessment "*diagnostic*" or "*best practice*" benchmarking instruments called PILOT, one for each of the manufacturing and service sectors. PILOT represented a simplified variant of PROBE, which was developed by London Business School and IBM Consulting and applied within a number of national, Anglo-European and Anglo-American studies, see Hanson *et al*., (1994, 1996), Voss and Johnson (1995) and Voss *et al.*, (1997, 1998) which are referred to within a number of the publications considered in this submission. The customisation from

PROBE to PILOT reflects the desire to implement across a large volume of participating organisations within a relatively short time period. The adaptation of an established framework to make this happen is a key contribution of the research presented in this study (Paper 1), and in more general terms, the deployment of a "*best practice*" benchmarking instrument in this way represents one of the most novel aspects of the research work presented in this submission. The intensive assessment of an individual geographical region achieved provides an example of the one of the greatest penetrations of an individual area's business population within any particular benchmarking study. This study realised an absolute level of participation comparable with the study of Voss *et al*. (1997), but was concentrated within a much smaller geographical area.

The content of PILOT in terms of its measures of practice and performance and business overview questions is described in Reports 1 and 2, applying a range of scaled questions, assessment of the analysis of which is given in section 4 of this overview. Using the scores for each practice and performance measure described above, each of the participating organisations were categorised and defined as:

- Potential Winners or World Class – better range of practices and higher performance.
- Promising- better range of practices, but modest organisational performance.
- Vulnerable- modest range of organisational practices, but higher performance.
- Room for improvement or could do better – both practice range and overall levels of performance are modest.

There is recognition within Paper 1 that PILOT represents a more "*light touch*" approach to the deployment of a "*best practice*" framework, less in terms of what it assesses, but more in terms of the relatively lighter engagement of varying employees from the participating organisation, this being seen by the participants as a principal benefit of the benchmarking experience (Paper 6). The departure from the more in-depth and internal engagement afforded by PROBE was compensated through the facilitated workshop approach that underpinned PILOT regionally, which realised alternative benefits of external engagement and comparison with other organisations being assessed in tandem within an individual workshop setting (Paper 1).

The publications relating to the Education providers used a separate adaptation of PROBE, called Learning PROBE, its customisation being realised through further development of the tool, accounting for the participants' sector (Owen *et al*., 2003, Paper 6).

In supporting the deployment of these benchmarking instruments, the CfBE comprised a number of academics with an interest in organisational excellence and who were trained benchmarking facilitators, complemented by myself, providing analytical expertise, as indicated above. In doing so, I supplied an additional and complementary perspective on the data sets generated, thus adding an extra dimension to the team's research output not previously addressed to the same extent. By doing so, my analysis provided new insights in the evaluation of "*holistic TQM survey studies*" in new sectors, principally involving service providers (Sila and Ebrahimpour, 2002), which is key to its contribution to knowledge provided at the time of its development. This *analytical provision* is essential to the contribution to knowledge in the area and the rationale that underpins this PhD submission and is central to the aspects of the critical review presented in section 3 of this submission.

2.   BENCHMARKING – WHAT IT IS, ITS ROLE AND ITS IMPACT

2.1.   Introduction

Section 2 critically evaluates the relevant literature relating to benchmarking. It begins with a definition of the benchmarking concept and the features of the benchmarking process, before moving onto consider issues related to best practice dissemination and associated learning opportunities for its participants, followed by consideration of the contents of earlier benchmarking literature, alongside achievements relating to the public and SME sectors.

The literature review provides a critical evaluation of the "*diagnostic*" or "*best practice*" benchmarking interventions that underpin this PhD submission. It will consider organisational priorities relating to benchmarking around what to measure, the scope of this measurement and desirable organisational achievement, with emphasis given also to an evaluation of the "*best practice*" approach at micro and macro levels, before considering a limited number of comparable benchmarking metrics in this area.

2.2.   Definition and application of Benchmarking

In providing a critical literature review of benchmarking, it is perhaps first worth considering "*what exactly is benchmarking?*" Within the literature, there are various, but similar, definitions applied to the activity referred to as "*benchmarking*", with certain authors starting from the point of applying an everyday and accessible dictionary definition (Massa and Testa, 2004; Alstete, 2008; Moriarty and Smallman, 2009). A popular definition has been provided by Spendolini (1992:9), cited both by Voss *et al*. (1994) and Yasin (2002) as "*a continuous, systematic process for evaluating the products, services and work processes of organisations that are recognised as representing best practices for the purposes of organisational improvement*". Whilst the former sources typically provide a definition around the place reached on a journey (i.e. a measure of achievement), against which relative assessment can be made, the latter definition cited reinforces the extensiveness of the organisational investigation undertaken by identifying in addition the steps required in realising this position. The quoted definition provided above accords with Moriarty and Smallman (2009), through their recognition of the role of two players in the

benchmarking process, the "*exemplar*" who exhibits either the best or most practically achievable actions, compared with the "*anomalar*" who wishes to move towards the achievements of the former, and by doing so, develop an understanding of the necessary interventions and investments. Central to the academic definitions presented here is the assessment of both practice and achievement, alongside the necessity, where benchmarking is applied seriously, to focus externally particularly with respect to the practices employed by competing organisations in order to realise success, thus differentiating this engagement from preceding organisational activities (Yasin, 2002).

In terms of the main components of the benchmarking process, Longbottom (2000) cites four activities; "*planning*", "*analysis*", "*implementation*" and "*review*", concurring with Bhutta and Huq (1999). The latter advocate a "*five-step*" implementation process, and further suggest the approach as being practical, adaptable, requiring fluidity in its content and ongoing application and recognition that errors are an understandable and within reason, an acceptable consequence of its implementation. The very nature of the benchmarking process has led to the suggestion that it represents a clear, but in some ways, unique example of action research (Kyrő, 2004). Kyrő (2004), does however, point to the necessity of many applications being perhaps undertaken currently in a pragmatic way, for greater rigor to be more apparent in their defined project stages, these stages according with those set out by Longbottom (2000) above. She further suggests necessary enhancement of the adopted frameworks, particularly from the perspective of developing and embedding a theory-led underpinning, the latter having the potential to be enhanced if supported by rigorous action research. The implementation of the "*innovation framework*", for example, set out by Voss *et al*. (1994), arguably has parallels with the diagnosis described by Kyrő (2004) with regard to its detailed practice and performance appraisal and subsequent post-diagnosis actions, whilst Paper 7 points to the action research approach adopted internally by each participating organisation within their sector-wide study, through the deployment of the chosen benchmarking metric.

The benchmarking concept, consistent with the definition described above, has been an important organisational intervention for a number of years. It has been

particularly significant in larger companies, where benchmarking and related practices have become embedded from the 1980s (Longbottom, 2000; Hinton *et al.*, 2000). Moreover, Hinton *et al.* (2000) in discussing their UK based research, view these activities as being essential to the ethos of companies within this context, although their survey does highlight, with clear reasons, why certain organisations do not participate in these activities, principally around an absence of data from similar benchmarking participants, availability of resources to support benchmarking, organisational size challenging the viability of the potential benefits and benchmarking being assessed as unsuitable. In a similar survey, Zairi and Ahmed (1999) referred to "*benchmarking maturity*", defined in terms of organisational take-up, although concession was given about the actual concept definition, the specific nature of the applications that make up their encouraging survey response and the extent of the effectiveness of these applications for the implementing survey participants. The UK organisations seem relatively well placed in terms of these interventions from a supportive perspective, compared with businesses located in Germany, with business focus dominating interventions in the former, compared with a relatively stronger research focus in the latter (Rohlfer, 2004).

Whilst there is arguably limited quantitative assessment of the benefits of benchmarking engagement, Voss *et al.* (1997) address this by means of their manufacturing study involving in excess of 650 organisations based in Western Europe. The proportion engaging in benchmarking concur with the findings of Zairi and Ahmed (1999) and Hinton *et al.* (2000) above, although empirical recognition is given that this typically this doesn't extend beyond internal comparison, with limited numbers moving to external assessment relating to the highest industry standards. In terms of assessing the value of this engagement, Voss *et al.* (1997) report that those participating in benchmarking to its fullest extent have better levels of practice implementation and performance realisation, the latter covering both operational and traditional business measures of assessment, they are more realistic regarding the worth and achievement of their organisation and they demonstrate a higher inclination towards learning. With respect to identifying the differentiating characteristics between organisations embracing benchmarking and those resisting its intervention, Lee *et al.* (2006) signposted the influence of three key internal drivers; engaged and involved employees, the role of senior management and the part played by the

organisation's quality function. In contrast, the external pressure exerted and evaluated through customer orientation had no discriminating impact and neither did the perceived deficiencies of benchmarking as an organisational activity.

In terms of approaches that can be adopted, there is some consensus around the various definitions within the suite of benchmarking frameworks. For example, Longbottom (2000) sees three broad groupings around internal, competitor and generic or best practice frameworks, the latter connecting and facilitating cross-industry comparison. These also form part of the suite defined by Bhutta and Huq (1999) and supported by Moriarty and Smallman (2009), who further differentiate with regard to the timeline of implementation and complexity of the successive, available frameworks, but recognise that the suitability of one particular approach compared with any other is determined by the needs of the implementing organisation.

Through survey assessment of organisations participating in benchmarking, Jarrar and Zairi (2000) counter the criticisms about its lack of applicability to smaller organisations (see Massa and Testa (2004) regarding time and cost); to those outside manufacturing and that it represents merely a management whim. Furthermore, Matykiewicz (2001) has indicated the range of benchmarking frameworks available to, and implemented by, SMEs, as well as their relevance and the value of this engagement to this particular sector of business. Moreover, a hierarchy of benchmarking frameworks is identified by Yarrow and Prabhu (1999), defined in terms of organisational and financial investment, that are assumed to positively impact upon both levels of understanding and possible organisational gain and are labelled as "*metric*", "*diagnostic*" and "*process*" respectively. PILOT (see Reports 1 and 2) and Learning PROBE (Papers 6 and 7), being central to the papers that underpin this PhD submission, are examples of "*diagnostic*" or "*best practice*" frameworks. These afford a benchmarking organisation with an extensive diagnosis against pre-defined and established levels of best practice, with an important distinction from the "*metric*" frameworks being the associated assessment of practice alongside organisational performance, notwithstanding the potential criticism regarding the latter having an overwhelmingly "*internal*" focus.

2.3.   Communication of best practice and associated organisational learning

Organisational engagement in benchmarking activities has grown as a consequence of the belief that it encourages both learning and resultant innovation amongst its participants (Askim *et al*., 2008). Even those researchers engaged in the quantitative assessment of "*best practice*" attainment, acknowledge that greater precedence should be given to organisational learning, associated improvement and the part played by the employee in these activities (Yarrow *et al*., 2004a). The role of communicating best practice has been given recognition in the literature as being both a desirable and vital outcome of any benchmarking intervention, as well as being crucial to the embedding of ongoing organisational learning amongst those making these investments and seeking recognisable levels of long-term benefit.   It has been suggested that organisations seeking to achieve a more rigorous embedding of benchmarking, have a greater propensity for learning, and in turn, have a greater opportunity to realise improvement (Voss *et al*., 1997), the relationship here between investment, learning and achievement being inter-related.

Recognition was given by Zairi and Ahmed (1999) that organisational application of benchmarking has been achieved using rigorous models of assessment, but they did argue further that the greatest achievement in their deployment business-wide relates to best practice recognition within the participating organisations. This leaves an understandable challenge to these organisations in terms of developing organisational knowledge. They advocate that further systems should be put in place to disseminate effectively these outcomes organisation-wide.   Zairi and Ahmed (1999) point to senior management's role in developing the highest levels of knowledge management facilitated by appropriate internal cultural advancement as the necessary steps in achieving this. This is supported by Jarrar and Zairi (2000), who from a practical perspective, point to certain hurdles for organisations to overcome with regard to this communication around senior management steer, organisational change in terms of structure and culture, particularly around the need to contribute to, and exchange, knowledge and information. Their survey results would suggest challenges exist within organisations regarding their awareness of the necessity to disseminate best practice. Whilst recognition is also given from their survey findings regarding the application of dedicated mechanisms for best practice assessment, Jarrar and Zairi (2000) caution, in practical terms, against excessive reliance on the casual, meeting-

based transfer of best practice, given the associated lack of detail and accuracy, advocating formal written approaches and IT-based methods of dissemination. In a more recent study, key obstacles focussing on the culture of the organisation are highlighted by Amaral and Sousa (2009) around an absence of a learning tradition, lack of employee involvement, a lack of willingness to share and limited communication, whilst from a communication perspective, Longbottom (2000) prescribes a number of key team players and associated roles that best support this transfer. These roles cover leadership, benchmarking facilitation, team players that straddle functions and someone with specific responsibility for facilitating communication, thus addressing the barriers presented above.

For organisations that are new to benchmarking, the adoption of simpler metrics, supported by group or club support, can act as an encouragement to the organisations' senior staff, facilitate networking, including its mutual support and sharing of best practice, encourage application beyond the "*one-off*" and move organisations in the longer term to the more sophisticated interventions (Yarrow and Prabhu, 1999). In the regional study considered here, Yarrow and Prabhu (1999) suggest that initial benchmarking using a relative straightforward diagnostic tool can act as a stimulant to organisations without benchmarking history, facilitate improvement precedence and encourage otherwise resistant organisational leaders. This work, as indicated in section one of this review, was part of a wider "*regional competitiveness project*", the aim of which was to enhance the competitiveness of its constituent organisations, by means of organisational diagnosis, recognising regional winners and promoting networking and sharing, with appropriate partners specific to an individual benchmarking participant. At the time of this research, a number of such support clubs existed both in the UK and in leading economies further afield, examples including the "*Best Practice Club*" and the "*Centre for Business Performance*" from the UK, "*benchnet*", "*Best Practices LLC*" and the "*American Productivity and Quality Centre*" from the USA, and from a New Zealand perspective, the "*benchmarking and performance improvement resource*" (BPIR), a comparison of their role, features and contactability provided by Welch and Mann (2001). The facilities afforded to partners interfacing with BPIR and signposted by Welch and Mann (2001) include breadth of performance indicators, best practice guidance, learning and advice resources and a well-researched self-assessment instrument,

suggesting a desire to move, at this time, towards comparability with established UK and USA initiatives.

In terms of the specific contribution of this PhD submission, Paper 1 has provided an indication of the priorities from the participant perspective in seeking to benchmark. Within their organisations, these involve people development, better product/service development, realising orders and developing organisational vision and values. From an external point of view, the most crucial developments relate to new market creation, networking, order creation and identifying finance to grow the organisation. From the position of realising benefits of participation, the clearest outcomes related to meeting other organisations in order to develop potential benchmarking relationships, a majority also indicating they would benchmark again, whilst internally, it allowed ordering of improvement initiatives. Likewise, from an internal perspective, Paper 6 presents benefits identified by those engaging in the internal assessment process within the UK FE college context and how they identified specific advantages through their inclusion within the benchmarking activity that comprised this study. An important contribution made by the work in this PhD submission that is distinct from the quantitative assessment that is its central component, is recognition of the positive benefits of benchmarking engagement in itself, Papers 1 and 6 pointing to particular positives that were highlighted from the constituent studies. The benefits realised through networking, sharing and improving through collaboration, and by doing so, overcoming the barriers imposed by individually tackling self-assessment within challenging resource constraints have subsequently been recognised by Saunders and Mann (2005) since these UK studies were undertaken.

Whilst it is clearly desirable to widen benchmarking participation, from a macro viewpoint, caution as to the effectiveness of disseminating best practice is recognised by Jaques and Povey (2007). Through surveying small-business advisors, they have indicated that whilst benchmarking can make best practice recognisable, its actual realisation is relatively debatable. Obstructions have been identified relating to the lack of organisational agreement that benchmarking has the potential to direct an organisation towards best practice, participant desire to achieve and the view that benchmarking acts not as merely a diagnosis, but the end point in organisational

improvement. This follows from the earlier recognition by Matykiewicz (2001), from an SME assessment, that benchmarking can act as a vehicle for stimulating the pursuit of organisational best practice and excellence, albeit it is not necessarily a unique intervention in this position, but the inertia for enhancement is dependent upon organisational ethos and associated leadership, although engagement with the former is highly correlated with the latter.

In terms of the process approach to benchmarking and its associated in-depth focus typically involving only a "*benchmarker*" and "*benchmarkee*" (Langowitz and Rao, 1995), the success of such a relationship is based around both parties gaining benefit. The benefits to the latter relate to stepwise development, sharing and the subsequent endorsement of benchmarking within the organisation, again the final two outcomes pointing to the necessity for effective communication of the process and its resultant outcomes. In terms of internal best practice dissemination, Zairi and Whymark (2000a and 2000b), present a suite of case study investigations that exhibit how the participating organisations have engaged in benchmarking and have put mechanisms in place to successfully publicise good practices and ensure a continuation of organisational learning and development. Whilst best practice is disseminated and ultimately learning is realised via the (large) organisational exemplars presented in this work, it perhaps remains subject to the criticism made by Askim *et al*. (2008) that the findings are not supported by relevant empirical evidence relating to the nature of organisations that can benefit from benchmarking and the underlying reasons for this success. These achievements also may be a potential barrier for smaller organisations seeking to deploy benchmarking, but feeling that the exemplars demonstrated have little resonance with their activities, time or resources and where sector-specific examples would be more desirable (Cassell *et al*., 2001).

2.4. Features of the benchmarking literature – the last 15 years

In terms of how the benchmarking literature developed initially, Yasin (2002) recognised the dominance of case examples and demonstrations of organisational success in benchmarking implementation, albeit covering a range of applications. In his critical analysis of the benchmarking literature from 1985 to 2000, Yasin (2002) noted the positive trend in the number of new publications, which though dominated by those with a practitioner base, showed evidence of a marginal increase in the

number of academic articles and books over the latter years of this period. This was seen as an inevitable consequence of the concept's origin and early developments and success in private organisations, with limited academic intervention at that time. Beyond reference to key organisational interventions, successes and learning experiences gained from the practitioner base indicated above, an important contribution to the literature was the development of a number of key academic texts. Zairi and Youseff (1995b, 1996) reviewed more than a dozen books relating to the benchmarking concept, recognising these as being of value to both academic and practitioner audiences. Without necessarily being critically evaluative of their content or making comparison between the reviewed publications, they focussed on summarising the key content and thus provided an overview of their approach.

The limited consideration of the UK public sector in the literature up to 2000 is both interesting and surprising, given the findings of Holloway *et al*. (1998), who report the highest proportion of benchmarking interventions covering the utility, health, education and government sectors, perhaps driven by politically enforced conscription to the methodology within these areas.   This absence of consideration of benchmarking within the domain of academic literature reported by Yasin (2002) is arguably driven by specific role of the organisations within this sector from their US perspective (Dorsch and Yasin, 1998), or as a consequence of the sector being resistant to, or relatively slower to, embrace such initiatives within their broader managerial activities, despite official statistics from the US suggesting the opposite. This shortcoming in the literature has been addressed in a recognisable way within this PhD submission through the explicit consideration of public services (Report 1, Paper 2), with consideration given to best practice attainment across key public sector groups as well as a comparison of sector attainment relative to the private services within Prabhu *et al*. (2002) and through explicit consideration of the UK Further Education sector in the same sense within Paper 6 and alongside the experiences of key stakeholder groups within in the latter (Yarrow *et al*., 2004b; Paper 7).

The high proportion of case and application-based work driven by the practitioner arena with limited academic contribution by means of developments reported by Yasin (2002) concurs with the literature evaluation presented by Dattakumar and Jagadeesh (2003). However, Yasin (2002) recognised a widening in the consideration

of organisational practices being benchmarked to embrace management systems and organisational strategy, whilst recognising the concept's development was being inhibited by the relatively limited theoretical advancements that provide its underlying support, thus leading to the recommendation for stronger partnerships between academics and practitioners. The greater focus on practice at the expense of a development in underlying theory is a criticism that has again been made in more recent times (Amaral and Sousa 2009; Moriarty and Smallman, 2009), and in passing by Kyrő (2004), whilst Rohlfer (2004) makes the criticism that benchmarking lacks rigorous definition, but concedes that such a shortfall affords its supporters and those involved in practice room for pragmatism in their interventions.

A number of recognisable gaps were identified by Dattakumar and Jagadeesh (2003), firstly around the area of cost benefit, concurring with Yasin (2002) who points to an absence of cost versus benefits analysis, as well as limited mechanisms for benchmarking project appraisal. Dattakumar and Jagadeesh (2003) also point to the necessity for further consideration being given to time investment, people involvement and partnership choice, although the latter was considered by Langowitz and Rao (1995) and further recognised by Yarrow and Prabhu (1999), the latter in terms of both organisations new to benchmarking and the desirability through networking to move, via developed partnerships, onto more sophisticated benchmarking interventions. Razmi *et al*. (2000), with reference to practice in organisations with a proven record of effective benchmarking engagement, have gone on to present a number of frameworks relating to the selection of appropriate benchmarking partners, including arguably accessible, but nonetheless criteria-extensive, graphical approaches. Moreover, the role of employees and their reluctance to support benchmarking interventions and resultant changes to work have been flagged by Holloway *et al*. (1998), who make the recommendation that greater priority is given to process and organisational awareness specific to the benchmarking activity.

From a UK standpoint, Longbottom (2000) indicated that the number of projects was fewer than anticipated, that understanding of the associated approaches could be significantly strengthened and a number of reported benchmarking interventions arguably exhibited superficiality. Projects adopting metrics, particularly amongst

organisations prioritising performance measurement over strategies centred on enhancing business practices, were seen as increasing in popularity, with the former having a positive impact on the outcomes measured by the latter. From a negative perspective, however, was the identification of the limited scope within projects, which often ignored the customer and didn't evolve from the organisations' strategic planning. In contrast, projects that did originate in this way had the most positive conclusions, given that the deploying organisations tended to have a more supportive and benchmarking-friendly infrastructure in place. In support of Longbottom (2000), Hinton *et al*. (2000) suggest benchmarking of both business practices and outcomes, the embedding of a culture that will support benchmarking, with consideration given to people development in support of this being given parity to technical enhancements, whilst concurring with Dattakumar and Jagadeesh (2003) regarding the importance attached to the choice of benchmarking support organisation or partner.

In accordance with Longbottom (2000), Davies and Kochhar (1999) point to the application of benchmarking being disproportionately lower than the consideration given to it within various mediums of academic and practitioner literature. Again from a UK standpoint, barriers to take-up identified by Davies and Kochhar (1999) were wide-ranging and include a lack of consideration of more operational activities, priority given to metrics (despite their lack of specific application) without consideration to the embedding of associated best practice, where the benchmarking interventions have not been aligned to either the competitive strategies or improvement initiatives of the investing organisations. The latter reinforces the need to consider both practices and performance indicators in combination, as well as the relationship between the two measures, something that a best practice benchmarking approach seeks to achieve (see Reports 1 and 2 from this submission). Other organisational perspectives that provide a challenge relate to understanding the necessity of benchmarking as a worthwhile activity in the first place, certain resisting organisations believing that any approach may be limited with regard to their (self-defined) "*unique*" organisational status and further limitations caused by many interventions being typically broad brush, rather than focused or in-depth in their application.

In addition to the above work, the various studies that have made use of the PROBE methodology (see section one) have focussed less on the philosophical or methodological aspects of benchmarking or on specific individual cases that have demonstrated good practice or "*exemplar*" interventions. Instead, these studies have considered the assessment of practice, performance and an aggregate consideration of their relationship, given the size of the data sets involved. This PhD submission contributes to the benchmarking literature by extending this aspect of the study, through new sectoral contexts. Again, an arguable limitation of this contribution is the limited focus on tool development and theoretical foundation (although its appropriateness to the local context, respondent resonance with outcome and process and the ability of the tool in a simplified form to generate comparable measures has been a recognisable research contribution in itself), but the work has contributed significantly to the analytical assessment described above, Paper 1 aside.

2.4.1 Sectoral Developments

In the regional study that informs this PhD submission, two important groups are the public sector and the SMEs, both of which are considered in the literature, despite the absence reported in the former (Yasin, 2002). Size is one of a number of key barriers to benchmarking take-up, behind lack of both comparative data and internal resources (Hinton *et al*., 2000). Challenges around accessibility to data from competing organisations and the realisation of an appropriate partner in the process have also been flagged by Vermeulen (2003), who balances this by pointing to the motivators for benchmarking engagement being principally around the assessments of activities compared with the established "*best*", enhancement of quality as well as services and products.

2.4.1.1 The Public Sector

In terms of the public sector, building on the relatively high but central government driven take-up reported earlier (Holloway *et al*., 1998) and notwithstanding the specific challenges pertaining to benchmarking implementation and practice sustainability within this relatively newer setting, compared say, with the private (manufacturing) sector (Millar, 1998), there are a range of UK-set cases relating to benchmarking interventions. Within the local authority arena, Davis (1998) inferred a realisation of established benchmarking implementation being reached, consistent in

timing with that suggested more generally by Zairi and Ahmed (1999), but recognised its value having modest public endorsement, with further advancement compromised by service characteristics, the dominance of the professional employee over the role of the manager, the form of information being unsuitable for transfer and comparison, the consciousness of failed historical projects and resource constraints. From a more positive standpoint, the scope for the public sector in terms of partnership opportunities and the range of activities for practical organisational comparison were identified by Bowerman *et al.* (2002), tempered by the warning of potential implementation difficulties for benchmarking, given how the activity was dovetailed with various initiatives that collectively underpin the sector's change and reform activities. Moreover, Ball *et al.* (2000) reported that ignorance of the nature of its implementation by and within market-based organisations has resulted in various (public) sector examples of trial and error in its implementation. However, the coupling of benchmarking intervention with further organisational assessment can be both viewed and implemented positively (Jones, 1999), who further advocates a measured and staged implementation of benchmarking, underpinned by a developed customer awareness and being driven by relevant organisational processes, further recognising the merits of developing these initially before embarking on comparative (external) assessment. Within the UK, the "*Public Sector Benchmarking Service*" was unveiled in 2001, with association to various Government initiatives such as "*Service First*" and "*Modernising Government*", although in recent years, the service has become much less active.
(http://archive.cabinetoffice.gov.uk/servicefirst/2000/guidance/benchmarkingservice.htm)

More recently, Askim *et al.* (2008) recognised, from their quantitative study, the learning opportunities afforded to the public sector through benchmarking intervention, but insisted on the inclusion of agenda development, decision making and resultant changes being included in any subsequent appraisal of the learning process. They further recognised differences in learning achievements via benchmarking in terms of participant ideology (although benchmarking itself was seen as being politically unbiased), financial and political stability and the experience of the (preferably diverse) benchmarking network.

The work in this PhD submission contributes to the literature relating to public sector as indicated above in section 2.4, by reporting on the relative achievements and challenges within the region faced by its public sector organisations, compared with other services across an extensive range of business practices and corresponding indicators of performance. This work, with its quantitative sectoral assessment and comparison complements the more conceptual literature considered above. Within this contribution, Prabhu *et al.* (2002) compare education providers with other public services from a regional perspective, alongside the private services, and in doing so; give an indication of what can be built upon and areas for development. From a more specific point of view, Paper 6 provides an educational sector diagnosis, alongside a qualitative consideration of the benefits achieved from those involved in deploying a best practice benchmarking metric for the first time. The work presented within this submission is different to the literature reviewed above in that it provides sectoral assessments, indicating relative advantages and issues for consideration compared with the private service providers as appropriate. The choice of diagnostic tool provides a general, rather than sector specific assessment from an organisational excellence standpoint, notwithstanding the reservations expressed by New and Szwejczewski (1995) regarding comparison between dissimilar sectors using generic assessment tools. The sectoral assessment in this PhD submission has permitted ready comparison with private services, where arguably a culture of excellence has a longer tradition and existence, but by doing so, has indicated to those organisations from the public sector, a range of established practices on which organisational improvements can be built, and in turn, has made a recognisable contribution to knowledge in the arena of public sector benchmarking and the associated attainment of organisational best practice.

2.4.1.2 The SMEs

Regarding the challenges facing SMEs, and despite assurances of benchmarking suitability being reported for smaller organisations (Jarrar and Zairi, 2000), the take-up by SMEs appeared relatively low after discounting applications in the area of financial performance measurement (Monkhouse, 1995). Moreover, this author suggested that the obstacles to the wider application of competitive benchmarking were lead by issues of confidentiality and the reliance on informal assessment and associated information. The not unexpected hurdles of time and cost for the SMEs

are cited by Massa and Testa (2004), whilst even more recently in their assessment of a range of benchmarking metrics, Maire *et al*. (2008) suggest that the frameworks available and supported either by government or business lend themselves much more easily to the larger benchmarkers, obstruction to the SME sector being around framework complexity, the need for analytical resources and the associated necessity for organisational dedication of adequate time.

The assessment that what is appropriate for the larger benchmarking participant may not be as suitable for its SME counterpart is supported by McAdam and Kelly (2002), who suggest the route taken to the position of attaining excellence amongst the SME community should perhaps be specific to that sector and not simply be a re-sized version of that deployed by their larger counterparts. In their assessment of the SME sector, they prescribe the dual deployment of the business excellence model alongside a chosen generic benchmarking framework, so long as appropriate attention is given to the development of employees in support of this, as well as enhancement of activities relating to customer focus, with the chosen benchmarking metric having both versatility and being made as easy as possible to implement. The aid to strategy enhancement identified by McAdam and Kelly (2002) concurs with one of the positive outcomes to SME sector benchmarking identified by Matykiewicz (2001), whilst the latter has equally pointed to the difficulties caused by data resources (see also Hinton *et al*., 2000) as well as limitations in the full understanding of the role of diagnostic benchmarking and the properties of its associated frameworks. This gap in understanding, together with the variable adoption rates highlighted above support the view given by Cassell *et al*. (2001) regarding the challenge of promoting benchmarking within the SME sector, and like McAdam and Kelly (2002), they point to addressing the development of the involved employees, as well as defining bespoke best practice for this particular sector.

Particular benchmarking challenges are signposted by Deros *et al*. (2006) around the absence of appropriate benchmarking tools specific to that sector, in particular those tools that are championed for their support of the evaluation of practices specific to manufacturing. They also indicate the absence of support tools, citing those that provide self-assessment, an absence of internal resources particularly to support the necessary development of relevant benchmarking data and the lack of available data

on SME practices against which organisational and sectoral comparison can be made. In terms of SME intervention, Deros *et al*. (2006) challenge the appropriateness of applying generic benchmarking tools to the SME sector, pointing to sectoral uniqueness around organisational structure and culture, alongside organisational work processes and availability of necessary resources to dedicate to benchmarking, thus concurring with Maire *et al*. (2008). The criticisms relating to comparison data and lack of SME bespoke metrics can be countered by the evidence provided by Yarrow *et al*. (2004a) in terms of the dissemination of the PROBE tool internationally, alongside the development of its database and the existence of its SME variant MICROSCOPE, recognition given to the use of the latter in the UK SME context being provided both by Matykiewicz (2001) and Jaques and Povey (2007) in their SME-based surveys, along with a number of other SME-specific benchmarking tools.

With regard to organisations getting together to share, co-advise and potentially solve each others' problems in a mutually supportive way, Kyrő (2003) points to the advantages potentially gained from participation in "*networking benchmarking*", arguably supporting the collaboration within the facilitation process presented in this PhD submission in Paper 1 and described in greater detail by Yarrow and Prabhu (1999). Kyrő (2003) recognise this as being of particular advantage to the public services and the SME sector. In terms of defining these networks, Askim *et al*. (2008) urge caution from a public sector perspective. Whilst they acknowledge network size to be a non-issue, they do suggest that learning is optimised from groupings of divergent participants, divergence being defined here in terms of finance, ideology and stability. The reality of partnership selection in this sector contradicts this recommendation, given it typically involves comparable, sector-specific participants (Holloway *et al*., 1998).

With respect to the take-up of benchmarking from a Malaysian perspective, Lee *et al*. (2006) found that organisational size just failed to be statistically significant, although the level of intervention was recognisably higher amongst the larger organisations (defined by employee numbers), with a similar result being in evidence regarding turnover of sales. In contrast, benchmarking intervention by organisational origin and age maturity were statistically insignificant, whilst differences were recognised by industry category, notwithstanding the limitation recognised by Lee *et al*. (2006) that

their research could be rolled out further beyond manufacturing to consider additional key sectors including both private and public service providers.

This PhD submission makes a clear contribution to knowledge from a regional standpoint, with sectoral consideration of the SMEs in the service and manufacturing arenas being included with reports 1 and 2 respectively. In terms of the former, the SMEs are relatively well placed in terms of both practice and performance, driven by the relative status of the professional and consultancy services. In contrast, the manufacturing SMEs trail in relative terms behind their larger counterparts. Like the public sector contribution above, these reports complement the SME literature above developed at a comparable point in time by providing a sector wide consideration of the relative strengths and challenges facing these organisations, supporting the consideration of best practice examples or surveys centred on practitioner experiences or difficulties, despite the limitations suggested above by McAdam and Kelly (2002) and Deros *et al*. (2006) regarding the necessity for bespoke sectoral tools and associated support. Moreover, the research presented also contributes to an understanding of the extent to which SMEs, both from a manufacturing and service sector setting, are relatively poorly placed in terms of their CSR performance (see Paper 5).

2.5.   Critical organisational measures to benchmark

In terms of assessing the relative importance of what organisations need to evaluate as part of a benchmarking study, Zairi and Youseff (1995a) recognise the content consistency between various quality and excellence frameworks, suggesting each have been underpinned in terms of their individual composition by the "*Deming Prize model*". With respect to other empirical work, Zairi and Youseff (1995a) point to a study by Black (1993), who identified ten critical factors, which again, broadly resonate with the recognisable features displayed within successfully deployed TQM initiatives, covering various aspects of organisational strategy including developing a long-term mindset for quality, employee involvement, organisational communication, customer focus, external market understanding, supplier relationship building and the necessity to measure, thus arguably demonstrating the need to develop a breadth of organisational capabilities to support an organisation's excellence agenda. Moving on

from this, Youseff and Zairi (1995) empirically assessed from both a sectoral and cultural context, the relevance of 22 wide-ranging "*critical factors*", suggesting greater importance being placed across all of these measures by the US participants, compared with the participants located in the UK, Middle East and Asia Pacific. The study does indicate consistent levels of agreement across each of the studies in terms of the most important of factors, referred to as "*the top tier*", although Youseff and Zairi (1995) broadly recognise that for each of the factors assessed, not every individual one will be either necessary or as critical for different organisations or business sectors, with some interesting departures in relative relevance evident within the UK (NHS) context as a particular example. This perhaps suggests that any approach to organisational assessment does not necessarily require any organisation or sector to seek the highest level of attainment across each measure or area considered (see both New and Szwejczewski, 1995; Davies and Kochhar, 2002; later). In terms of the most critical practices, the commitment of the highest levels of management, the necessity of an organisational mission statement and being highly empathetic to satisfying customers are recognised as being of greatest priority, alongside clear goals, planning for quality at the strategic level, a commitment to addressing and adapting the organisation in terms of its culture and the development and education of employees. The more operational issues relating to quality have some level of importance attached to them, differing by location, but as argued by Youseff and Zairi (1995), these do not represent the heart of organisational priority in their assessment, being in contradiction with Davies and Kochhar (1999) who believe that fully successful benchmarking interventions must engage with various strata of the organisational hierarchy, including those responsible for the most operational of activities, especially those that ultimately impact on those indicators of performance which inform organisational strategy.

As suggested above, an important feature of any benchmarking tool or standalone project is the range of measures of practices and indicators of performances it assesses. Through their case study assessment of successful organisational intervention, Tanner *et al*. (2007) support this argument through recognition of the existence of eleven such "*drivers*", further suggesting that their analysis supports the idea that a number of these will act in combination within a particular organisation in underpinning their realisation of higher performance levels, with one of a number of

these being more specific to a particular organisation and their particular needs and circumstances (for combined practice effects, see Davies and Kochhar, 2002). In terms of assessing the association between practice and performance in an aggregate form, Tanner (2005) confirmed the significance of association between excellence in leadership and organisational performance, further indicating its relevance to both public and private sector, with limited effect being made by organisational size. Its impact was identified with certain stakeholder outcomes, the "*strategic agility*" of the organisation, which in turn, is enhanced in a positive sense over time. Tanner (2005) confirms the sequential association between excellence in "*leadership*", "*strategic agility*" attainment and levels of "*organisational performance*", arguably providing a similar underlying hypothesis with that supporting the "*diagnostic*" or "*best practice*" benchmarking methodology employed within this PhD submission.

The idea of a benchmarking assessment considering breadth of activity is proposed by Carpinetti and de Melo (2002), covering external issues around competitors and customers, decisions emanating from the strategic management of the benchmarking organisation, as well as internal activities centring around relevant business processes. In terms of benchmarking development, Carpinetti and de Melo (2002) recognise the need for aids to be put in place to support the prioritisation of activities and benchmarking implementation, alongside processes to support the amendments to the affected organisational decisions.

2.6.   Critical evaluation of the "*best practice*" benchmarking approach

Criticism is made by Davies and Kochhar (2002) regarding best practice studies not extending to the analytical, a limitation that has been addressed within the regional studies presented in this submission (Reports 1 and 2), albeit in these reports, the assessment of the linkage between these initiatives and resultant organisational achievements has been limited to an aggregate analysis from a service and manufacturing perspective respectively and the associated analysis is not particularly multifaceted. The extent to which the range of practices measured and their overall effect on organisational performance are considered further by Davies and Kochhar (2002). They point to the existence of a practice network inter-linking various organisational activities rather than a set of standalone activities, the existence of a journey to maturity for these practices and need for an understanding of the way in

which they are ordered in their embedding. Davies and Kochhar (2002) also point to the importance of their impact time and the location of implementation. The former represent a limitation in the analysis presented in Paper 2, although the associations between specific variables are considered elsewhere in the submission, Papers 3, 4 and 5 being examples. Davies and Kochhar (2002) suggest that practices need to be considered not only in terms of their impact on measures of performance, but also on the extent of the inter-relationship between these activities. In terms of assessing and defining best practice, Davies and Kochhar (2002) question the applicability of adopting a "*one-size fits all*" to assessing the existence and/or extent of practice adoption across widely differing industrial sectors, whose levels of output (from a manufacturing context) and nature of products perhaps deters effective direct comparison, something undertaken in the two regional studies, although in the latter, areas of overall strength and challenges have been identified, notwithstanding the lack of attention to their relative intra-sectoral differences in importance.

Recognition is given by Davies and Kochhar (2002) for the need to identify which practices facilitate staged progression through the ranges of performance attainment, with best practices being identified as those which aid progression between these various performance levels and that are appropriate to organisational sector. This endorses one of the observations made by Yarrow and Prabhu (1999) that an effective benchmarking and networking arena will signpost to a participant potential partners or collaborators whose superior, but reachable practices afford a chance for learning. Practice maturity, intra-organisational practice linkage and maturity of engagement with the improvement agenda are also seen to impact upon how practice implementation impacts upon specific achievements, as well as their impact on performance range. Whilst associations between measures could be readily assessed from a sector or region-wide perspective, the absence of measurement of lifespan of practice realisation or quality engagement represents a limitation of both diagnosis and associated instruments reported upon within this PhD submission.

In terms of the limitations from specific cross-sector studies, New and Szwejczewski (1995) identified shortcomings relating to responses from chief executives remote from the necessary comprehensive data, the questions set being too general, the

limited range of performance measures evaluated, as well as problems relating to small numbers of participating organisations and sample vagueness.

With regard to the "*Made in Britain*" study in particular, which forms part of the suite of studies, referred to on a number of occasions by the work within in this submission, criticism has been made by New and Szwejczewski (1995) regarding the data being non-factual, self-administered and thus potentially very biased, skewed positively towards reporting encouraging feedback for specific industry participants, given the content of certain questions and the associated scales included. The "*arbitrary*" nature of the framework was commented upon, whilst as a study outcome and sectoral "*diagnosis*", the negative evaluation afforded to a high proportion of the UK manufacturing participants was viewed as lacking in backing for these industrial contributors and for its associated measurement inaccuracy. The negative labelling of the most challenged of participants is perhaps also the case with regard to the "*Made in Europe*" study (Hanson *et al.*, 1994), which is related to the study critiqued by New and Szwejczewski (1995) where each of the organisational categories diagnosed adopted a constructively provocative "*boxing analogy*", whilst the PILOT framework employed in the studies within this PhD submission were more measured in their description of "*could do better*" to represent those afforded with the most challenging organisational diagnosis. The diagnosis labels applied within the research presented here are critiqued further in section 3.7.

To some extent, these criticisms support the work of Hermel and Ramis-Pujol (2003), who through consideration of the excellence models, highlighted potential shortcomings around the weights allocated to the constituent criteria under consideration and the applicability of an individual model across a group of vastly different participants. The criticisms made by New and Szwejczewski (1995) ignore the underpinning hypothesis of the (PROBE) framework that best practice embedding associates positively with operational performance realisation, through to business achievement. Likewise, limited consideration is given to the underlying theory and models considered in the development of these applied tools. Moreover, it is seen that the self-administered aspects of the research process is a strength, further reinforced by being team driven, capturing variety in terms of employee roles and positions within each diagnosed organisation and reviewed by an objective facilitator to ensure

consistency between survey participants (see Voss *et al*., 1997), this being further supported in this PhD submission (Papers 1 and 6). Nevertheless, for mass engagement with benchmarking, the tools presented here afford a "*standardised and simplified benchmarking process*" (Rohlfer, 2004) and provide a vehicle that is objective in its assessment and diagnosis of business strengths and priorities. Moreover, Saunders and Mann (2005) report on successfully achieving diagnosis consistency in employing benchmarking metrics involving self-assessment, where the tool employed has high levels of direction and the process is underpinned by rigorous training of both participant and facilitator.

A recognisable contribution to this PhD submission is the work undertaken by Robson and Yarrow in Paper 1, through their description and evaluation of the facilitation process that sought to ensure consistency of data between participants both within the regional study and between equivalent studies using related frameworks (see section 4.3.2), as well as accurate benchmarking diagnosis at the micro-level, where interestingly, a clear majority of participant organisations believed their diagnosis to be reasonable, irrespective of the potential negativity of the overall assessment or its associated labelling. In a more general sense, Porter and Tanner (2004:296-297) recognise the challenges associated with the scoring of organisations in any assessment exercise, pointing to difficulties relating to data volume, assessor subjectivity driven by work experiences, individual understanding of excellence, including the employed framework and the general levels of criticality employed in the execution of the chosen tool. Whilst the claims of New and Szwejczewski (1995) about the negative picture being given are not being challenged here in this PhD submission, a high level of confidence about the consistency of data generated between the various mass participation studies has been assured (see Paper 1 for the comparison between comparable interventions), which is vital to the analysis that underpins the bulk of this contribution, being presented in Reports 1 and 2 and Papers 2 to 5 inclusive.

From the "*Made in*" studies, the feedback in terms of micro-diagnosis and intra-sector attainment provides absolute and appropriate relative organisational assessment, notwithstanding the concerns raised by New and Szwejczewski (1995) regarding certain inappropriate cross-industry assessments or associated relevance of specific

practice/performance criteria, whilst the study wide reporting gives an indication of the relative strengths, challenges and priorities for each participating sector. The range of measures covered here is arguably extensive, despite the simplicity in measurement scales adopted within these studies and those which comprise this PhD submission, whilst the aspects of practice assessed accord with accepted areas of identified critical factors highlighted earlier in this evaluation of the literature.

2.7. Comparison of "*best practice*" benchmarking tools

There are a number of "*best practice*" tools in existence within the UK and further afield. At the time when the research that comprises this PhD submission was undertaken, Matykiewicz (2001) provided a clear indication of the numerous tools that were in deployment within the UK SME sector, many of which are still relevant in more recent times (Jaques and Povey, 2007). A number of these tools are subject to the criticisms and concerns expressed by Maire *et al*. (2008) regarding the suitability of various well-recognised "*best practice*" instruments to this sectoral context. Their limitations relate to complexity, knowledge required about the benchmarking organisation and the associated time related to the necessary data collection. In addition to the above, a range of sector specific tools exist, covering areas such as the automotive industry (www.autoconsulting.com/benchmark.htm), construction (www.kpizone.com) and pharmaceuticals (www.pibg.org).

In this section of the literature review, consideration will be restricted to the generic "*best practice*" tools, where a comparison will be made between the PILOT/Learning PROBE tools employed in the work that comprises this PhD and two other "*self-assessment*" frameworks with respect to coverage, implementation, scales, and by doing so, an assessment is provided regarding the relative strengths and weaknesses of the tools employed within the research presented here. Whilst comparison is made between the features of the frameworks within this section of the literature review, it is equally important to point to the recognition made by Yarrow *et al*. (2004a) that there is place for a number of instruments to co-exist and also for potential for an individual organisation committed to benchmarking to employ more than one of these tools on various occasions to underline their improvement commitment.

It is also debatable that "*best practice*" benchmarking and "*self-assessment*" undertaken against an established "*excellence framework*" such as the EFQM Excellence Model are actually significantly different, where the similarity of methodology and the consistency of issues explored would support the belief that they are equivalent. A key difference, and hence an advantage of the former in its truest sense is the opportunity to evaluate both against the definition of excellence embedded within the framework and with competitor organisations who have undertaken an equivalent diagnosis in the past (see Yarrow *et al.* (2004a) for details). In terms of comparing the features of the frameworks employed within this study against other available tools, a broader comparison will be made by considering frameworks better understood perhaps as assessment tools based on the Excellence Model.

2.7.1. EFQM Excellence Framework

This framework is seen by the European Foundation for Quality Management (EFQM) as being "*non-prescriptive*" and is adaptable enough to encompass the vast array of strategies that organisations can employ in their pursuit of ongoing excellence. The framework is based on nine principal sections comprising the five "*enabler*" dimensions of "*leadership*", "*policy and strategy*", "*people*", "*partnerships and resources*" and "*processes*", alongside the four categories of "*results*"; "*customers*", "*people*", "*society*" and "*key performance*" (www.efqm.org), although a very recent update is now available, with some alteration to this terminology. These dimensions are built upon further by means of associated "*sub-criteria*" that lead to particular issues to prioritise for the participating organisation. Central to this framework are a set of in-depth statements against which the "*self-assessed*" organisation compares its practices and associated suite of achievements.

Key to the successful implementation of the EFQM framework and the realisation of the associated benefits of this intervention through organisational improvement is self-assessment (Oakland, 2004:172). The actual methods of implementation of the EFQM Excellence Model are, in practice, broad and are driven by the needs and resources of the implementing organisation. This can involve "*light-touch*" assessment involving no external facilitation or evaluation at one extreme, to organisational participation in the "*Awards*" system at the other. The latter involves

considerable, in-depth intervention from external evaluators, which is significantly more demanding than the external facilitation associated with "*best practice*" frameworks such as PILOT or PROBE. In terms of the various means of self-assessment, details are provided not only by EFQM but a number of authors including Porter and Tanner (2004:317-362).

Moreover, there are recognisable parallels between the "*enablers*" and "*results*" presented above and the framework that underpins the benchmarking instruments employed within the various publications in this PhD submission, with regard to the respective components covering the dimensions of practice and performance. In terms of its structure, this framework is less prescriptive and more open-ended in its questioning compared with PILOT/PROBE, arguably generating more questions of its implementing organisation than offering diagnosis. With respect to its more rigorous applications, it does employ a scoring system, developed around the established cycle "*Plan-Do-Check-Act*", called "*RADAR*", comprising the elements "*Results*", "*Approaches*", "*Deploy*", "*Assess and Review*", thus evaluating performance in the former and practice from a multi-dimensional perspective of initiation, embedding and evaluation in the latter. This, coupled with a 100-point scale split into 5-point intervals provides a more in-depth evaluation of practice development than PILOT/PROBE, with a trade-off around the number of initiatives explicitly assessed, this being greater in the latter.

A measure of its credibility and success in promoting organisational self-assessment, developing and empowering employees to engage in these activities and encouraging organisational self-improvement and associated learning, are the number of self-assessment and benchmarking frameworks that have come into existence which show a direct relationship to the EFQM framework, beta plus™ and Rapidscore being two such examples employed within the UK.

2.7.2. Business Excellence Through Action (beta plus ™)

"*Business Excellence through Action*" ("*beta plus*"™) is a "*best practice*" self-assessment tool that is underpinned in both its explicit nomenclature and implicit content by the EFQM Excellence framework, as evidenced by the nine principal sections presented in section 2.7.1. (beta plus™ workbook, 2004).

The beta plus™ framework is implemented using self-assessment within the evaluating organisation, consistent with PILOT and Learning PROBE (compare with Papers 1 and 6 respectively), whereby a combination of understanding or evidence (as available or appropriate) may be employed. Externally-led facilitation, by individuals or parties experienced in business excellence is recommended, as is a validated approach to assessment, led by a relevantly qualified and experienced assessor.

The documentation and workbook that facilitates the implementation of beta plus™ is supported by the recognised "*Plan-Do-Check-Act*" cycle. In an equivalent way to PROBE (and its variants employed within this PhD submission), the implementation of beta plus™ is supported by two workshops, the first one at the "*diagnostic phase*" and the second relating to "*action planning*", undertaken post-completion of the diagnosis, where priorities for action and development are assessed. The equivalents here to PILOT are obvious, where facilitation fine-tunes the self-assessment and where the relative consideration of the diagnosis affords the participants with an understanding of their challenges and order of their consideration (Paper 1).

In terms of the practices which beta plus™ assesses, participating organisations are required to make their assessments on a 10-point scale for each of the dimensions "*Do*", "*Plan*", "*Check/Act*", thus providing the benchmarked organisation with a three-dimensional evaluation of practice implementation, compared with the one-dimensional assessment afforded by PILOT and Learning PROBE. In the latter, the question-specific scales built into the instruments are developed around three statements or "*anchor points*" (Voss *et al*., 1997), which direct the assessing team towards the relevant level of practice or performance. In the more general sense, whilst the number of points on any measurement scale can vary according to the context of the measurement (Zikmund, 2000:303), by adopting 10-point scales across each of these dimensions, beta plus™ arguably affords greater discrimination in its marking and evaluation compared with the latter, notwithstanding the general dangers of scoring identified earlier by Porter and Tanner (2004:296-297) and Hermel and Ramis-Pujol (2003), particularly against non-specific assessment criteria, something that the PILOT/PROBE questions with associated "*anchor points*" would seek to minimise, especially when supported by external facilitation.

To some extent, the multi-dimensional evaluation also partially addresses the limitations highlighted by Davies and Kochhar (2002) regarding practice embedding and maturity, though not their ordering or inter-relationships. In contrast, PILOT/PROBE assess against specific scales (see point above), thus ensuring the potential for greater inter-organisational consistency of evaluation and diagnosis, despite the sector-specific criticisms made of the latter by New and Szwejczewski (1995) and affords greater "*width*" in their assessment (see Carpinetti and de Melo, 2002; Laugen *et al.*, 2005), based on a range of organisational attributes that accord with Youseff and Zairi (1995) in terms of "*critical factors*". The "*results*" components within beta plus™ also employ a 10-point scale, but are uni-dimensional, again using a generic scale, e.g. the labels "*none in place*", "*some*", "*many*" and "*most*" to cover the scores 0 to 6 inclusive. Arguably, this framework discriminates significantly using its scales between well placed organisations, with "*many*" established practices and performance achievements being scored 3-4 on the respective scales, compared with those genuinely reaching "*world-class*" attainment, where scores of 9 to 10 are allocated, and in doing so, the framework demonstrates significant strength of discrimination between the former and the latter, perhaps something that is much more difficult to achieve through the adoption of a 5-point scale that only permits integer responses. Leading on from this, the application of scales from an analytical perspective in discussed in section 4.4 of this review.

Alongside the scoring approaches described above, organisations implementing beta plus™ also provide qualitative data input, unlike PILOT/PROBE, where aspects of achievement and those needing greatest attention are requested in list form, which again, will inform the guidance provided at the workshop intervention described above. The balanced request of strengths and challenges is not necessarily just driven by the scores attached to practices and performances, but represents key issues specific to the organisation, irrespective of their profile against the integral scoring metric employed by the tool, perhaps countering the "*one-fits-all*" criticism made by New and Szwejczewski (1995), given that a low scoring against a particular attribute may not necessarily be accompanied by a detailed action list. The PILOT/PROBE tools do, however, afford the assessing team space next to each question to make accompanying notes as an aide-memoir and justification for the allocated assessment, these implicitly playing a part in the subsequent facilitation and end-diagnosis.

Moreover, like PILOT/PROBE, beta plus™ provides the benchmarked participant with an overall diagnosis, albeit this is optional and is uni-dimensional in its form, unlike the two-dimensional practice-performance assessment provide by the former. Beta-plus™ does afford its participants with a qualitative "*gap analysis*" within the framework, which is assessed in conjunction with the appointed advisor and as such, represents the "*review*" component of the benchmarking analysis. This allows the participating organisations to potentially overcome the criticism directed at the diagnostic benchmark approach, that whilst it affords diagnosis and potential direction for enhancement, resultant planning for post-diagnosis actions is limited.

In conclusion, this alternative framework employs scales like PILOT/PROBE, but these are perhaps open to greater interpretation, with the associated labels being more generic and on an individual practice or performance basis, are less prescriptive. The implementation of this framework involves self-assessment, supported by advisors with discipline expertise, thus displaying levels of commonality between the two "*best practice*" tools. Likewise, both frameworks assess practice and performance, although as indicated by Maire *et al*. (2008) in the more general sense, neither framework describes specific relationships or links between the two groups of organisational attributes, although beta plus™ does assess the performance measures in terms of how the organisation can demonstrate "*cause and effect*" between these and the underlying business practices. Beyond the similarities demonstrated here, PILOT/PROBE do offer the benchmarking participant a clear advantage with respect to external comparison, be it by location, organisational size or sector through the established PROBE database (Yarrow *et al*., 2004a).

The ability to attain external comparison in this way is also available elsewhere, an example being the Rapidscore instrument, which also represents an applied variant of the EFQM framework, as indicated above, which is supported by the British Quality Foundation. This tool permits participants to score themselves by means of self-assessment against the nine criteria in the excellence framework, but similarly to PILOT/PROBE, affords external comparison against equivalent organisations, again representing a benchmarking intervention based on the two-dimensional approach of both self-evaluation and competitor comparison.

2.8.   Summary

The academic work that comprises this PhD submission has employed related "*best practice*" or "*diagnostic*" benchmarking tools across three major studies (see Reports 1 and 2, Paper 6 for details). The aim of these studies at the micro level was to afford each of the participating organisations with a diagnosis covering a comprehensive range of practices and indicators of performance, assessing both operational and business achievement. Collectively, and thus offering consideration at the macro level, the data has afforded the assessment of the relationship between practice investment and organisational achievement, which will be considered in the next section of the literature review, where the publications considered and included within this PhD submission have arguably not critically evaluated the frameworks employed beyond consideration of issues pertaining to the consistency of the data measurement (Paper 1).

There is confidence in the data, given its comparability with that collected from studies with not dissimilar participant profiles (Paper 1), as indicated earlier in section 2.6, this being a key contribution of this submission, subsequently supported by further, non-related evidence that sophisticated, well constructed, self-assessment metrics can generate organisational data comparable with that which would yield from the deployment of the highly regarded quality award assessments (Saunders and Mann, 2005). As such, this part of the research process has been treated very much as "*a means to an end*" from my personal perspective, given that my major contribution to the work included within this PhD submission is in the application of the resultant samples of data in the assessment of the various practice-performance relationships that were reported on within the constituent publications.

This section, dealing with benchmarking, links directly to the next section of the literature review, supporting the view made by Oakland (2004:199-200) that the connection between benchmarking intervention and organisational quality is an obvious one, given the former makes comparison with defined or accepted exemplar practice, which in turn, directs an organisation in terms of its objectives, both inside and outside.

This section of the literature review has sought to address the potential lack of evaluation of the benchmarking tools employed within this study through consideration of the benchmarking discipline, evaluation of associated literature, concept deployment and organisational and sectoral take-up, as well as comparison of the chosen framework with similar self-assessment metrics that are currently in existence.

This part of the review has, however, demonstrated that a key contribution of the research presented within this PhD submission, was around its wide-scale best practice assessment across regions or sectors and the evaluation of practice and performance within the contexts presented. This differs with the more typical benchmarking literature evaluated by Yasin (2002) and Dattakumar and Jagadeesh (2003), which typically focussed on practical case examples around good benchmarking practice, successful interventions and dissemination. An ongoing concern expressed in the benchmarking literature relates to the relative absence of a philosophical evaluation and theoretical contribution to the development of appropriate benchmarking instruments and approaches, McAdam and Kelly (2002) called for a move towards more inductive research at the time of this contribution, with Moriarty and Smallman (2009) making similar observations more recently. The work comprising this submission is open to the same criticisms, but it was never the intention during its development to contribute in the way proposed by these authors, given its alternative focus on the empirical analysis of the large survey studies.

3. EVALUATION OF BEST PRACTICE AND ORGANISATIONAL PERFORMANCE

3.1. Introduction

Although the benchmarking tools were key to this submission as the instruments that have provided the data from the three large-scale studies, central to my personal contribution within the associated publications comprising this PhD submission is the focus on the specific quantitative evaluation of the data, rather than on the mechanisms of measurement themselves. In consideration of this, section 3 provides an assessment of the analytical contribution of the Papers 2, 3 and 4 and reports 1 and 2 that comprise the PhD submission against the academic literature around issues relating to organisational best practice, as well as the association between practice implementation and performance attainment. The literature review will then consider the extent of the linkage between good practice deployment and excellence attainment with external performance around corporate social responsibility, with reference to Paper 5. Finally, the relationship between excellence attainment and satisfaction levels exhibited by both customers and employees is assessed with reference to Papers 6 and 7.

3.2. Business Excellence – definition and components

The terms "*TQM*", "*organisational excellence*" and "*business excellence*" are contested in terms of the respective definitions, however, in this commentary; they will be used interchangeably, indicating that they represent a similar set of organisational activities and achievements, consistent with the observation made by Porter and Tanner (1998:2). The similarity in definition, however, between TQM and organisational excellence is challenged by McAdam (2000), who regards that of the former as being much clearer in terms of origin and pedagogical underpinning, covering beliefs, theory and practice, whilst the latter represents a crucial progress position on this associated voyage, its attainment perhaps acting as a way of assessing organisational development and associated achievement throughout. McAdam (2000) sees greater similarity between TQM and business improvement, suggesting the latter overcomes the word "*quality*", which may provide a barrier in certain situations, resonating with Oakland (2005), who despite differing in view by seeing commonality in background between TQM and business excellence, urges managers and specialists

to be positive in their consideration and application of the "*quality*" term. Moreover, Adebanjo (2001) recognises the necessity and inevitability of quality and excellence being mutually supportive, with the attention given to the former being boosted by the focus paid to the latter.

3.3. Factors crucial to achieving excellence

A number of key factors have emerged from the literature that is seen as being crucial in an organisation's achievement of excellence. These include senior management commitment, stakeholder involvement, organisational learning and development across a range of initiatives.

3.3.1. Senior Management Commitment

Whilst there has been established academic consideration of the development and execution of the "*hard*" techniques and tools and use of "*softer*" management concepts separately over a number of years, an important development has been an assessment of these in combination and what is being achieved as a whole by organisations exhibiting "*best practice*" across both parts of this broader discipline (Motwani, 2001). By using the EFQM self-assessment model as a framework, Oakland *et al*. (2002) provides experiential examples of best practice achievement, covering both "*enablers*" and "*results*", with examples from both the public and private sectors, as well as those pertaining to SMEs, illustrating the relevance and achievability of excellence across all organisational sectors. Oakland *et al*. (2002) in particular identifies the overarching and wide-ranging role of leadership. This supports Motwani (2001), who advocates the commitment of senior management as the underpinning for any successful development and sustaining of a TQM culture, supported by appropriate investment in employee development, both of which are endorsed from an SME perspective by Rahman and Tannock (2005). Motwani (2001) additionally points to the implementation of measurement systems, effective management of processes and engagement and assessment of customers, although potential challenges do exist within the SMEs, where despite reportedly high levels of this senior management endorsement and enthusiasm, gaps exist in the resultant level of TQM realisation, the development of employees and their rewards for participation and related achievement (Khamalah and Lingaraj, 2007).

3.3.2. Stakeholder involvement

In evaluating the importance of various conditions for realising organisational improvement, Kaye and Anderson (1999) also stress the commitment of senior management, alongside the leadership input of everyone in managerial roles, in combination with the consideration of stakeholders. These findings concur with Oakland *et al*. (2002) regarding the necessity to assess a range of organisational achievements, to implement mechanisms for associated reporting, to learn and to facilitate innovation as a consequence, in order to ensure ongoing organisational enhancement. Furthermore, the "*enhancement model*" advocated by Kaye and Anderson (1999) is promoted, as a useful starting point for organisations embarking on the improvement journey, and as such, is potentially a useful precursor to the various multi-faceted and well-documented international excellence frameworks. In the more general sense, Al-Marri *et al*. (2007) recognise a combination of crucial factors that cover practices and supporting infrastructure, alongside "*softer*" issues essential for successful TQM realisation.

3.3.3. Organisational learning

By pursuing excellence, it is essential that organisations can identify the "*crucial*" or "*critical*" factors that have the greatest influence on organisational achievement, notwithstanding the evidence supporting the necessity for rounded and extensive development. In their comparative surveys of UK organisations with winners of the key international quality awards, Warwood and Roberts (2004) identified that organisational leadership had the greatest importance placed on it, but also an equality of emphasis amongst quality-award recipients between internal and external factors emerged from the comparison, which in relative terms is an area of focus that the UK organisations could seek to develop further, whilst Dayton (2001) confirmed that the most significantly important driver was "*strategic quality management*", comprising the backing and recognisable enthusiasm of senior management towards the organisation's quality agenda. In order for organisations to realise effective change, Oakland and Tanner (2007) proposed a model comprising of "*readiness for change*" and "*implementing change*", central to both being the organisation's processes which fuse its strategic aims and operational implementation, all of which is underpinned by effective and committed senior management. A key outcome of successful change and quality implementation is the development of a learning culture at individual,

team and company level, which collectively provide the necessary impetus for organisations to realise enhanced performance (Martínez-Costa and Jiménez-Jiménez, 2008), whilst from a strategic perspective, Saunders *et al*. (2008) identified a range of implementation drivers, including communication and organisational learning.

3.3.4. Development across a range of practices

One of the key findings from this research submission is the width of practices across which the leading manufacturing and services exhibit advantage, and in aggregate sense, wide-ranging high levels of practice display significant association with performance (Papers 2, 3 4, 5 and 6). Interestingly, through consideration of an international manufacturing context, Laugen *et al*. (2005) concluded that the combination of initiatives that collectively comprise "*best practice*" are subject to variation over time, changes occurring when certain practices become commonplace, with not all of these "*best*" practices, particularly the "*newer*" initiatives that need time to become established, having significant association with organisational performance.

The extent to which all organisations realise "*excellence*" in precisely the same way is countered to some extent by Davies and Kochhar (2002) as referred to in section 2 of this literature review. They suggest associated best practices are those which permit organisations to achieve incremental improvement rather than jump radically and perhaps unrealistically, towards best in class, indicating further those combinations of practices that facilitate such improvement perhaps differ depending upon where an organisation is placed on the excellence continuum. As such, the identification of which practices impact most on these key stages within the defined continuum represents a future area for potential research in themselves. This view counters the arguably simple definitions used in the deployment of the PILOT and PROBE frameworks based on across-the-board levels of practice implementation and performance realisation in combination, with Davies and Kochhar (2002) suggesting that an individual organisation is more likely to be best placed focussing on a subset of practices which have priority for them in their movement from one point to another on their excellence journey, without forgetting the need to develop practices in a broad way and to take a wider view of performance realisation.

They also suggest the implementation is driven by the particular circumstances of sector, individual organisational maturity with respect to practice implementation and the specific composition of their established initiatives. Davies and Kochhar (2002) suggest any assessment should consider wide-ranging organisational performance instead of narrowly focussed measures of achievement. The latter is supported by Meers and Samson (2003), who give recognition to the necessity that these developments in practices are not pursued in isolation or merely on intuition. The necessity for wide-ranging organisational information pre-implementation is also stressed, covering organisational strategy, culture, internal processes and functions, improvement strategies realised, quality-related employee experience and principal indicators of organisational performance.

3.4. Organisational challenges

In order to make significant progress on their development towards excellence attainment, certain organisational challenges exist in its underpinning in terms of associated practice developments and their execution. These include organisational structure, strategy development, the role of leadership and resistance to change.

3.4.1. Size and Structure

In terms of excellence achievement, the size and structure of an organisation has a role to play. Chapman and Sloan (1999) identified limited differences in organisational size influencing either the reason for, or content of, formal vehicles of continuous improvement, but did find that larger organisations made greater use of training, awards and promotion of the activities, as well as various techniques, the former contradicting Rahman and Tannock (2005) who reported a tangible commitment to employee enhancement within the SME sector, whilst de Cerio (2003) reported that size defined in terms of site employees and being within a wider multinational organisation displaying a positive influence on the effective embedding of TQM practices, alongside incidents of significant technological transformation, with internal impetus being more influential than factors from outside. From a structural perspective, Bauer *et al*. (2005) recognise that flatter and less rigid company structures facilitate more effective excellence development, contributing in a greater way than the roles of leadership, organisational strategy and deployment of technology.

3.4.2. Organisational Strategy

The findings relating to the relatively minor part played by clearly considered organisational strategies counter the conclusions of Huq (2005) and Zairi (1999), the latter through illustration by various examples of best practice, suggests that effective strategic implementation comprises development, followed by effectively conveyed operation and evaluation. Saunders *et al*. (2008) recognise a range of barriers to successful strategic implementation, covering aspects of finance relating to both internal resources and the external environment, people issues comprising resistance, capability and workloads, internal and external communication and finally, challenges relating to the generation of different products and their associated production.

3.4.3. Role of leadership and resistance to change

As well as being a crucial factor in the realisation of organisational excellence, the role of senior management is in many cases, an organisational challenge, with recognition in the literature both to the positive and negative role that the leadership of organisations can play. Soltani *et al*. (2005) conclude that effective TQM is dependent upon the commitment from the highest level of organisational management irrespective of the nature of this leadership, contrasting with Martínez-Costa and Jiménez-Jiménez (2008) and Idris and Ali (2008) where a "*learning style*" is advocated, but this argument is expanded upon by Soltani *et al*. (2008), who see this absence of enthusiasm as being a product of limited understanding, movement of senior staff around roles, loosening of strategies when put into practice, an absence of detailed higher management TQM understanding and organisational success being achieved in absence of any initiatives being considered or realised. The support of senior managers within an organisation sympathetic to, and familiarised with, quality with a sympathy towards learning are essential ingredients for effective TQM deployment (Rad, 2006), whilst Bhat and Rajashekhar (2009) recognise poor levels of commitment from senior managers, an absence of benchmarking to assess against regarded best practice and a range of employee challenges related to inadequate development and opposition to change as key impediments to the effective embedding of TQM.

3.5.   Leadership, people and performance measurement

From the assessment of best practice above, senior management's role within the employing organisations, through actions, commitment and visible support, is essential to the adoption of quality initiatives and the realisation of best practice, and as such, is cited as the major factor in the underpinning of organisational success (Kaye and Anderson, 1999; Dayton, 2001; Oakland *et al*., 2002; Warwood and Roberts, 2004; Al-Marri *et al*., 2007).   Building on from the idea of facilitating an organisational climate for learning described by Martínez-Costa and Jiménez-Jiménez (2008), Idris and Ali (2008) have identified that learning underpinned leadership in combination with the implementation and management of effective organisational practices has a positive influence on the financial well being of the organisation.   In developing a leadership capability, Sá and Kanji (2003) propose a rounded development where excellence in leadership is determined by a number of factors (the integration of an organisational vision, mission and strategy underpinned by disseminated and understood values), but in the sector evaluated, could be enhanced further by leaders exhibiting greater trust and empowerment of their employees, whilst Kanji (2008) proposed a model based on these criteria to quantitatively measure excellence in leadership.

In terms of enhancing organisational performance, much has been written about the impact of "*soft*" factors.   Lau and Idris (2001) determined the positive bearing of various practices on a number of operational and business indicators of performance, the main impetus being the culture of the organisation, the levels of trust exhibited between different parts of the hierarchy (see Sá and Kanji, 2003) and the commitment to employees being located in teams.   The enhancement of business performance driven by a range of "*soft*" initiatives is reported by Abdullah *et al*. (2009).   These are principally around the combined impact of commitment from management, attention being placed on the customer and enhanced employees' participation.   From the development perspective of the SME sector, the latter is seen as equally relevant and evident as those activities witnessed in bigger organisations (García-Lorenzo *et al*., 2000; Rahman and Tannock, 2005).   Moreover, improvements to "*internal*" quality indicators and performance in the market can be driven to a greater extent by "*soft*" practices compared with their "*hard*" counterparts (Fotopoulos and Psomas, 2009).   Although both groups of activities have their (combined) place, Yang (2006) stresses

the importance of training, enhancement and employee rewards and recognises the amalgamation of well deployed HRM practices positively driving effective TQM realisation, which in turn, both dovetail to enhance the experiences of employees and customers alike. Training importance is also emphasised by Li *et al*. (2008), alongside the effect of service design on the mind-set of the employee, whilst the HRM initiatives described by Yang (2006) also help to raise employee consciousness of quality-related matters and their (the employees') representation of the organisation.

In terms of assessing organisational achievement, it is essential that organisations consider a range of indicators, which extend beyond the "*traditional*" and accepted financial measures that are both well established and accepted. Kumar *et al*. (2008) and Kumar *et al*. (2009a) recognise the precedence in organisations that are highly committed to, and successful in, TQM realisation, placing greater emphasis on measurement pertaining to processes internal to the organisation and externally, to market-based measurement that extends beyond the short-term, as well as those measures which focus on the customer, relating to service quality and satisfaction. Kristensen and Westlund (2004) point to managerial unawareness of the relative role of non-financial information and that an absence of quality and structure within the related measurement systems represents a major hurdle to their successful application, thus presenting organisations with a practice area that can be radically enhanced, alongside an assimilation of the various measurement sources both by nature and vertically between those relating to operational and strategic assessment. Measurement of performance is viewed by Bauer *et al*. (2004) as being central to, and embedded within, the organisation's ethos rather than being merely an implemented set of practices, and their work has led to the development of a template to assist in the evaluation of performance measurement around the essential steps of design, actioning, measuring and evaluation, based on recognised best practice. Caution in the implementation of performance systems is a necessity, given the high levels of failure around the execution of balanced scorecard initiatives (Neely and Bourne, 2000), with design and implementation providing two obstacles, the latter being hindered by organisational politics and structure pertaining to information sources and their management (see Kristensen and Westlund, 2004), together with an absence of long-term attention, arguably driven by the desire to achieve fast results. The lack of

organisational achievement or indeed failure here, including the assessment of what to measure and how to analyse, is endorsed by Evans (2004), who reports on variation in measurement range and its corresponding association with established indicators of achievement around the customer, external market and finance. The shortfall of analytical rigour and comparative analysis is also identified here, with particular signposting to the desirability of achieving external assessment through benchmarking.

3.6. Assessing the association between practice and performance

Arguably, the fundamental and most understandable reason for investment in organisational practices is the eventual realisation of higher levels of organisational, and in turn, business performance, be it assessed both internally and externally across a (preferably broad) range of measures. Substantial research exists here considering manufacturing (Terziovski and Samson, 2000; Sila and Ebrahimpour, 2005; Lin and Chang, 2006), services, both public and private (Oakland and Tanner, 2001), assessment of organisational size (Chapman and Sloan, 1999; Terziovski and Samson, 2000; Rahman and Tannock, 2005), as well as through an extensive consideration of specific types of indicators, evaluated so far in this particular literature review.

The broad association is supported by Terziovski and Samson (2000), although this is negated for smaller organisations particularly pertaining to quality-related outcomes, perhaps due to an inability to allocate the necessary resources in a continued way, whilst Hendricks and Singhal (2001) suggest that smaller organisations can realise proportionately greater impact on business outcomes through effective embedding of these initiatives. However, organisational senior management is recognised as the key driver for a range of performance measures by Hasan and Kerr (2003), with satisfied customers and employees playing a recognisable role. A range of performance advantages are identified by Sila and Ebrahimpour (2005), although these are influenced directly only by practices centred on leadership and process management. However, indirect influence is also exerted by initiatives relating to employees and the management of information. From a manufacturing context, Lin and Chang (2006) identify that amongst companies with thoroughly embedded TQM practices, achievements are higher across a range of manufacturing and productivity measures internally and in terms of the "*traditional*" indicators of share of market,

unit sales and profitability, similar in composition to those highlighted by Sila and Ebrahimpour (2005) above, whilst those organisations with better practices are being particularly advantaged in terms of being flexible and meeting deliveries. The holistic advantage is endorsed by Yusuf *et al.* (2007), although caution is communicated in the conclusions by referring to the extent of TQM execution and that it cannot deliver organisational outcomes in isolation, but can underpin the realisation of enhanced services and outputs, which in turn, can lead to enhanced financial attainment. Similarly, Kumar *et al.* (2009b) quantified significance of association across the outcome range presented above, with particular impact on operational quality and enhanced profitability. The findings of Kumar *et al.* (2009b) are tempered with recognition regarding the limitations in their analysis, centred on the application of scales rather than actual measures. They further pointed to the desirability for any research investigating the nature of this type of association to be able to evaluate practice influence over a period of time, preferably pre- and post-TQM realisation, to establish the extent of its true effect on performance and sustainable influence beyond any immediate bearing.

In terms of differing levels of influence, Prajago and Sohal (2003) recognise the greater impact on indicators of quality compared with innovation, whilst they acknowledge that the development of better management practices can lead to positive outcomes either desired or otherwise. Brah *et al.* (2002) have indicated that both "*hard*" and "*soft*" initiatives in combination afford effective TQM realisation, but sectoral position does not influence either the extent of these investments or the resultant quality-related achievements. However, organisational size, the time-maturity of these practices and associated degree of their embedding do show differences in attainment for both initiatives and outcomes. Nevertheless, the arguments relating to maturity are tempered to an extent by Hendricks and Singhal (2001), who emphasize the width and depth of its embedding, whilst further defining maturity less in terms of time, for which no significance is reported, but instead on backing by independent, third parties through realisation of awards. In their assessment of excellence in leadership and its association with organisational performance, Oakland and Tanner (2008) identified a significant effect, with similarity in influence being realised both organisation-wide and within division. This association is pertinent to both public and private organisations, although

marginally more gain is realised by the larger participants. Interestingly, the relationships with indicators of performance pertaining to the employee, customer and organisations displayed significant association, contrasting with those relating to corporate social responsibility, irrespective of sector.

3.7. Research Contribution – excellence attainment, practice and performance association

Using the "*service management model*" (Voss and Johnson, 1995) as a framework for comparison, comprising both indicators of practice and performance and assessing the issues of leadership, people and performance measurement as reviewed above, the analysis presented within Paper 2 indicates how leading services display wide-ranging advantage compared with their counterparts, be they "*laggers*", "*promising*" or "*vulnerable*".

Before looking at differences in profile here, it is worth considering the definitions attached to the overall diagnosis afforded by PILOT. It is obvious to see in Paper 2, why reference is made to the groups referred to as "*leaders*" or "*laggers*". Likewise, the use of the diagnosis "*vulnerable*" is also reasonable, given that these organisations are achieving at the point of evaluation, high levels of performance, without the support of effective business practices, the vulnerability being around how sustainable these achievements are likely to be (see 4.5 for suggestions for future research around re-assessment). In contrast, the diagnosis of "*promising*" is worth both consideration and challenge, in that the constituent organisations have good practices, but have only seen modest organisational performance. To some extent, this could lead to a challenge that those initiatives where effective implementation has taken place are not particularly effective drivers of performance, but further scrutiny of the definition provided by Hanson *et al*. (1994:8) highlights the key word "*yet*" with regard to performance realisation, pointing implicitly to the need for practice maturity, time for impact or the need for ongoing internal developments. Moreover, the same authors make use of the term "*inhibited*" (p17) for these organisations, which alongside a definition such as "*under achieving*" may in hindsight, be a better label for this group.

In terms of the contribution to knowledge made by Paper 2, the implications for the "*lagging*" organisations are unambiguous; broad and comprehensive improvements

are necessary given the extent of the relative disadvantages presented, although priorities exist and have been identified in terms of measurement, innovation and people strategies. Whilst the leaders display widespread advantage as highlighted, their relative shortcomings are also presented, particularly for the need to introduce various measurement systems with an external context, considering performance measurement, customers and benchmarking, limitations consistent with some of those recognised in more recent literature (Evans, 2004; Kristensen and Westlund, 2004; Bhat and Rajashekhar, 2009; Kumar *et al.*, 2009a). These organisations need to give focus to employee satisfaction given the potential benefit to employee retention and improved customer relations (see later in the literature review) and longer term "*business*" achievement (Zairi *et al.*, 1994; Oakland and Oakland, 1998) and address corporate social responsibility performance, given it affords an opportunity to engage and enthuse employees, particularly in the public services (Dewhurst *et al.*, 1999), whilst Prabhu *et al.* (2002) show that the public services are relatively better placed here compared with the private services. However, Paper 2 does indicate the relative advantage of the professional/consultancy services, particularly over their public sector counterparts (Prabhu *et al.*, 2002), as well as the relative consistency within each sector pertaining to organisational achievement and challenges.

Moreover, a clear and statistically significant aggregate score association between practice and performance has also been demonstrated, although like Brah *et al.* (2002) and Lin and Chang (2006), association between individual initiative execution and outcomes wasn't assessed within this paper, perhaps not taking full advantage of the opportunities afforded by the employed metric (Davies and Kochhar, 2002), although this has been achieved elsewhere within this submission, Papers 3 and 5 being examples.

The inclusion of discriminant analysis within Paper 2 was used to identify either the breadth or focus of the advantage held by the respective practice and performance leaders, and in doing so, recognised the former, although equally, the approach could have been applied to identify which subset of practices combine to predict overall achievement status, which arguably could have practical benefits in leading to the development and potential future implementation of a simpler diagnostic tool. Its inclusion with respect to the former was in response to my research colleagues asking

if there were certain "*killer questions*" that in combination explained overall practice and performance attainment respectively.

Region-wide, measurement and innovation represented two areas for immediate priority, where a major goal for organisations seeking to become more innovative is the extensive engagement of their employees across the organisation in this process, although as Tonnessen (2005) recognises, such a situation is a target everywhere perhaps for the distant future, whilst embedded quality practices have the potential to enable organisations to become more innovative, as could superior achievements in quality output (Prajogo and Sohal, 2003).   This significant association between quality practice levels and outputs related to quality is endorsed within Paper 4. Where the need or opportunity to be radically innovative is not relevant, alternative focus should be given to boosting customer relations, although in time, this could enhance the former (Pinho, 2008).   The potential for intra-regional support being welcomed is highlighted in Paper 2, given the sense of reality and honesty displayed amongst the non-leading organisations regarding perceived competitiveness and necessity for action.   This is despite the lack of applicability of the benchmarking frameworks available to certain organisations seeking such support in more recent times, contrary to increased organisational interest and demand, as well as available expertise within the various support groups and agencies (Jaques and Povey, 2007). A further and important contribution of this research submission is the demonstrations of enthusiasm amongst new benchmarkees for meeting, learning and changing, with few being deterred by the diagnosis provided, however blunt the assessment in terms of detail or definition (see criticisms made by New and Szwejczewski, 1995). Mutual organisational support and initiatives set up by the state, particularly for SMEs and especially those geared towards making best practice adoption more financially viable, are proposed by de Cerio (2003), this subsequent recommendation being in line with the overall objectives of the regional competitiveness project on which this research submission is based.

The analysis in Paper 2 identifies the *relative* closeness of those classified as "*promising*", who are nearer in terms of performance to the "*leaders*", hence suggesting they are developing as organisations, but require time and associated ongoing evaluation to ensure practice maturity (hence the importance of the term

"*yet*" in their diagnosis definition, see earlier comments above) and associated (potential) realisation of improved organisational outcomes (Kumar *et al*., 2009b), although limitations exist in the regional profile determined given the non-measurement of practice time-maturity, alongside the specific scheduling of practice implementation within the organisations being limitations identified in such instruments (Davies and Kochhar, 2002), whilst any generic recommendation is tempered by the suggestions of Warwood and Roberts (2004) who point to organisational priorities being subject to change depending upon the length of engagement with the quality/excellence agenda. This subsequent research does point to a key limitation of the work in this submission reflecting assessment being made at one point in time only, thus not permitting any longitudinal assessment of the impact of practice maturity on performance.

In terms of focussing on the association between specific measures, Paper 3 considers maintenance practices within the manufacturing sector and the level of association with key performance indicators, suggesting that apart from perhaps the leading manufacturers and larger organisations, this has been less embedded compared with other related practices, and as such, represents a sectoral weakness. This represents an important contribution to research, given its focus on operational activities that play a vital role within a manufacturing context, which are often ignored or devalued within the wider deployment of benchmarking (Davies and Kochhar, 1999). This message provided by Paper 3 relates to most of the region's manufacturing base, irrespective of industrial background. It is particularly relevant to the significant proportion of SMEs within the sector, given their contribution to both the sectoral and regional economy and because they feature disproportionately amongst the "*lagging*" manufacturers, although resources could potentially remain an obstruction to the smaller manufacturers regarding continual practice support, a challenge identified by Terziovski and Samson (2000). Paper 3 suggests the level of maintenance implementation represents a "*significant*" indicator of the overall adoption of good operational practices. The findings are endorsed by Yarrow *et al*. (2000) who recognise maintenance adoption as part of a suite of relatively poorly developed, inter-related (in the functional rather than statistical sense) "*core processes*", which combine to associate with relatively poor attainment in internal performance and external customer perception of the manufacturers assessed.

The need to establish a range of practices ("*width*") in a highly embedded way ("*depth*") is advocated by Laugen *et al*. (2005) (see also Hendricks and Singhal, 2001), the former recognising both attributes in the better performing manufacturing organisations. Laugen *et al*. (2005) also recognise that such manufacturers are dedicated to supporting such initiatives irrespective of immediate impact, practice range being preferable over isolated ad-hoc developments being consistent with the findings presented within Yarrow *et al*. (2000), Paper 3 and Yusuf *et al*. (2007), whilst the impact of production initiatives on "*business*" performance indicators presented in Yarrow *et al*. (2000) and Paper 3 provide empirical support for the recommendations of Davies and Kochhar (1999) to benchmark the "*less glamorous*" operational activities and in terms of associations identified, upheld by the later work of Lin and Chang (2006).

After considering the various associations between practice and performance internal to the organisation, Paper 4 evaluates the association between best practice and both internal and external performance. Whilst the data afforded the opportunity to assess the associations between organisational practices and various indicators of performance, internal and external, recognition was given to the scale and complexity of the practice data, and as such, an established process of data simplification and reduction through factor analysis (Field, 2000:423-470) was employed, alongside the use of Chronbach alpha coefficients to assess internal factor consistency (Bryman and Cramer, 1990:70-72) consistent with that used in various TQM and excellence related studies (Brah *et al*., 2002; Hasan and Kerr, 2003). An interesting contribution of Paper 4 was that a factor explicitly representing "*leadership*" didn't emerge from this analysis, instead being subsumed within the relevant "*functional*" enablers. This is in clear contradiction to a substantial component of the established literature that stresses the importance and significance of this broad practice area on organisational achievement (Sila and Ebrahimpour, 2005; Oakland *et al*., 2008 being examples). The analysis in Paper 4 supports the supposition that a range of practices, exhibit intuitive association with various measures of performance, thus according with Lin and Chang (2006) in terms of higher performance being driven by effective practices and being realised across various categories of indicator, the significant associations

between practices and performance indicators relating to quality described earlier in this literature review being examples.

An important outcome of the analysis is the identification of the most clear-cut associations being centred on operational performance, suggesting that organisational practices can have greatest effect on those performance indicators within the control of the organisation. The links with business performance are recognisable, typically being centred on associations involving people strategies and quality systems, thus providing substantial quantitative support for the role played by "*soft*" as well as "*hard*" practices (Brah *et al*., 2002; Fotopoulos and Psomas, 2009; Abdullah *et al*., 2009). The associations with the "*external*" achievements assessed are seen in Paper 4 to be relatively limited, and thus to some extent, the conclusions drawn from this evaluation challenge any potential simplicity in the argument that established organisational practices have to the impetus to deliver clear-cut impact across a wide range of performance measures. This may further suggest that their adoption can only partially influence those measures of performance that are subject to the external environment in which the organisation operates. In short, an important contribution to knowledge provided by this analysis is the recognisable order of influence well-established business practices have on subsequent organisational performance. It is also important to recognise certain limitations within this analysis, given the trend nature of the available data, rather than measures of an actual form. The assessment presented also considers only a single, specific point in time, rather than a period, perhaps suppressing any potential significance being identified or TQM sustainability being evaluated, including assessing the association between changes in various measures across the considered time periods (van der Wiele *et al*., 2002; Kumar *et al*., 2009b) and thus, stressing the need to assess in the longitudinal sense (see section 4 of this submission).

3.8. Assessing the links between organisational excellence and corporate social responsibility (CSR) performance

The nature and extent of the connection between organisational strategies or practices and both operational and business indicators of performance has been evaluated so far in the literature review in various contexts, both holistically and through consideration of specific measures. The assessment of performance, however, can extend "*beyond*"

(Jonker, 2002) the confines of the organisation, where leading organisations potentially consider their role in, and the opinion of, their external society as crucial to their ongoing achievements and are committed to using a range of performance indicators in its assessment (Zairi and Peters, 2002). An organisation's quest to achieve excellence is seen as being fluid, given the ongoing recalibration of its definition, driven ever increasingly by external expectations and their enhanced role compared with previously established institutions (Jonker, 2002). The MBNQA (Baldrige award) assesses the role of organisations to the wider society under "*public responsibility and corporate citizenship*", within its leadership criteria, whilst the EFQM has a results component "*impact on society*" (although subsequently renamed "*society results*"), Porter and Tanner (2004:173) indicating the marginally greater and explicit dominance of the latter within the respective frameworks.

The commonality and consistency between TQM realisation and corporate social responsibility (CSR) achievement is acknowledged by Ghobadian *et al*. (2007), albeit without the two disciplines necessarily being formally related, pointing to both frameworks attempting to find equilibrium between organisational profitability and behaving appropriately both internally and externally. McAdam and Leonard (2003) conclude that performance in the latter can improve at a faster rate if it can be built into existing TQM frameworks, although as Ghobadian *et al*. (2007) suggest, the latter is not in a position to evolve naturally without organisational intervention, which may involve adaptation of various TQM initiatives already in place. Zur *et al*. (2009) has determined that CSR performance relates not in a direct sense to the performance of the organisation, but via cost or market oriented "*positional advantage*". In terms of benefit to organisations, Sureshchandar *et al*. (2002) in their large scale, banking sector study, determined that performance in social responsibility links positively to a range of service quality dimensions as perceived by the customer, perhaps suggesting organisations equipped to achieve in the former have in general more external motivation and a predisposition towards the latter.

3.9. Research Contribution - excellence attainment and CSR performance association

Paper 5 assesses quantitatively how sector, organisational achievement in terms of excellence attainment and organisational size are associated with external CSR

performance via the regional studies that form this PhD submission. Its key contribution to knowledge is this evaluation across two large sector-based data sets, considering both manufacturing and service.

In terms of findings, broad similarity in CSR performance is reported between manufacturing and service. Both sectors in absolute terms have scope for further achievement, and thus exhibiting, better external commitment. The attainment in terms of excellence displays some association with CSR performance, being holistic in nature but marginally more practice rather than performance influenced, where practices related to "*organisational culture*" exhibit recognisable association, showing some empirical support for the ideas presented by Ghobadian *et al*. (2007), who point to potentially desirable developments in particular relating to the individual including the specifics of their training provision.

In the quantitative evaluations of the Baldrige (Badri *et al*., 2006; Jayamaha *et al*., 2008) and EFQM awards (Bou-Llusar *et al*., 2005), the overall association between practices and outcomes was verified, the significance and importance of leadership being endorsed by both studies. In terms of the EFQM assessment, the association between each of the "*enablers*" was found to be significant with each category of "*results*", although significance was relatively weaker with "*society results*", compared with those relating to employees and customers (Bou-Llusar *et al*., 2005). The findings of Oakland and Tanner (2008) are less clear-cut, who report that whilst excellence in leadership positively associates with outcomes relating to employees and customers, its association by comparison with CSR achievements is recognisably less. The subsequent work presented both by Bou-Llusar *et al*. (2005) and Oakland and Tanner (2008) demonstrates consistency with the earlier contribution made by Paper 5 in terms of ordering the relative impact of business practices on assessment of performance in a relatively similar way.

Clearly, any achievement here has to be underpinned and supported by effective measurement processes, which are central to, rather than a "*bolt-on*" to those systems employed within the principal business. Acceptance is made that engagement in CSR activities may not necessarily impact positively on all established indicators of organisational achievement (Pedersen and Neergaard, 2008), whilst Sharma and

Talwar (2005), through recognition of the greater prioritisation that is likely to be given to these related activities, have called for associated performance measures to be embedded and for organisations to recognise the concept of the "*multiple bottom line*" in their performance assessment.

Differences, reported in Paper 5, relating to organisational size within both manufacturing and service are more recognisable than differences between the two sectors or between levels of achievement made in terms of realising excellence, with medium and larger organisations (defined by number of site based employees) displaying higher CSR attainment levels, consistent perhaps with resource volume, enhanced regional prominence and associated external expectation of their role. This resonates and shows some comparability with Moore (2001) who defines size by monetary turnover and in accordance with Brammer and Millington (2006) who refer to total assets, in studies that are generally more restricted in their consideration assessing CSR performance against financial attainment only. From a broader perspective of organisational attainment, the levels of CSR achievement identified within this regional study (Paper 5) highlight the relative weakness of both the region's "*best*" and "*most challenged*" as gauged by TQM implementation, relative to elsewhere in the UK (see comparison with Hanson *et al.*, 1996 within Paper 5). Clearly, this earlier work and that presented in Paper 5 have sought to assess the impact on CSR of business performance that extends beyond the established financial drivers that play a part in a substantial proportion of the literature in this area, this alongside the demonstration of the greater role played by size, being key contributions of the work presented in this paper.

The differences in attainment between internal and CSR performance across both sectors provide an important contribution to knowledge by showing the extent of the lag in consideration and attainment, as well as providing quantitative confirmation to the idea proposed by Ghobadian *et al.* (2007), who recognise lower maturity levels in the latter, whilst employee practices, particularly those focussed on training offer an opportunity to engage the individual to participate in these initiatives, the latter according with the marginally stronger association identified within Paper 5 relating to "*organisational culture*", as indicated above. Nevertheless, Oakland and Tanner's (2008) finding would suggest practices centred on enhancing leadership are perhaps

more geared to realising "*traditional*" stakeholder outcomes pertaining to the customer and employee. In the region's public services, there is relatively greater attainment (Prabhu *et al*., 2002); consistent perhaps with such organisations supporting staff in CSR related activities as an effective mechanism for employee stimulus (Dewhurst *et al*., 1999). This supports the training proposals of Ghobadian *et al*. (2007), as well as the greater levels of attention placed on them within the region (see Brammer and Millington, 2006 regarding "*visibility*"). The regional recognition that a significant proportion of both manufacturing and service organisations have not moved beyond regulatory conformity in this area reinforces the view of Zairi and Peters (2002) that without compulsory systems, it will be difficult to move organisations from this point.

3.10.   Additional considerations relating to organisational achievement in CSR

Without considering the age of the data, certain limitations are inherent in the analysis presented in Paper 5. These relate to the range of measures, the absence of data in longitudinal form (the regional studies providing data from a single time point of measurement) and the lack of opportunity to assess association between CSR performance and the extent of its potential influence on performance in "*traditional*" financial terms (see Moore, 2001) and in doing so, evaluate the assertion alluded to by Zairi and Peters (2002) that performance in the former has a long term positive impact on the latter. Moreover, as economic circumstances have become more challenging (McAdam and Leonard, 2003), it would be interesting to see, had the data been part of a longitudinal study, if the level of CSR attainment, modest as it is regionally, has been sustained within the region providing the study.

The impact of CSR performance with organisational outcomes of a financial nature has been assessed empirically and across a range of measures in the literature. Despite the recognisable absence in consistency in reporting environmental practices and the established challenge and limitation of overcoming the differences in time between practice realisation and the resultant impact or otherwise on achievement, Montaban *et al*. (2006) identified a number of environmental management initiatives that exhibited positive association with measures of performance, especially those centred on innovation of products and processes. In arguably a more narrowly defined way, and specifically through the assessment of performance in the stock market

against financial donations to charity, Brammer and Millington (2008) found a non-linear association where those with the higher performance in the former have extremes of performance in the latter, with the better social performers exhibiting long term financial success (see Zairi and Peters, 2002) and those with limited CSR commitment displaying greater short term performance. As well as linking CSR performance to financial size, Moore (2001) also found higher CSR performance follows good financial performance, with the converse not being realised. However, the data considered here were limited both by sample size and number of points of measurement. McGuire *et al*. (1988) determined that both financial performance and financial indicators of risk combined to explain levels of CSR investment. Arguably, the differences in outcomes recognised here and the absence of definite evidence of high achievement in "*external*" performance being of "*traditionally*" tangible advantage to the participating organisations are potential deterrents for a number of organisations investing in activities in any way that radically takes them beyond their legal duty. This could, however, be tempered in the longer term by organisations placing associated evaluations within their most central of activities (Pedersen and Neergaard, 2008) and being more rounded in their assessments (Sharma and Talwar, 2005).

3.11. Assessing the association with excellence achievement and the satisfaction of customers and employees

As indicated earlier, this section of the review provides a synthesis of the findings presented in Paper 6, Yarrow *et al*. (2004b) and Paper 7 pertaining to the assessment of excellence in the college sector alongside satisfaction levels exhibited by both learners and employees with academic literature in the associated areas. The aspects of the review pertaining to the former are typically sector-specific, whilst consideration of employee satisfaction and the role of the employee in supporting and participating in the various organisational improvement initiatives are more general in their considerations.

3.12. Customer satisfaction – education providers and beyond

Extensive research exists pertaining to the education sector's experience of quality and improvement including the implementation of benchmarking interventions relating to both curricula and organisations (Jackson, 2001), excellence frameworks

(Davies *et al*., 2007) and the capture and assessment of student feedback (Rowley, 2003; Douglas *et al*., 2006). These initiatives cover the dual goals of both learner experience and organisational enhancement and are arguably driven by sector marketisation and increased government accountability (Hides *et al.*, 2004), with the role of students/learners as "*customers*" becoming more commonplace. With regard to this, recognition is given by Douglas *et al*. (2006) who refer to such a definition being in place from the early 1990s, McAdam and Welsh (2000) identified that students are perceived by colleges as their modal "*customer*" group, whilst Eagle and Brennan (2007) advocate a balanced "*client*" definition that allows organisations to embrace the principles of "*customer orientation*", without fully compromising academic traditions.

In the collection and assessment of "*customer*" feedback in this context, Rowley (2003) proposed the necessity to afford students with feedback mechanisms relating to satisfaction, but without being prescriptive, assessed the advantages and challenges in moving beyond standard (institutional level) mechanisms, providing both scaled and narrative responses and involving delivering academics in its evaluation as appropriate. Rowley (2003) identified such mechanisms as forming one part of a suite of institutional survey instruments that exist together, whilst McAdam and Welsh's (2000) further education college survey reports the paramount institutional importance placed on the collection of such feedback. Aldridge and Rowley (1998) presented a "*negative quality model*" as a response framework that gives perspective to and provides a response mechanism and vehicle for determining organisational priorities in answer to the various feedback sources that have identified dissatisfaction.

In terms of customer/learner priorities, each of the studies below considered large-scale surveys, Hill *et al*. (2003) aside which involved focus groups. The former are based on sole institutions permitting intra-organisation generalisability, but arguably being of potential for resonance across the respective education sectors. Douglas *et al*. (2006), suggest that most "*customer*" emphasis is placed on the learning experience and supporting learning infrastructure, with a similar profile for both full and part-time students. The least importance is given to the institution's physical provision, especially the more cosmetic aspects. Nadiri *et al*. (2009) provide contradictory

evidence regarding the impact of the physical attributes on the perceived attainment of service quality, whilst to a certain extent, elements of both arguments given above can be seen in the findings from Kuo and Ye (2009) who report significant association between both establishment image and quality of service with satisfaction, but interestingly not with customer loyalty in a direct manner. From a postgraduate perspective, Angell *et al*. (2008) stress the emphasis on programme provision alongside contacts with external business, whilst Hill *et al*. (2003) report the greatest importance being attached to academic's quality, defined in terms of delivery, feedback and client relationship, as well as the role played for the learner by internal and external support provision. Whilst the institutions have a clear role in initiating improvements and enhancing customer satisfaction, the students as customers, can enhance their own levels of satisfaction by developing an understanding of the necessary processes and services through appropriate levels of interest and engagement (Nasser *et al*., 2008).

From an organisational perspective, Koch (2003) and Quinn *et al*. (2009) through reference to previous literature, refer to the cultural and structural uniqueness of the HE location making adoption of quality frameworks relatively more challenging, with Hides *et al.* (2004) recognising the catch up required by this sector, but also signposting the opportunities for learning from elsewhere in the public sector where such investments and corresponding rewards have been realised. Quinn *et al*. (2009) identified that success has been achieved in the support areas of such institutions rather than in the academic components, but this if successful for the former; it may act as a launch pad institution wide. Whilst such interventions are seen as beneficial, avoidance of the key components of the business provision is arguably a spurned opportunity for an organisation's development (Koch, 2003). In their assessment of EFQM implementation within HEIs, Davies *et al*. (2007) recognise that managerial interventions have the potential for employee opposition, but achievement could be possible if collegiality and leadership were somehow dovetailed. Where success has been achieved, Davies *et al*. (2007) have revealed through case study investigation, that differing levels of organisational achievement and a range of approaches and hurdles, that emphasis was given to organisational culture, success being achieved in an encouraging organisation where teamwork was promoted and where workshops

were used to facilitate EFQM implementation and training aids were put in sectoral context.

Yarrow *et al.* (2004b) combine organisational assessment in a college setting with "*stakeholder*" feedback by linking learner and employee satisfaction to the benchmarking diagnosis afforded to their constituent colleges (see Paper 6). The importance of this research and the "*newness*" of its contribution centres on the unique linkage of organisational assessment with the feedback provided in terms of satisfaction by two of its key stakeholder groups; the customers and employees, making it distinct from the other research contributions considered here where evaluation is based on a single measurement source. With respect to learner satisfaction, assessment involved scaled data with large participation from a number of colleges, with positive feedback identified centring on the teaching environment and academic and supporting guidance given to the learners, thus showing positivity in the area of greatest importance identified and consistency of method implemented by Douglas *et al*. (2006) and Angell *et al*. (2008), whilst challenges are indicated with respect to organisational infrastructure (see importance identified by Naidiri et al, 2009; Kuo and Ye, 2009) and communication.

In terms of how the college's excellence status associates with learner satisfaction, Yarrow *et al*. (2004b) identified that leadership and performance management practices associated positively, but surprising negative association exists with levels of service process (the opposite being in evidence for the employees), suggesting that successfully established processes do benefit certain stakeholders, evidence is also given in Paper 7, but this, by accident hopefully rather than intent, has been at the expense of the institutions' customers. This is a significant finding in that it counters the established view that organisations that embed and can demonstrate effective operational systems are likely to satisfy their key stakeholder groups.

Recognising the association with leadership above, management influence on customer orientation, established through the supervision of employees at the customer boundary is affected significantly through a suite of characteristics defined as "*behaviours*", "*approaches*" and "*attributes*" by Strong (2006). Here, weak, but statistically significant association in terms of managerial "*commitment*", "*style*",

"*values*" and "*passion*", act in combination to affect such orientation. Sureshchandar *et al*. (2002) recognise "*service culture*", embracing a number of employee-centred characteristics demonstrated by responsive, team players with outward focus and a sense of ownership, to be the most significant enabler of multi-factor service quality (as defined by Sureshchandar *et al*., 2001a in Sureshchandar *et al*., 2002) and advocate that the "*soft*" elements of total quality dominate their "*hard*" counterparts in stimulating positive customer perception of quality provision in the service context. With respect to the interface between employees and customer, Hansemark and Albinson (2004) through a small number of interviews specific to one sector, identify parallels in the factors driving both satisfaction and customer retention, based on positive relationships defined by two-way confidence and discourse between customer and service provider, with ability of the latter to provide service and take care of potential complaints. Any simplicity in these links are challenged by Cai (2009) who recognises the constructive effect on customers of effectively embedded relationship strategies and a positive orientation towards customers by the organisation. However, greater priority (in the manufacturing context examined) is seen to be given by customers to performance in production, and without such recognisable and understood achievements, superior customer satisfaction will not be realised, irrespective of orientation towards the customer, levels of service strategy or the quality of the interface between customer and organisation. Likewise, Little and Dean (2006) defined "*service climate*" as a measure of how employees perceive the way in which the organisation is conditioned towards the service of its customers and its associated quality, finding impetus for its realisation from the part played by management, feedback from customers and internal HR developments, but little influence from orientation towards customers, suggesting perhaps that the links between organisational strategies, including those specifically centred on the customer, with customer satisfaction as a primary performance goal, to be neither direct nor guaranteed to be effective.

3.13. The customer experience – differences between expectation and experience

As well as consideration of the organisational drivers of customer focus and the associated customer experience, attention can also be given to an assessment of the recipient experience from a service perspective in terms of their pre-defined

expectations and the extent to which the service provider meets or exceeds these, and in turn, satisfies them (i.e. the customer) in the process. By looking at these two customer measures, an evaluation of service quality can be defined and evaluated in terms of the distance between pre-determined customer expectation and their associated assessment or understanding of the actual service provided. An assessment of the distance between perception and expectation forms the basis of the SERVQUAL framework developed by Parasuraman *et al*. (1985) across a focussed and manageable range of customer assessed measures.

In terms of the assessment of customer satisfaction presented earlier within this literature review, a number of authors have applied or made reference to the use of all or part the SERVQUAL framework with various educational institutions (Kuo and Ye, 2009; Nadiri *et al*., 2009; Quinn *et al*., 2009). In terms of providing a critical assessment of its suitability, Nadiri *et al*. (2009) question the attention given to expectation in service assessment, preferring to concentrate only on performance, an approach supported by Kuo and Ye (2009), both seeing customers within an educational environment having fluid expectations driven by ongoing service experiences and their timeframe within the assessed service environment. In contrast, Quinn *et al*. (2009) reports on positive SERVQUAL interventions in this arena, both in terms of direct and support service provision, whilst Sureshchander *et al*. (2002) credits the framework for providing an accurate assessment of service quality holistically, despite the absence of measurement for certain service attributes.

In contrast, the work undertaken by Hill *et al*. (2003), Douglas *et al*. (2006), Eagle and Brennan (2007) and Nasser *et al*. (2008) and reviewed above has involved alternative, customised or bespoke approaches to customer satisfaction assessment, with a clear rationale of the measures adopted being derived from their respective assessments of the literature. The work presented in Paper 7 and Yarrow *et al*. (2004b) also make use of study specific questionnaires to assess stakeholder priority and satisfaction, and as such, represent the topical issues of the sector, perhaps at the expense of wider generalisability, thus being open to the criticisms made by Dotchin and Oakland (1994b), who also recognise that the research presented Parasuraman *et al*. (1985) sought general, rather than customised, assessment of the service experience. The components of the questionnaires implemented within Yarrow *et al*.

(2004b), assess from a learner (customer) perspective, satisfaction levels covering a range of issues that arguably could be aligned to components defined as "*tangibles*", "*reliability*", "*responsiveness*" and "*empathy*" within SERVQUAL, without seeking to replicate the work presented by Parasuraman *et al.* (1985, 1988) either implicitly or explicitly, implementation of the latter being presented for example by Dotchin and Oakland (1994c). The study reported in Paper 7 and Yarrow *et al.* (2004b), does however, provide an assessment of a number of comparable service experiences, albeit from a bespoke, sectoral perspective and provide credible assessment of the levels of constituent satisfaction, as demonstrated by the number of responding learners and employees within these constituent studies, as well as the opportunity to link this to an assessment of the achievement of the parent organisation, the latter being key to the novelty, importance and value of these two publications.

An associated contribution to the area of service quality and its assessment to that provided by Parasuraman *et al.* (1995, 1988) can be found in the suite of sequential publications presented by Dotchin and Oakland (1994a, 1994b, 1994c), which applies the framework proposed by the former. Dotchin and Oakland begin by giving definition to the various services that are in existence, before providing an evaluation of the quality drivers, characteristics and measurement frameworks that are associated with the assessment of service provision and finishing by assessing the relative differences in how the quality of this service provision is perceived depending upon the characteristics of the service being evaluated.

Dotchin and Oakland (1994a) have considered through established literature and subsequent assessment of a number of service scenarios, a range of service characteristics based upon the relative cost of employee input, customer interface and intervention with the service provider, the extent to which the service is made bespoke to the customer, the tangibility of the service and the nature of its direct beneficiary. From this, five homogeneous service clusters emerge; "*mass services*", "*personal services*", "*professional services*", "*service factory*" and "*service shop*". Recognition is given within Dotchin and Oakland (1994a) that each of the five clusters may be subject to variation in the perception of the service quality that they provide, although these groups are subsequently used within Dotchin and Oakland (1994c) as a basis for perception comparison.

Moving on from this, Dotchin and Oakland (1994b) assesses the benefits and limitations of the SERVQUAL tool. In terms of its positives, the framework is seen to provide a generalised assessment of service quality perception using a manageable number of scales covering a focussed suite of dimensions. Dotchin and Oakland (1994b) were critical of this work in terms of the limited diversity within the categories of service providers assessed in the development of the framework, with specific limited consideration of service providers who have higher levels of contact or involvement from their customer base or modifications to the services provided, this being in accordance with the reservations highlighted by Nadiri *et al*. (2009) about SERVQUAL being non-generic. The former also point to how the inclusion of professional service providers, whose work typically involves expanding upon the service features critiqued immediately above, may potentially have led to alternative framework dimensions, whilst also recognising other adaptations of the framework, for example, the assessment of industrial services, through substitution of specific measures (Keirl and Mitchell, 1990; in Dotchin and Oakland, 1994b) has also taken place.

Practical challenges are pointed to by Dotchin and Oakland (1994c) with regard to respondent handling of questions including negativity in their phrasing, together with associated intricacy, whilst perception range across an individually assessed organisation providing a service is also seen to expose understandable practical challenges, given the number of distinct service providers within. In terms of the former, recognition is also given to this by Parasuraman *et al*. (1991) in their own re-appraisal of the model, alongside their recognition of the need to re-package certain questions.

Furthermore, Dotchin and Oakland (1994c) recognise the limitation of SERVQUAL in not assessing quality from a technical or content perspective (see Sureshchander *et al*., 2002), but instead evaluating the service deliverer, further pointing to a decrease in the relevance of the latter, when the former is either not established or has not been presented, thus effectively signposting the desirability to assess both components of the service experience in parallel. Recognition is also given by Dotchin and Oakland (1994c) for the necessity for an assessment of quality to employ feature-specific

scales, which extend beyond the Likert-type employed within the framework, a criticism in terms of service features evaluated and associated scales adopted that could perhaps easily be extended to the sectoral work presented in Paper 7 and Yarrow *et al*. (2004b) which form part of this PhD submission, as well as elsewhere. For example, Parasuraman *et al*. (1994), through empirical evidence, suggested that adoption of semantic differentials instead of Likert scales could provide a more accurate evaluation of their model's expectation and perception assessments.

In terms of their empirical findings, Dotchin and Oakland (1994c) do report a number of specific differences according to the nature of the service provided, as well as the association between importance given and quality perceived being negative in direction, with the values of the former dependent on the extent of the realisation of the latter, the need for customer quality evaluation to involve a range of distinct measurements and that these measurements should be assessed both individually and in combination.

In terms of the contribution of this PhD submission, Paper 7 defines, applies and interprets the "*gap*" between importance and satisfaction covering employees, whilst (Yarrow *et al*., 2004b) deals with customers (learners in the specific context considered) primarily from the standpoint of satisfaction, with limited holistic assessment of perception and potential service recommendation. With regard to Paper 7, this "*gap*" assessment exhibits similarities with the analysis that underpins the SERVQUAL framework, although in the latter, an overall evaluation is taken into account through weighting by the relative importance levels assigned by the respondents (Parasuraman *et al*., 1994).

 In taking the approach presented within Paper 7, no consideration has been given to the potential existence of the negative relationship between the two assessments by service feature, as identified by Dotchin and Oakland (1994b). However, by considering importance level and the associated "*gap*" and evaluating this in aggregate form for the responding groups of employees and customers, the work presented in Paper 7 has enabled an assessment of its association with organisational status, defined by a wide-ranging, benchmarked diagnosis, thus moving the analysis beyond a one-dimensional assessment of importance versus expectation. By doing

this, the analysis presented in Paper 7, alongside that in Yarrow *et al*. (2004b) has given an indication of the extent to which organisational development of thorough business practice and any associated realisation of enhanced performance can influence key stakeholder perception, hence providing a different and clear knowledge contribution. In presenting these findings, this provision, with its parallel assessment, does offer an alternative insight to that presented elsewhere in this literature its dual evaluation of organisation and customer having similarity with Sureshchandar *et al*. (2002), but contrasting say with that of Strong (2006), Little and Dean (2006) and Cai (2009) where the assessment of organisational practice and customer achievement has been taken from the service provider perspective (be it managers or customer-interface employees) only.

3.14. The employee – engagement in organisational improvement and associated satisfaction

There is visible academic discussion considering the role of the employee in the organisational quest for excellence. This role can be assessed in two ways, by employee engagement within the activities aimed at organisational advancement and the effect of this participation on them, as indicated specifically by their workplace satisfaction.

In their qualitative assessment of leading service providers who have arguably well embedded, effective and correspondingly applauded organisational strategies, Oakland and Oakland (2001) identify the placing of HRM central to overall organisational strategy. These organisations are able, through the implementation of workable and comprehensive structures, to communicate throughout the organisation. Oakland and Oakland (2001) report that employee involvement is promoted, with leading organisations making use of programmes permitting employee suggestions, implementing programmes to deliver change and utilising performance measurement indicators relating to employees. These organisations see properly planned, executed, assessed and continuous training to be beneficial and they have a commitment to their employees engaging with, and working in, teams. Finally, assessment both internally and externally against recognisable best practice is integral to the ongoing review processes employed. Building on these good practices, Pun *et al*. (2001), albeit by looking at a small sample of respondents located in two business sectors, identified

the most significant impetus for employee involvement to be centred on the commitment of management to provide understandable organisational objectives and to ongoing enhancement, alongside employee rewards, with the most prevailing organisational achievement being improved satisfaction amongst the employees. Through reference to key service sector success stories, Zemke (2002) identified long-term commitment to continuous employee training and development, employee commitment to challenging but comprehensible standards and just remuneration amongst the key conditions, which resonate with Jerome and Kleiner (1995) who recognise service profitability as being influenced by people and technology investment, employee training and performance-led reward, where employees have appropriate levels of empowerment to achieve this. Caution, however, should be taken regarding the necessity for employee involvement remaining a long-term organisational priority, given the findings of Welikala and Sohal (2008). Through their qualitative study, involving interviews at various levels in the organisational hierarchy, they identified, from a non-managerial perspective, that as organisations first embark on implementing TQM, they prioritise internally, including human resources, but as time goes on and external considerations gain precedence, the commitment to the lasting involvement of employees diminishes and along with it, the effectiveness of the organisation's TQM initiatives.

From an individual employee's viewpoint, Jackson (2004) indicates such changes can significantly impact upon the nature of their work in terms of position characteristics, autonomy levels, skills range and work volume, leading positively towards their dedication to quality. Fok *et al*. (2000) identified that employees more willing to commit to the type of enhanced roles achieved through these changes exhibit characteristics defined by "*growth needs strength*" and "*organisation citizenship behaviour*", whilst Demirbag and Sahadev (2008), through comparative consideration of both a public and private organisation, observe that employee enthusiasm for quality displays significant association with that exhibited by the organisation's leadership, organisational predisposition towards quality, employee teams' success in executing their (re-engineered) roles and associated organisational communication. The roles played by leadership, teams and communication identified here are consistent with various HR related attributes highlighted by Oakland and Oakland (2001).

Patti *et al.* (2004) identified differences in the perception of how quality practices influenced both on the culture and performance of the organisation between line managers ("*people*" focussed) and their employees (prioritisation of "*tools*") through paired organisational participation covering both roles, whilst Den Hartog and Verberg (2002), through mass response from one large organisation where employee turnover represents an ongoing organisational challenge, reported on a number of work-based actions exhibited by supervisors around employee encouragement, information availability, even-handedness in employee assessment and generation of service responsiveness having a constructive impact on the service performance of their employees. Jackson (2004) also found both women and older employees were predisposed to displaying a commitment to quality, the latter arguably complementing the recognisable message that whilst all employees need to be integral to, and participative within quality-related initiatives, organisations may perhaps need to exercise flexibility and creativity in the way they engage these employees and customisation, specific to groups of, or on occasions, individual employees may need to be considered.

In assessing the influencers of employee satisfaction, Slåtten (2008) has provided empirical evidence to assess the relationship between those challenging aspects of the individuals' life, defined as "*stressors*", their impact upon emotional satisfaction and ultimately the individual's perception of the organisation's quality of service. Four such precursors to emotional satisfaction were identified by Slåtten (2008), namely workload excess, uncertainty and discord, as well as organisation/home-life tensions which were tested for their influence on satisfaction defined by levels of emotion, and in turn, perception of quality held by the employee. Each apart from role uncertainty exhibited significant association in the negative sense with emotional satisfaction, the latter displaying positive association with quality perception. Slåtten (2008) suggested a number of consequences for management from these findings; the necessity to formally assess emotions within any evaluation of employee satisfaction, consideration of the impact of excessive workloads as the biggest contributory factor towards employee "*stress*", and in turn, an absence of emotional satisfaction in the positive sense and managerial awareness of both work and external causes of dissatisfaction.

By means of extensive cross-sector interviews, focussing on employees with customer interaction and with recognition of the impact of employee feelings on customer interaction, perception of quality and the influence of managerial initiatives on employees' actions, Slåtten (2009) extended this work to consider the impact of management strategy around rewards and employee support on emotional satisfaction and the effect of the latter on service quality perception. Negative and positive employee emotions are recognised, alongside "*managerial rewards*" and "*managerial support*", where both of the latter show linkage in an expected way to both states of emotion, with both practices and outcomes influencing perception of service quality, thus supporting the emphasis placed on reward mechanisms and the well-being of employees.

The potential associations between employee trust, satisfaction and their loyalty to the organisation, have been assessed by Matzler and Renzl (2006), who like Slåtten (2008) above focussed on a large employee survey within a utility-based case organisation, who further acknowledge the positive influence of satisfied employees on internal (productivity) and external (satisfied customers) organisational achievement. Both managerial and peer trust show significant association with employee satisfaction, the latter being the more significant of the two interactions, the improvement in peer relationships as a potential by-product of TQM execution is also recognised by Lam (1995). Whilst recognising the work undertaken by organisations in the assessment of their employees' satisfaction, Matzler and Renzl (2006) identify a limitation around the absence of trust-related questions from such evaluations, much in the same way as emotional assessment being excluded is seen as a shortcoming in such assessments (Slåtten, 2008), both recognisable in their explicit absence in the research presented in Paper 7.

In assessing the employee perception of TQM and its influence on role satisfaction, Ooi *et al.* (2007) noted the necessity for effectively placed "*soft*" practices within TQM (see Lam, 1995), giving recognition to the lack of prominence of various HRM and organisational behaviour activities in cases of TQM shortfall. In order to underpin satisfaction amongst employees, Ooi *et al.* (2007) identified five influencing factors; "*trust*", "*customer focus*", "*recognition and reward*", "*teamwork*" and

"*organisational culture*". "*Teamwork*" demonstrated the greatest individual association with role satisfaction, whilst in combination, all measures listed above provide significant explanation of satisfaction, with the exception of "*recognition and reward*". The absence of a significant role played by the latter interestingly contradicts various literature (Zemke, 2002; Jerome and Kleiner, 1995), whilst the presence "*trust*" and "*teamwork*" as motivating factors accords with Matzler and Renzl (2006).

Whilst recognition was given to the exploratory nature of their investigation, Moore *et al*. (1998) addressed the importance of customer satisfaction to business performance alongside various employee attributes that helped in the attainment of the former, from the key perspective of the customer, thus complementing the internal focus of much of the research presented so far, as well as evaluating, pre- and post-implementation, vehicles for facilitating improvement. Alongside the consideration of quality improvement's role, they stressed the relevance of empowerment (see Jerome and Kleiner, 1995), defining its success as being centred on appropriate authority to contribute to decisions, resource availability and provision of information. The model presented by Moore *et al*. (1998) suggested the existence of a path between the deployment of both TQM and empowerment programmes to organisational improvement, the latter showing influence on customer satisfaction.

Eskildsen and Nüssler (2000) considered the impact of cultural, social and technical processes on the satisfaction and loyalty of employees within the Danish context, identifying that the social aspect of the working environment has the greatest impact upon satisfaction, but of greatest interest is how culture fails to associate with employee loyalty, with the converse being true regarding technical interventions, again countering established HRM thinking. Recognition was given to superior private sector attainment as well as higher levels of achievement in each of these measures amongst those organisations with established frameworks for consultation and employee evaluation.

Boselie and van der Wiele (2002) identified commonality in factors influencing both employees' satisfaction levels and potential to seek alternative employment, identifying significant association between the two, with negative perception of

organisational practices dominating over personal characteristics, salary aside, including leadership, conditions within the workplace and organisational co-operation. Like Moore *et al*. (1998) above, Guimaraes (1995) benefitted from a paired-data study from an organisation having witnessed radical restructuring and redundancies, with measurement undertaken pre- and post-embedding of TQM, suggesting that uncertainty with role definition and the desire to work elsewhere diminishes post-TQM implementation, with role enhancement being realised regarding involvement, satisfaction and commitment from the organisation, although in contrast to Jackson (2004), no impact is reported in terms of improving the features of the role. To some extent, this is supported by Lam (1995), who reports a lack of increased interest, perceived role importance and employee autonomy, whilst the weighting given to the "*hard*" components within the employee's development being seen to do little to boost satisfaction levels. Ooi *et al*. (2006) stress the importance of a range of HRM-underpinned initiatives, especially the necessity for the (improving) organisation in advocating trust (see Ooi *et al*., 2007, Matzler and Renzl, 2006).

3.15. Research Contribution – excellence attainment and stakeholder satisfaction

In adding to the range of benchmarking interventions related to education provision (Jackson, 2001), Paper 6 provided a quantitative assessment of UK FE sector's progress towards organisational excellence, providing a sectoral overview at both individual practice and performance level, as well as in aggregate form, recognising the sector to be results-led, both strengths and challenges being evident in leadership, people and performance measurement strategies, with evident priorities relating to service processes being identified. The contribution of this research is the provision of a sectoral overview of the strengths and challenges faced by its constituent organisations from a business point of view, and by being the first "*best practice*" study of its kind within this particular sector, its recognisable contribution to research is thus evident.

In terms of pointing to sectoral priorities, from an equivalent perspective, McAdam and Welsh (2000) similarly determined that service processes present a test with enhancement to business processes cited as the most required achievement from

implementation of the business excellence model, whilst areas of quality displaying the greatest levels of organisational dissatisfaction include training in customer care, enhancing customer information and target setting. This wish to further develop processes is interesting, given Voss *et al*. (2005) report the relative greater emphasis on processes in this sector, specifically "*hard*" practices pertaining to quality, compared with employee-related strategies, which as a consequence, has contributed to the relative inferiority (next to the private service sector) in terms of quality of service and associated customer satisfaction. Dewhurst *et al*. (1999) regrettably reported that focussing on the customer is given lower priority in public organisations, and in parts, the public services have traditionally not been motivated towards enhancing customer satisfaction.

Further comparison was made with the public service in a regional benchmarking study (Prabhu *et al.*, 2002, in Paper 6), where the FE sector displays relative advantage covering people practices and business performance, but consistency in terms of challenges relating to processes, performance pertaining to quality, employee satisfaction and the application of measurement systems, the importance of these findings being evidence for the sector that its organisations has strengths on which it can build.

Paper 7 complemented Yarrow *et al*. (2004b) by giving sole attention to employee satisfaction. It was determined that a "*gap*" exists between attribute importance and satisfaction, with significance being evident for each attribute measured, whilst in absolute terms of satisfaction absence, sectoral issues emerge regarding senior management style, communication and absence of customer orientation. Clearly, direction can be taken from the leading organisations regarding management style and communication (Oakland and Oakland, 2001; Demirbag and Sahadev, 2008 – particularly with regard to quality-centred aspects) and regarding the importance of support from managers (Slåtten, 2009), where "*trust*", "*empowerment*" and "*two-way communication*" are represented as reported qualitative challenges by Voss *et al*. (2005). Satisfaction gaps covering individual roles, being able to provide opinion, receipt of necessary information and provision of resources suggest an empowerment shortfall (Jerome and Kleiner, 1995; Moore *et al*., 1998), whilst Ooi *et al*. (2006) recognise a combination of customer orientation, communication and empowering

staff as positively influencing employee retention. Moreover, the absence of customer orientation associating with employee dissatisfaction in the college sector resonate with the findings of Karia and Asaari (2006), who point to the lack of properly conveyed responsibility to customer-centred improvement initiatives from senior management and the need to reinforce the importance of feedback, and the handling and resolution of complaints, from customers. The developed, empowered and team-oriented workforce identified by Karia and Asaari (2006) is a priority area for development in the college sector (Paper 6), where interestingly, the work presented in this submission again accords recognisably with various subsequent publications.

The analysis in Paper 7 has further indicated the degree to which the organisation has embedded excellence influences marginally on the importance given to work-related attributes by employees, although amongst the vulnerable colleges, "*overtrading*" at the expense of employees resulting in excessive levels of work may increase employee consciousness and dissatisfaction (Slåtten, 2008). Excellence attainment is shown, however, to display greater (positive) association with satisfaction and shortening of the associated "*gap*" defined within Paper 7. This is perhaps consistent with employees from the colleges with a better excellence profile displaying greater enjoyment and being more likely to recommend their organisation as somewhere to work, in accordance with Guimaraes (1995), Boselie and van der Wiele (2002) and Ooi *et al*. (2006). The findings presented in Paper 7 support the argument for comprehensive execution of good organisational strategies or practices to promote satisfaction levels arguably in an implicit way, although "*softer*" initiatives by definition will be more specific to the employee in their desired attention. Paper 7 places particular emphasis on the levels of association with leadership and service process activities, although the latter contradicts Voss *et al*. (2005), who recommend priority for people strategies.

Clearly, the work presented in Yarrow *et al*. (2004b) and Paper 7 has been shown in this submission to have reinforced a number of findings in previous research, and in turn, the findings of the work presented in this PhD have been subsequently confirmed elsewhere. What makes the work presented in Yarrow *et al*. (2004b) and Paper 7 different and therefore allows it to extend what has been contributed

elsewhere is the dual consideration of organisational diagnosis with the perceptions of two internal stakeholder groups by means of independent, but complementary studies.

3.16. Satisfaction and its influence on organisational performance

A limitation of the work presented in Yarrow *et al*. (2004b) and Paper 7 is that whilst it considers the influence of organisational attainment on its stakeholders, it does not assess the role that satisfaction of employees and customers play in the achievements of the organisation through the traditional indicators of business performance or its impact on organisational sustainability, given the absence of any organisational or sectoral measurement beyond that achieved in the single time setting considered. The former limitation perhaps suggests that the execution of PILOT and Learning PROBE that has underpinned the publications in this PhD submission represent an in-depth SWOT analysis for the participating organisations than perhaps a detailed equivalent PESTEL investigation.

There is work that has explored the effect of both satisfaction levels displayed by employees and customers on the attainment of the organisation in the business or financial sense, Zairi *et al*. (1994) and Oakland and Oakland (1998) being examples, such work clearly extending beyond the focus of the studies in this submission, although Paper 4 does provide an analysis of the potential linkage between best practice investment, internal performance attainment and business trends that provide external assessment relative to the participants' competitors, indicating that this research submission does make some contribution in this area.

4.   SUMMARY

4.1.   Introduction

In the final section of this PhD commentary, consideration will be given to the contribution made by the research work presented within the reports and journal papers that comprise this submission, a description of my personal contribution to this work, and finally, suggestions for possible future research that builds upon the work presented.

4.2.   Contribution to Research

The publications that comprise this PhD submission have contributed to an existing body of literature, defined within the timeframe of their publication, covering two key areas; namely the application of "*diagnostic*" or "*best practice*" (the terms are applied within this review interchangeably) benchmarking and the extent to which organisations are seeking and achieving excellence, alongside the dual assessment of practice and performance. Central to the originality of the research in this submission, and hence its contribution to knowledge at the time of its execution, centres on its actual location (the region and sector specific nature of the studies), the "*newness*" of the constituent participants to "*best practice*" benchmarking (both the North East of England and the UK Further Education Sector), with its associated sectoral "*diagnosis*" and the desire to meet the needs of its multiple stakeholders, i.e. the academic community (i.e. the seven academic papers within this submission), the participating organisations and associated support agencies who promoted the constituent studies (i.e. the two regional reports).

In terms of the contribution made to the benchmarking knowledge base, the work presented complemented the existing literature in that it reported on the successful implementation of a suite of associated mass "*best practice*" benchmarking projects (Paper 1, Reports 1 and 2), representing one of the most penetrative studies of this kind in terms of organisational take-up within an individual geographical area. The benchmarking assessment of the UK's Further Education sector (Paper 6) is the first of its kind in this sector, complementing existing work undertaken in other areas of the UK's education provision. This contribution to the benchmarking literature differs from the typical subject knowledge base reported both by Yasin (2002) and

Dattakumar and Jagadeesh (2003), around the predominance of case examples and associated (bespoke) organisational applications of benchmarking. Where survey work relating to benchmarking existed in the literature; Holloway *et al*. (1998), Longbottom (2000) and Hinton *et al*. (2000) being examples, the contribution of the work presented in this submission complements this by presenting an in-depth empirical assessment of the best practice attainment of its participants across two regional sectors (Reports 1 and 2) and the UK FE sector (Paper 6).

In their assessment of literature relating to TQM, Sila and Ebrahimpour (2002) identified from publications written in English, 347 survey-based outputs, within which around 13% were UK based and amongst the principal areas of investigation identified, two, "*identification of critical TQM factors*" and the "*link between TQM and performance*", had prominence within the work considered.

The research presented in this submission reinforces these studies in terms of quantitative methods techniques applied in the data analysis found in Reports 1 and 2 and across Papers 1 to 7 inclusive, participant origin by country and themes of enquiry relating to attainment of best practice and the association between practice and performance, be this involving specific variables or in terms of an aggregate analysis of the associated data. The constituent studies also make a contribution to the then existing knowledge base by encompassing a wide range of assessment of both practice and performance, supporting Laugen *et al*. (2005) in terms of assessing "*width*", with the potential for assessment in either the aggregate sense (Reports 1 and 2, Papers 2 and 6) or through focus on specific measures (Papers 3 and 5).

In their diagnosis of the published research, Sila and Ebrahimpour (2002) recommended the need for more comprehensive, service sector-based research, as well as the investigation of specific TQM related factors, including social responsibility and employee related issues.

The body of research work presented has moved the investigation of organisational excellence into the service sector (Papers 2, 4, 6 and 7), especially the public services (both in the regional study – Report 1 and the specific sectoral study – Papers 6 and 7). The contribution of the research presented here, alongside additional co-authored

work, specifically Prabhu *et al*. (2002), complements the public sector assessment provided by authors such as Davis (1998), Ball *et al*. (2000) and Bowerman *et al*. (2002) who have considered the impact of benchmarking as part of a broader perspective of change and reform implementation and organisational learning. The work presented here, gives instead, a different and thus contributing perspective through its empirical assessment of best practice implementation in absolute terms, as well as a relative assessment against private sector service providers.

The work within this PhD submission has also considered its impact on attainment relating to social responsibility (Paper 5) in both a manufacturing and service sector setting, considering the impact of TQM on levels of CSR performance both in terms of individual measures and in an aggregate sense, complementing existing CSR performance attainment which has often been assessed directly against organisational achievements relating to financial performance (Moore, 2001; Brammer and Millington, 2006; Brammer and Millington, 2008), or organisational size as a by-product of this evaluation. Where the linkage between TQM and CSR has been presented in the literature, the explicitly empirical contribution made by Paper 5 is key to its contribution to this literature by complementing the more conceptual contributions provided by authors such as McAdam and Leonard (2003) and Ghobadian *et al*. (2007).

A further contribution of the work that comprises this submission is found in the assessment of achievement in excellence at an organisational level against the levels of satisfaction demonstrated by their constituent customers and employees (Yarrow *et al*., 2004b; Paper 7). Research has been demonstrated in the literature review presented here relating to the assessment of learner satisfaction, Douglas *et al*. (2006) and Eagle and Brennan (2007) being examples, alongside the role of organisational self-assessment in various educational arenas (Jackson, 2001; Davies *et al*., 2007). Moreover, examples are given regarding an evaluation of the drivers of customer satisfaction in more general business scenarios from the perspective of the service provider, which has been achieved by referencing the work of authors such as Strong (2006), Little and Dean (2006) and Cai (2009), alongside its linkage to TQM and implementation of organisational change, pointing to, for example, studies by Lam (1995), Guimaraes (1995) and Boselie and van der Wiele (2002). The newness and

value of the research presented in Yarrow *et al.* (2004b) and Paper 7 is the combination of the parallel and objective assessments provided through the self-assessed organisational diagnosis of excellence, facilitated externally, and the stakeholder assessment of self-satisfaction, thus distinguishing this contribution from the associated work in this area and presenting a new perspective on the association between organisational achievement and the self-perceived well-being of its key stakeholder groups.

4.3. Personal Contribution to the research work presented

The next section of this summary gives an indication of my personal contribution to the work that comprises this submission. Both my major and joint contributions, indicated in the appendix to the submission, were evident through the lifespan of the joint work presented.

As indicated, a key contribution of this PhD to the advancement of knowledge is its dual contribution to both stakeholder groups described earlier in this summary. In terms of the region, sector, associated organisations and support agencies, the main findings in terms of organisational practice, performance attainment and the link between the two have been presented in the research reports 1 and 2 and Owen *et al.* (2003). Within these regional publications, there is a substantial quantitative content, to which I was central. From the perspective of both sectors, my analysis has considered the levels of world-class maturity recognised within the region, the relationships between practice and performance, lessons that can be provided by the leading organisations, business growth and competitiveness and future issues relating to the sectors. With regard to the wider academic community, my contribution consists of identifying and developing potential research themes from the associated data sets that are evident within the seven academic papers.

My personal journey started as a practitioner analyst and statistician being encouraged to participate in *collaborative, applied research. I developed within the work presented here by leading and developing the more innovative analysis and synthesis (Papers 2, 4 and 7) and contributing to existing knowledge regarding the assessment of the various relationships between practice and performance in new sectors, particularly the services including the public sector and the education providers.*

This was of clear importance to the development of Reports 1 and 2, whose target audience was the region's business community and associated support agencies. My development of accessible descriptive and comparative analysis was essential to these publications, as was my ability to provide insight into two extensive data sets in as concise a way as possible, something that my analysis and associated writing has hopefully achieved.

4.3.1. Impact of the research contribution

From a research perspective, the value of my contribution to the work presented is an extension of existing survey-based research relating to TQM and organisational excellence, whilst "*filling the gap*" through its consideration of services including those in the public domain and through their inclusion, assessment of a number of specific aspects of organisational excellence, particular with its relationship to CSR performance and satisfaction levels realised both by customers (learners in the context assessed) and employees, as identified above. A number of the publications presented in this work (i.e. Papers 3, 4, 5 and 7, as well as other associated work outside of this PhD submission) have been included in the Newcastle Business School 2008 RAE submission and have been published in peer reviewed journals of either national (Managing Service Quality, Managerial Auditing) or international reputation (International Journal of Quality and Reliability Management), as defined by the Association of Business Schools (Harvey *et al.*, 2008). I have personally been included within this RAE submission; my first inclusion, and as such, a measure of both my personal development and an independent assessment of the work's contribution to knowledge.

In terms of the work being recognised by a wider audience, two of the papers were developed in response to guest editor requests for a special journal issues (*Total Quality Management Sustainability* (Paper 4) and *Quality Management and CSR* (Paper 5), the latter complementing the other contributions with its explicitly quantitative investigation.

Moreover, there are a number of examples where the research papers presented in this PhD submission have been subsequently referenced, as have various other related co-

authored papers emanating from the research projects presented. A list of extant references is provided as part of this submission.

4.3.2. Specific paper contributions

My first major contribution commenced with Paper 1, which provides a detailed insight into the data collection that underpins the benchmarking studies that supported the collection of the two, large-scale, regionally centred data sets. The nature of this paper is different to the rest of the body of work in that it considers the process of data collection rather than a presentation of specific (quantitative) research findings. For research of a quantitative nature, there is often perhaps an understandable desire to focus more within the research reports and journal publications on the data and associated analysis, perhaps at the expense of a detailed coverage of the underpinning methods of collection. The approach used in Paper 1 was developed by me in order to demonstrate the objectivity and consistency of the data collected, and in doing so, counter the potential criticism "*how can you trust one individual or small team completing an organisational self-assessment?*" (see scoring concerns raised by New and Szwejczewski (1995) regarding criticism of self-assessment specifically with regard to the "*Made in Britain*" studies). In preparing Paper 1, I was responsible for the vast majority of the paper development and the data analysis included within, which made full use of participant feedback as well as assessing the data for consistency against previous studies, as well as by its method of completion within the various participating organisations. I further determined and led the presentation of this paper to a practitioner audience and by giving validity to the process, it provided a novel and interesting contribution to knowledge by specifically providing a unique critique of the methodology that underpinned an extensive "*best practice*" benchmarking investigation, and in doing so, subjected the chosen methodology to a thorough assessment. Key to the contribution is the finding that facilitation through workshops rather than in the individual organisational setting as a means of encouraging mass participation in a short period of time has the potential to generate data that is consistent with that from a best practice study based on comparable organisational samples but with more focussed facilitation, this being presented empirically within Paper 1.

Whilst the research that comprises this submission is underpinned by my specific quantitative contribution, Paper 1 provides a useful complement to the subsequent publications. The aspects described address the obvious criticisms potentially aimed at such work, regarding data accuracy and participant objectivity. These objectives and the practical nature of the developed paper lent themselves to a journal and an audience with a predominantly practitioner profile, a choice as indicated immediately above, I suggested, based on my previous role as an OR Analyst and ongoing member of the Operational Research Society, thus opening up the work in this submission to a wider academic audience in the process.

The data generated using PILOT and Learning PROBE are quantitative in nature, and as such, I led and developed the analysis using relevant statistical measures, tests and techniques, permitting the theory testing associated with the underlying research philosophy on which this work has been developed. The analysis I presented is appropriate to the data collected, the research questions presented, whilst the associated interpretation I developed has been set in the context of the management discipline under consideration.

My key contribution to each of the reports and papers in this submission includes the selection and execution of the statistical analysis and data modelling presented throughout. In the work to be considered, both research reports and six of the seven papers presented were quantitative in their content and *my contribution to the co-authored work was the constituent analysis, interpretation and contextualisation within these various publications*.

I also provided the lead for certain of the research work that was supported by these specific skills, which have been indicated by the co-authors, which covers the duration of the research work presented within this submission. As well as for Paper 1 above, I was lead-author for Papers 4, 5 and 7, in each case providing the impetus and leadership that underpinned the generation and development of the papers as a whole, contributing substantially to the papers' focus and writing alongside the generation wholly of the constituent quantitative analysis. The central analytical contribution to both reports and papers 2, 3 and 6 was recognised through my joint authorship of these various publications.

In terms of the contribution my work has made, this covers a range of excellence related issues arguably under researched in previous work (e.g. Papers 5 and 7) and the newness of my analysis was centred on the sectors considered, in particular Papers 6 and 7. My application of multivariate approaches in Papers 2 and 4 is evidence of the increasing innovation within my analysis. One particular publication, Paper 7, provides an indication of a more novel approach to my analysis as indicated earlier in this submission, where parallel surveys have been assessed in combination. Johnson and Harris (in Partington, 2002:108) warned of the pitfalls in quantitative research "*for the quantitative researcher to lose perspective, focusing on the numbers and not their meaning*". In contributing to this research, I ensured this did not happen, by providing not only the statistical analysis, but also the associated interpretation and contextualisation of the findings within the relevant publications, using techniques and evaluative writing accessible to the relevant audiences.

4.4. Evaluation of the Analysis Undertaken

The principal area of my contribution to the work undertaken within this PhD is, as indicated above in the quantitative analysis, which underpins almost all of the publications presented.

Within this submission, Paper 1 is, as suggested earlier, somewhat different in its role, although the comparative analysis presented here seeks to confirm the extent to which replication can be ensured in terms of differing applications of the related benchmarking instruments, thus assessing measurement reliability, as well as indicating the extent to which the facilitation process employed within the regional context can overcome potential limitations associated with lone or limited group assessment. This confirmation represents one particular contribution to knowledge in that whilst wider organisational participation in a benchmarking exercise is clearly the more desirable alternative, not least to embed any associated organisational learning, any departure from this can be compensated for through utilisation of thorough and effective facilitation.

Johnson and Harris (in Partington, 2002:101) identified three categories of quantitative analysis, "*descriptive*, *comparative* and *prescriptive analysis"*. Within the research presented in this submission, I implemented all three of the above as appropriate, and within each, the specific techniques employed have ranged from the basic to the relatively sophisticated. Since the "*core*" questions relating to organisational practice and performance were measured on a 5-point scale against a range of standards, they effectively represent a continuum scale (Curwin and Slater, 2002:24), albeit the data are provided in discrete form subject to the scales applied within the benchmarking tools. The data generated for the "*core*" practice and performance measures assessed are interval in their nature (Curwin and Slater, 2002:23, Johnson and Harris (in Partington, 2002:106). With this in mind, I have applied specific statistical techniques as appropriate, within the papers comprising this submission.

In more specific terms, the nature of the measurement scales employed within the benchmarking analysis has been evaluated in section 2.7 of this review. Moreover, the assessment of learner and employee satisfaction presented in Yarrow *et al*. (2004b) and Paper 7 involved the implementation of 5-point Likert scales, which have been adopted and endorsed by Douglas *et al*. (2006) in an educational context, given their lack of complexity in terms of being supported and their accessibility for potential participants.

The descriptive analysis found within this submission considers variables individually and at the simplest level, statistical tools that have been applied include summary statistics such as ranked tables (Paper 3), percentage frequency distributions (Paper 6), measures of average and variation have been employed to describe the data within the various publications, (examples Papers 2 and 5), as well as Reports 1 and 2.

Whilst the methods described are arguably simple, they nevertheless through their accessibility have a part to play in any quantitative research, as indicated by Chatfield (1988) who recognised the "*exciting potential for simple ideas and techniques*".

Association between various practice and performance measures has been assessed using correlation analysis, appropriate to the quantitative data under consideration

(Reports 1 and 2, Paper 6), ranked correlation (Paper 3) and the chi-squared test for category data (Reports 1 and 2, Paper 2), with specific reference to "*association*" rather than "*causality*", being indicative of a conservative approach to the evaluation provided, consistent with the view of Morris (1996:301) that "*correlation does not mean causation*" and the need to measure causality by evaluating the relationship between changes in practice levels against movement in performance attainment across multiple time periods (van der Wiele *et al*., 2002) This approach is also consistent with the observations made by Maire *et al*. (2008) regarding a range of benchmarking tools, PILOT named and included, that provide an evaluation of both organisational practices and the resultant achievements made, but included an important criticism that whilst both areas are assessed by the various (sophisticated) frameworks in existence, they do not prescribe the specific relationship between practice and performance that may or may not exist in reality. With this in consideration, reference to "*association*" rather than "*causation*" would appear consistent. To move to a more conclusive position, and thus claiming true "*cause and effect*", would involve an assessment of the changes in both practice levels and performance realisation over an appropriate window of time, perhaps assessing the movement of performance prior and subsequent to the implementation of specific strategies, as recommended by Kumar *et al*. (2009b). Moreover, the variables considered for this analysis were carefully chosen so that the assessments made and reported on within the various publications were intuitive and represented areas of organisational operations where it would be reasonable to assume investments in the considered practices would potentially lead to enhancements in the corresponding areas of performance.

The association between practice and performance within Reports 1 and 2 and Papers 2 and 6 is arguably limited in its consideration by being only in an aggregate form, although such assessment and presentation has its value in assessing the profile of a group of (benchmarking) participants (Saunders and Mann, 2005), and in the context of this PhD submission, this does permit assessment to be within the relevant publications to cover an extensive range of practice and performance indicators. To some extent, this limitation is overcome within this submission, through closer and specific assessment of particular practice/performance associations, as indicated

within Papers 3, 4 and 5, through consideration of relevant individual measures to the issues being explored.

In contrast to the simplicity of certain of the analysis indicated above, the quantitative input to the submission has also included the use of exploratory Factor Analysis (Field, 2000:423-470) in Paper 4, as indicated in section 3.7, to identify the key underlying enablers that support enhanced business performance, applied in tandem with reliability analysis to assess the internal consistency of the identified enablers (Bryman and Cramer, 1990:70-72).

The comparative analysis employed within various publications that comprise this submission involve the assessment of two or more groups within the data, including differences based on world-class assessment, organisational size and sector (Reports 1 and 2). Given the size of the data sets, the relative sample sizes and assumptions made about population distributions (Field, 2000:37), I have employed various parametric tests (Papers 1 to 5), along with post-hoc tests as appropriate (Paper 1, Field, 2000:280-281), compared with non-parametric tests such as Wilcoxon and Kruskal-Wallis for scaled data (Paper 7). Finally, I have undertaken prescriptive analysis centred on Discriminant Analysis (Paper 2) to determine key differentiators with respect to organisations based on their practice or performance attainment, and in so doing, predict their world-class status, again evaluated and critiqued in section 3.7.

One arguable criticism perhaps of the "*gap*" analysis in Paper 7 was its relative simplicity that it didn't afford comparison with service satisfaction research such as that presented within Dotchin and Oakland (1994c), in particular, assessment in a new service context, of the negative association between levels of attribute importance and their corresponding distance from the perception of quality being achieved. However, consideration of each of the 38 attributes assessed in Paper 7 from the perspective of importance, shows relatively similar (specifically, very high) mean levels of importance and limited variation in the values recorded across the range of work aspects assessed, suggesting perhaps the more simpler approach adopted would indeed suffice.

In terms of further application, James (2007) identifies the relevance of "*disconfirmation analysis*" to the assessment of satisfaction in the arena of public services provision, alongside the application of "*expectations anchoring*", indicating the differing nature of their respective effectiveness in the assessment of both satisfaction and dissatisfaction. Keirl and Mitchell (1990, in Dotchin and Oakland, 1994b) evaluate quality as a product of perception and expectation, which is criticised for an absence of supporting theory by Dotchin and Oakland (1994b), a criticism that arguably could be extended to the "*gap*" analysis presented in Paper 7 and Yarrow *et al*. (2004b). The differing methods of evaluation discussed here do give an indication of the possible range of analytical approaches that are in existence to assess the differences between importance (or expectation) and satisfaction, all of which have their merits in terms of making these required comparisons over a range of customer-oriented or employee-focussed attributes, the "*gap*" approach presented here being one of them. The differentiating and therefore unique feature of the work presented in this submission from that considered in this review for purposes of comparison is the linkage made between satisfaction realisation and the achievements of the employing or service providing organisation in terms of excellence attained, and the associated component adoption of business practice and realisation of operational and business performance, thus providing an assessment of the sector considered from two differing, but arguably balancing perspectives as well as offering an empirical evaluation that is distinctive from that provided elsewhere.

A recognisable limitation in each study presented relates to the potential bias in the samples generated, given the self-selecting nature of the participants (Saunders *et al*., 2007:233-234) and that organisations engaging in such a diagnosis are arguably more committed to product and service quality and organisational improvement, and as such, are more responsive to opportunities that would support these enhancements (Paper 6). Recognition is also given to this by those implementing both PILOT and PROBE, who believe that even the most challenged of organisations may still have a practice and performance profile that is superior to a significant proportion of organisations in the wider manufacturing and service populations. This is supported by Comparison International (2009) who state "*Bear in mind that the other businesses in the PROBE database are a self-selecting sample, the average of which may well be higher than the true average of all businesses. By definition, organisations that use*

PROBE have a somewhat positive attitude towards techniques such as benchmarking that can help drive continuous improvement. They represent a tough standard of comparison".

Johnson and Harris (in Partington, 2002:104-105) indicated the benefits of probabilistic sampling approaches in quantitative research, in order to permit generalisability, but did recognise the value and necessity for non-probabilistic approaches, particularly to ensure adequate sample size, which is consistent with the research requirements here.   Despite this limitation, the data do provide an opportunity to assess the relative strengths, challenges and variation, notwithstanding over or underassessment, within the practices and performance indicators measured, particularly given the number of participants in each of the three benchmarking studies and the two satisfaction surveys relating to employees and learners in the FE sector.   Reports 1 and 2 indicate the extent of the representation of the regional participants by size, sub-sector and geographical spread.

4.5.   Areas for future research

For both of the regional projects that underpin this PhD submission, an external requirement was the desire to develop a sectoral profile of practice implementation and performance attainment and in turn, provide an assessment of the key assumptions underpinning organisational excellence within these contexts. Notwithstanding the limitations relating to self-selecting samples, this has been achieved through the analysis presented, perhaps at the expense of any in-depth understanding of how individual organisations have embarked on their voyage towards excellence, and in turn, potential competitiveness. Within reports 1 and 2, I have provided a detailed insight into the strengths and challenges facing the region's service and manufacturing sectors respectively, considering the association between practice and performance, its influence on growth and competitiveness and the potential future direction of the region.

In terms of a number of questions that have emerged, it would be appropriate that any further research, as indicated above, could be also be based on a "*best practice*" benchmarking approach, thus generating potentially interesting and useful

longitudinal assessments (Guimaraes, 1995; Moore *et al*., 1998; Kumar *et al*., 2009b) of organisations in both the region and FE sector in their pursuit of organisational excellence, which may also consider the longer term impact of changing (improved or otherwise) organisational practices on stakeholder satisfaction in the college sector (Paper 7; Yarrow *et al.*, 2004b), understanding how the various sectors are meeting the expectations of their immediate society beyond the short term (Paper 5) or how the long-term investment in practices (Laugen *et al*., 2005 – "*depth*") is influencing performance. By consideration of data in an aggregated way, there is some evidence of longitudinal comparison being made at the wider-sectoral level in the manufacturing arena (see Yarrow *et al*., 2004a), whilst the same authors stress the opportunities for participants who have applied this framework in making comparison of their own diagnosis with that provided in database form for previous participants across a range of countries and business sectors.

The studies in this submission have suggested that a number of participants are potentially at a critical point in the defining their longer-term likelihood of approaching or realising excellence in their operations. It would be useful to assess how the "*lagging*" and "*vulnerable*" organisations have responded to the diagnosis afforded to them via their "*best practice*" benchmarking experience and made appropriate investments in terms of business practices, with any subsequent reassessment of these organisations being of value in assessing the impact of change, especially regarding their "*external*" attainments against the backdrop of more challenging economic circumstances that have developed in recent times. It would also be useful to assess how many of these organisations who reported favourably on their benchmarking experiences (Paper 1), have built on this through further or ongoing networking and collaboration and have moved onto more in-depth and sophisticated benchmarking interventions (Yarrow and Prabhu, 1999). Any further examination of these organisations, via a "*best practice*" assessment as suggested, could indicate whether those organisations, individually or collectively, who faced initial challenges around weak levels of practice and poor resultant performance, but with the desire to change, have moved on their (longer-term) journey from being "*lagging*" to "*promising*", with some perhaps even onto "*winning*". This longitudinal consideration builds on a similar assessment described above in Yarrow *et al*.

(2004a), but complements this comparison by providing a pair-wise evaluation of changes in organisational status and underlying achievements.

Moreover, it would be useful to assess changes realised against the relative challenges facing the public sector and SME organisations in the various studies (Report 1, Papers 2 and 6), particularly given their regional importance. The SME perspective may also focus on how the sector is experiencing challenges relating to identifying and implementing the most appropriate and usable benchmarking frameworks, as reported by Jaques and Povey (2007). It would be interesting to see if the development or maturing of organisational practices, as appropriate, has allowed the "*lagging*" and "*vulnerable*" organisations within these sectors, and generally, as indicated above, to both respond to change and enhance their business practices over a broad group of indicators.

It would be worth determining how the FE sector has addressed issues in terms of staff and learner concerns (Yarrow *et al*., 2004b; Paper 7) and where wide-ranging practice development has taken place, it would be useful to see who has benefitted and to what extent. Where practice enhancement has not been realised, it would be useful to assess, where relevant, the extent to which decent or higher levels of organisational achievement have been sustained, and if so, the ongoing impact upon employees and learners. The assessment of learner satisfaction could involve either a bespoke measurement tool as presented in Yarrow *et al*. (2004b), or centre on the evaluation of levels of expectation and service perception using the established SERVQUAL framework given its recognition and applicability to the education setting (Quinn *et al*., 2009) or through its adaptation to assess only satisfaction, given the reservations recognised by authors such as Kuo and Ye (2009) and Nadiri *et al*. (2009). Such measurement affords comparison with other service sectors, given the take-up of this framework, as indicated by Dothcin and Oakland (1994b). Likewise the gap evaluation of any internal or external stakeholders afforded using SERVQUAL can be linked to the organisational diagnosis prescribed using the "*best practice*" benchmarking tool, in a similar way to the combination of metrics presented in Yarrow *et al*. (2004b) and Paper 7.

One particular recommendation that has not come out of this study is that of adapting or rebuilding the "*best practice*" instrument on the basis of the analyses undertaken or the experiences gained through framework implementation. The absence of any recommendation in this particular area is consistent with the conclusions made by Yarrow *et al*. (2004a) that greater emphasis should be given to enabling organisations in identifying payback from this engagement and that any resultant advancements are sustainable, with recognition that greater attention should be placed on "*working on the business*" rather than "*working in it*", although resisting framework development does contradict the recommendation of other contributors to the benchmarking literature either from a practical (sector-specific) perspective (Jaques and Povey, 2007) or from a more philosophical point of view (McAdam and Kelly, 2002; Moriarty and Smallman, 2009).

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RESEARCH REPORTS AND

ACADEMIC PAPERS

Report 1

Prabhu, V.B, Robson, A., Yarrow, D.J, Appleby, A., Mitchell, E. (2001a), *Services in the North East: A Study of Management Practices and Performance in 450 organisations*, University of Northumbria at Newcastle, Newcastle upon Tyne. ISBN 186135 220 4.

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Services in the North East
(A Study of Management Practices and performance in 450 organisations)

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CONTENTS

Key Questions answered:

1. Why and how was this benchmarking study undertaken?
2. What measurement tool was chosen, why and how was it used?
3. What is the profile of the companies involved?

Key Questions answered:

1. Given the established scales of world-class status, how can the North East sample be best described?
2. Does the above pattern demonstrate that better practice leads to higher performance?
3. Amongst possible discriminants, do size, industrial sector and ownership have any bearing on the observed world-class groupings?
4. How does the North East sample compare with similar analyses from USA and the UK?

Key Questions answered:

1. Taking average practice and performance scores for each organisation, how are the results distributed overall and by world-class status?
2. Do factors such as world-class status, size, service sector and ownership have any bearing on average practice levels and performance achievements?

SECTION 4: FURTHER INSIGHTS INTO SERVICE PRACTICE AND PERFORMANCE

Key questions answered:

1. Which practices have the greatest levels of adoption? What are the implications?
2. Which performance measures demonstrate the greatest success? What are the implications?
3. Do size and service sector have an impact on practice adoption levels and performance achieved?
4. Any other influences on practice levels and performance outcomes? (e.g. ownership and location)

SECTION 5: LESSONS FROM OUR LEADING COMPANIES

Key questions answered:

1. In what ways do leaders perform better?
2. What practices do they adopt more successfully?
3. Do size, service sector and markets served have an impact on practice adoption levels and performance achieved by leaders?

SECTION 6: BUSINESS GROWTH AND COMPETITIVENESS OF N.E. SERVICE OPERATIONS

Key questions answered:

1. How have they grown in relation to measures such as turnover, profitability, product range, customers, suppliers and employees?
2. Do the rates of growth bear any relationship with organisation size, service sector or world-class status?
3. Do they exhibit any competitive advantage in terms of price, quality, delivery etc.?
4. Are these advantages related to size, service sector or world-class status?

SECTION 7: FUTURE ISSUES FOR SERVICE ORGANISATIONS

Key questions answered:

1. What are the relative strengths and weaknesses of the key sub-sectors in the North East of England?
2. What are the major differences between the 'Public' services and 'Private-sector' services?
3. What are the sector's strengths and challenges in the context of future world-class attributes?

REFERENCES

LIST OF TABLES AND FIGURES

ACKNOWLEDGMENTS

EXECUTIVE SUMMARY

I. Overall features of the service sector sample

On Strategy and Leadership:
- Organisations are aware of their competitive position but need to focus on how to differentiate and position their services in relation to that competition.
- Top management in developing a service culture provides strong support and leadership but could promote more actively quality values amongst employees.
- Far greater attention than is currently provided, is required for establishing and reporting non-financial performance and especially for benchmarking performance against competition and world class standards.

On Human Relations Issues:
- Employee participation in teamwork is encouraging (up to 50% involved) as is their focus on customer orientation.
- Job flexibility is practised but wide variations in output and skills levels still exist.
- Improvement activities and suggestion schemes have achieved limited success.
- Sharing of vision, mission and goals is restricted to management commitment only; most organisations fail to capitalise on the full engagement of all personnel.
- Employee loyalty and commitment is high and is reflected in low staff turnover.
- However, employee recognition and reward for good service is limited to only exceptional performance. Hence, employee satisfaction and morale is generally low.

On Service Delivery and Quality:
- On service delivery, performance leads practice, but is not exceptional. For example staff responsiveness is rapid but restricted to core services. Also, staff accessibility is high but limited to normal working hours. In both areas, better problem solving practices and real time handling of service failures would enhance performance.
- In terms of service quality, performance is still fairly average for the whole sector.
- Quality performance and service reliability levels meet average requirements rather than being outstanding. This results partly from limited use of documented procedures, low use of 'total quality' practices or frameworks such as EFQM.

On Service Design and Innovation:
- Customer feedback is sought but not formally used in setting design standards.
- Customer needs are currently met, but not consistently nor exceed expectations.
- Back-office functions are seen as less important than front office services. The opportunity for creating new markets through superior support processes is thus lost.
- IT is currently used for improving functional response rather than supporting re-design of business processes that will radically improve competitiveness.
- Even though services are developed and improved regularly no set processes exist for new service design and development.

On Service Value and Measurement:
- Service quality is still seen in narrow terms of outcomes such as customer satisfaction and not in relation to the underlying processes that drive them.
- Service standards are visible and made clear to all employees but not communicated to and shared with customers.

- Non-value adding activities have yet to become the focus of managerial attention in many organisations. The potential for cost leadership and high service levels by eliminating 'waste' is huge.
- Customer satisfaction measurement does take place but only in broad terms and could be made more sophisticated and discriminatory.
- Service performance in terms of providing value (quality/price), customer retention or even customer satisfaction is unspectacular for the sector as whole.

On Business Performance:
- Other than operating costs, which need to be reduced, there is a positive movement on all performance measures such as productivity, market share, cash flow and return on net assets.

II. How does this profile vary by size band (relative to the whole sector)?

Size (No. employees on site)	Strengths	Challenges
Micro (up to 20)	Core strategies, especially leadership H. R. practices Problem solving approaches Real time handling of service problems Strategies for service design and innovation Visible standards of service Level of customer satisfaction Relatively high growth rates High levels of competitive advantage	Performance measurement and reporting Competitive benchmarking
Small (21 to 50)	Performance in service quality Increasing market share	Improve core business strategies Improve H. R. practices Enhance quality practices Reduce number of suppliers Improve clarity of service concept Increase visibility of service standards Introduce customer satisfaction measures Increase profitability levels Raise levels of competitive advantage
Medium (51 to 200)	Core business strategies Quality frameworks and procedures Increasing market share Reducing operating costs	Improve H. R. practices Improve H. R. performance Raise performance in service quality Increase visibility of service standards Introduce customer satisfaction measures Raise levels of competitive advantage
Large (201+ employees)	Performance measurement and reporting Corporate social responsibility Investment in skills, training and education Quality procedures and frameworks Service value and measurement practices	Leadership role in developing service culture Improve problem solving skills Embed total quality mindset Improve performance on service delivery Improve responsiveness to customer needs Enhance customer loyalty Raise customer satisfaction levels Step up growth rates Improve levels of competitive advantage

III. How does this profile vary by service sector (<u>relative</u> to the whole sector)?

Service Sector	Strengths	Challenges
Consultancy and Professional	Core business strategies H. R. practices H. R. performance Performance in terms of service quality Strategies for service design and innovation Service value and measurement practices Increasing market share Enhanced cash flows Competitive advantage in terms of quality Advantage in terms of service customisation	Competitive benchmarking Performance measurement and reportin
Education and Public Services	Corporate social responsibility Teamwork Shared vision, mission and goals Competitive advantage in terms of price	Leadership role in developing service culture Differentiate services offered Improve H. R. practices Lower development time for services Meet customer needs consistently & exceed them where possible Improve market share Enhance cash flows Increase turnover and profitability Investigate increases in staffing Improve levels of competitiveness
Industrial Services	Good quality procedures Relatively good performance on quality High staff accessibility Low development times for services Rapid response to customers Reputation for reliability Increasing turnover Increasing profitability	Improve H. R. practices Share vision, mission and goals Involve employees in business improvement Listen to staff input and act upon their views Innovate in services more regularly Increase productivity Increase return on net assets Apply lean thinking in relation to employees and suppliers
Leisure and Retail	Strong on customer orientation High performance lin delivery and quality Strategies for service design and innovation Levels of business growth	Greater investment in skills and training Improve performance measurement and reporting Raise levels of corporate social responsibility Improve H. R. practices Enhance quality procedures

IV. Leaders (top 20% of performers) Vs Laggers (bottom 20% of performers)

- Significant differences exist on all practice and performance measures considered.
- In terms of size, this is repeated to the same extent for both measures for micro, small and medium companies, but to a lesser extent in the large size band.
- In terms of sector, this is repeated to the same extent for both measures in all sectors.

Section 1: Background to the NE Regional Benchmarking Study

Why and how was this 'benchmarking' study undertaken?

In the North East of England, the regional Business Support Partnership has developed a common approach to analysing the competitiveness of businesses. Co-ordinated by Newcastle Business School (NBS) on behalf of One North East (ONE – the Regional Development Agency), this novel approach continues to be deployed and developed, building on an initial 'diagnostic' benchmarking study which involved 740 companies between January 1997 and March 1999.

Two key features of the study were the involvement of every major business support agency in the region, and the intensity of coverage of the business population. Companies were encouraged and assisted to participate by, among others, five TECs and Business Links, the Northern Development Company, five universities, the Regional Technology Centre, the Northern Business Forum, the Regional Chamber of Commerce and CBI, F.E. colleges, local authorities and sector and professional associations. Several of the region's prominent companies encouraged their suppliers to participate, and others opened their doors for the benchmarking programme, allowing participants to see the host's operation at first hand. The sample covered every major sector of the regional economy.

Companies were invited to participate by the agencies most relevant to them, through workshops throughout the region. This provided the opportunity for business advisers to be associated with an organisation's benchmarking process, and when asked, to assist them with their development.

Participation was voluntary, and the sample cannot be described as statistically random. However, the greater intensity of coverage of a defined population (in relation to comparable benchmarking studies) increases the likelihood of obtaining a representative picture. To make the study sample as representative as possible, participation was monitored throughout and under-represented categories of organisation were encouraged to participate.

The nature of benchmarking is such that it requires substantial effort on the part of the business to ensure that the data and judgements submitted are as accurate and realistic as possible. If the process is to deliver substantial benefits, it must not be based just upon the readily available; it must also probe into aspects of performance that are not regularly measured. Some aspects are difficult to measure including the organisation's internal processes, and the extent of deployment of "best practice". Such judgements are not always easy to make - it takes time and effort on the part of the organisation, and in some cases it requires courage.

What measurement tool was chosen and how was it used?

The benchmarking tool was called PILOT. It built directly upon the work of the Made in Europe studies (Hanson et al, 1994 and 1996), and the International Service Study which followed them (Voss et al, 1997), which has continued in the form of "PROBE", administered in the UK by the Confederation of British Industry (CBI). The University of Northumbria at Newcastle has adapted PROBE for the purposes of the North East's benchmarking approach, to be applicable to smaller businesses and to be more readily applied to a large sample. Compatibility with national/international schemes was incorporated into PILOT to allow comparison of regional findings with the national and international scene.

PILOT compares the organisation's operational practices and performance (in 5 key areas of Strategy, People, Design, Operations and Quality) with standards regarded as world-class (see Hanson et al 1994).

Data was collected using a self-assessment process involving a questionnaire, undertaken by a small group of representatives, facilitated and quality assured by the research team at workshops. Representatives from several participating companies met and worked together to calibrate their individual responses. About 75 workshops were held over a two-year period at different venues across the region. Around 50 facilitators who were drawn from various support agencies supported these workshops. The facilitators provided consistency explaining how the process worked and most importantly, stressing the need for honest responses. However, the workshop sessions did highlight that many respondents had drafted their questionnaire responses through limited consultation with colleagues. This was despite encouragement from facilitators to consult more widely within their organisation. In small organisations (i.e. less than 50 employees), it was more likely that the questionnaire was initially completed by a single person. That said, statistical analysis shows there was only a limited number of questions where the response score was significantly associated with the method of completion. Encouragingly, only a small number of companies participated in this survey without attending any workshop. The advantages of the workshop approach include the opportunity to learn about various benchmarking techniques and try one in particular (i.e. PILOT) in a "live" environment with a relatively small investment of time. The workshops also allowed efficient data validation and proved persuasive in encouraging participants to progress to more in-depth benchmarking. While PILOT focuses on the organisation's operational practices and performance, supporting data is also gathered covering aspects such as ownership, markets and market development, finance, sustainability and inclusion, the impact of change and usage of external advice and assistance.

What is the profile of the companies involved?

The PILOT service sample consists of 448 responding companies located in the TEC regions Tyneside, Tees Valley, Durham, Sunderland and Northumberland (Figure 1).
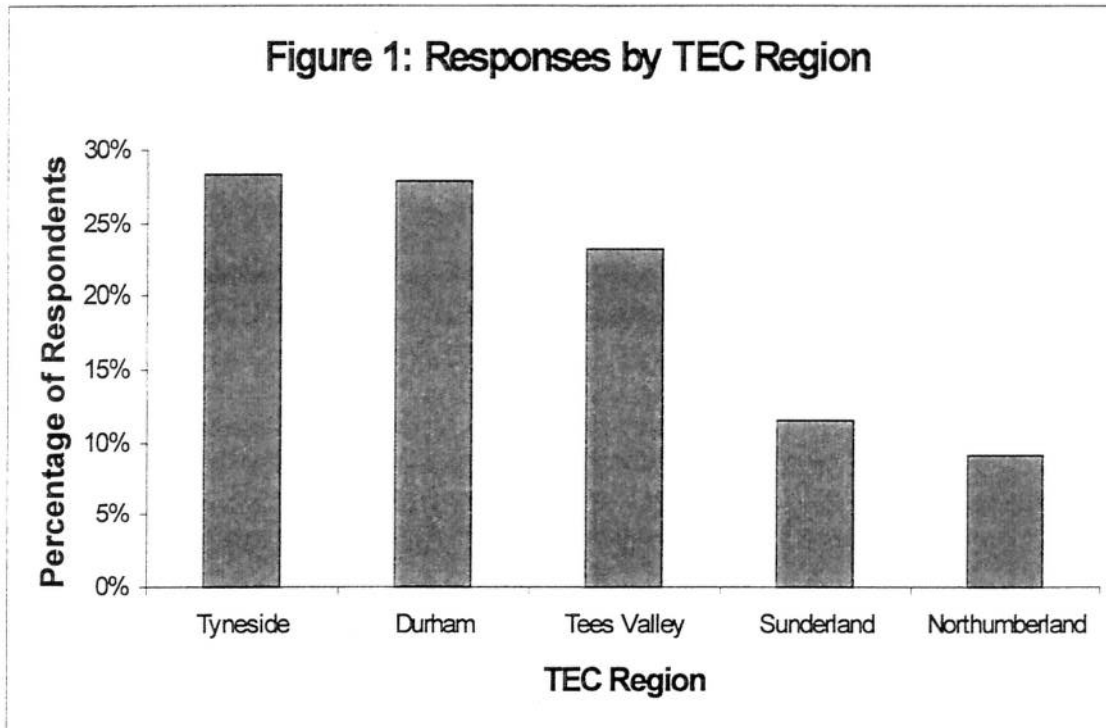
Figure 1: Responses by TEC Region

In this analysis, sites which employed less than 10 people were not targeted, and a separate benchmarking tool specifically for use with micro companies has been developed and deployed. Further development work is on-going with this new tool (Micro Business Review) with a view to involving large numbers of micro-enterprises in benchmarking. The distribution of respondents in the service sample (Figure 2) by organisation size (as defined by number of employees on site) was:

- Micro   - sites which employ 10-20 people (36%)
- Small   - sites which employ 21-50 people (24%)
- Medium - sites which employ 51-200 people (22%)
- Large   - sites which employ 200+ people (18%)

Figure 2: Distribution of respondents by size

X-axis: Organisation size (defined by number of employees); Y-axis: Percentage of respondents
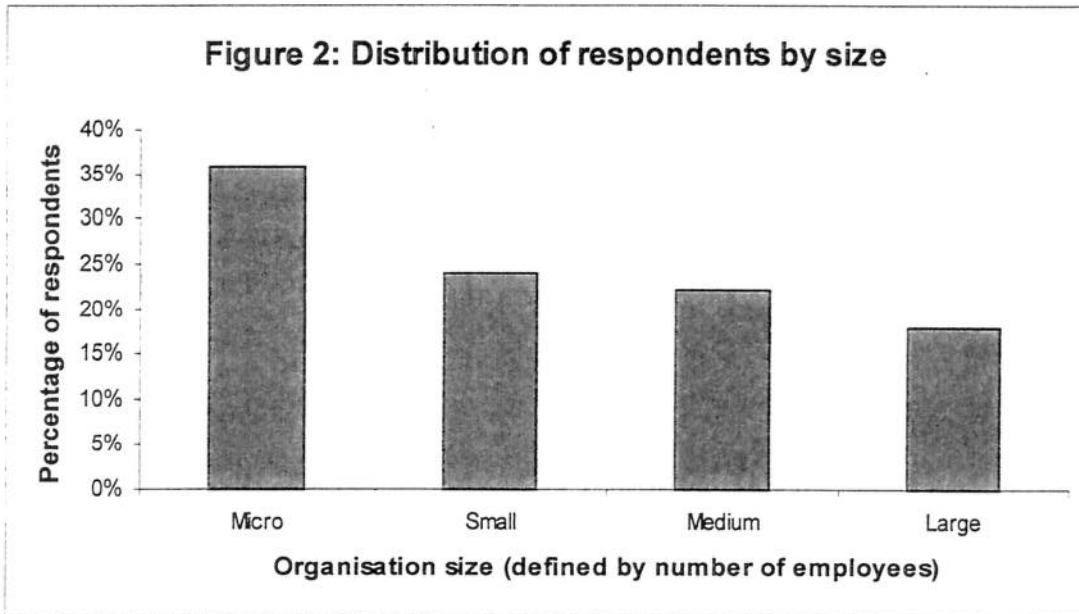
The service organisations sampled belong to five main groups (Figure 3).

- Consultancy/Professional (27%)
- Education/Public Services (27%)
- Industrial Services (14%)
- Leisure and Retail (11%)
- Other (22%)

Figure 3: Distribution of participating organisations by Sector

X-axis: Service Sector; Y-axis: Percentage of respondents
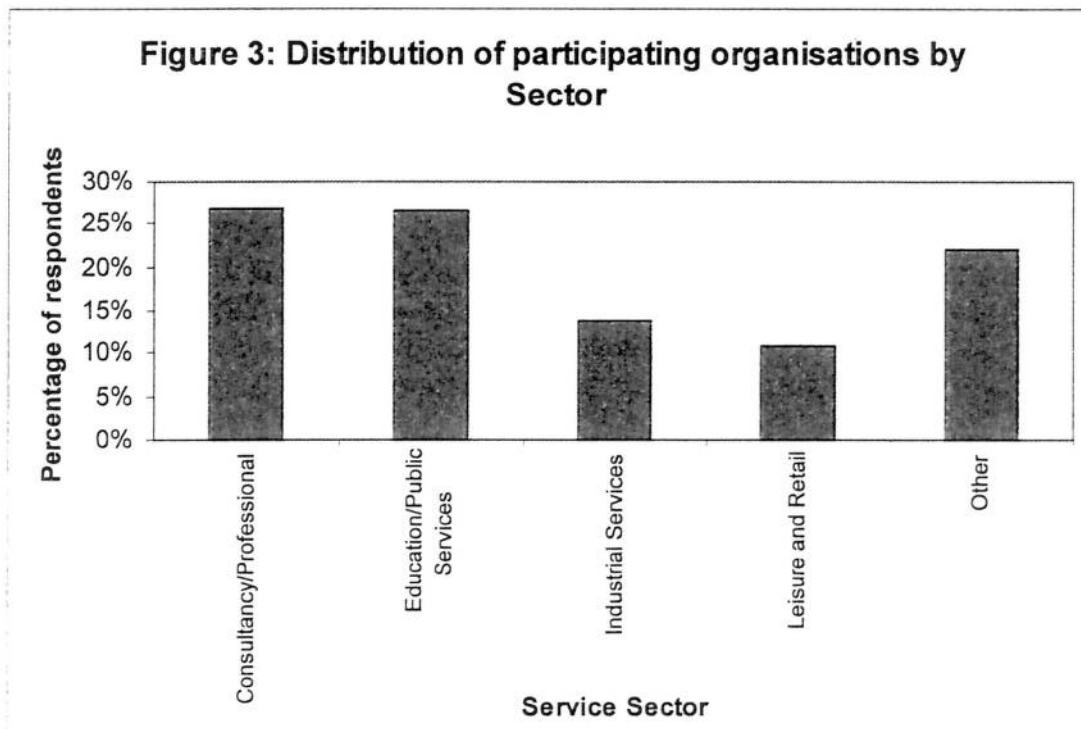
Within the sample of service organisations a clear majority (66% of the sample) were independently owned compared to 34% which were operating units of larger firms. The overwhelming majority of the respondents (91%) are owned within the UK.

Ownership is related to both the size of the organisation (as indicated by the number of employees on site) and the service sector. Over 55% of those respondents who were operating units of a larger firm were either medium or large in size. In addition, 45% of the independently owned companies were micros (Figure 4). The smaller the organisation is, the more likely it is independently owned.

Figure 4: Distribution of organisations within each ownership category by size
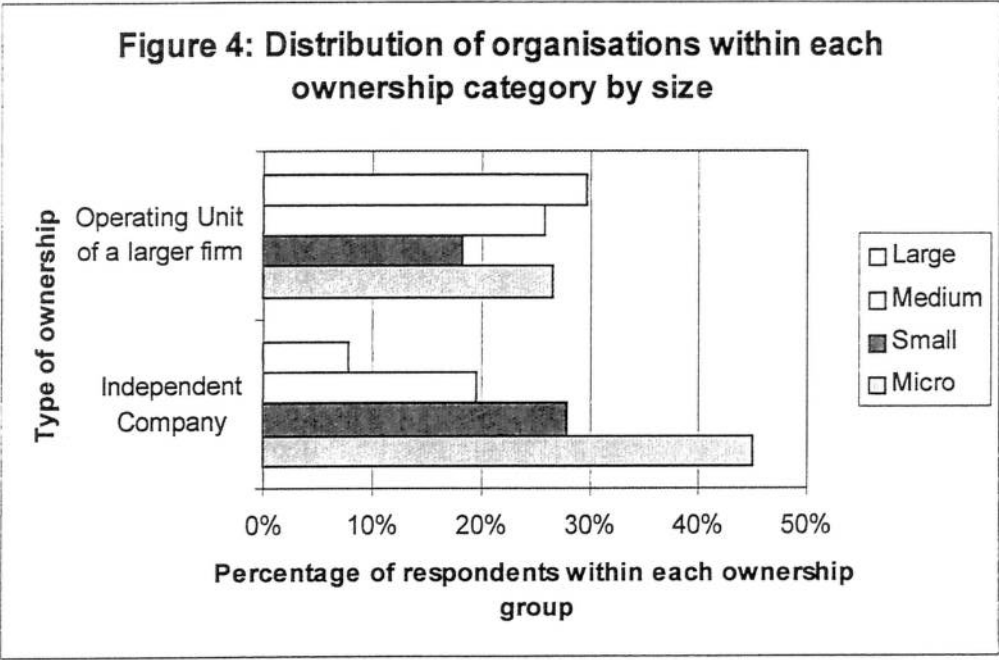
Clear differences in ownership also exist amongst the four main sectors (Figure 5). A clear majority of the Consultancy and Professional (84%), Industrial Services (85%) and Leisure and Retail (78%) sectors are independent, whilst the majority of Education and Public Services (72%) are operating units of a larger organisation (Figure 5). Moreover, 46% of all the non-independent companies in the data set are Education and Public Services, whilst 36% of all the independents are in the Consultancy and Professional sector.

Figure 5: Distribution of ownership type by Sector
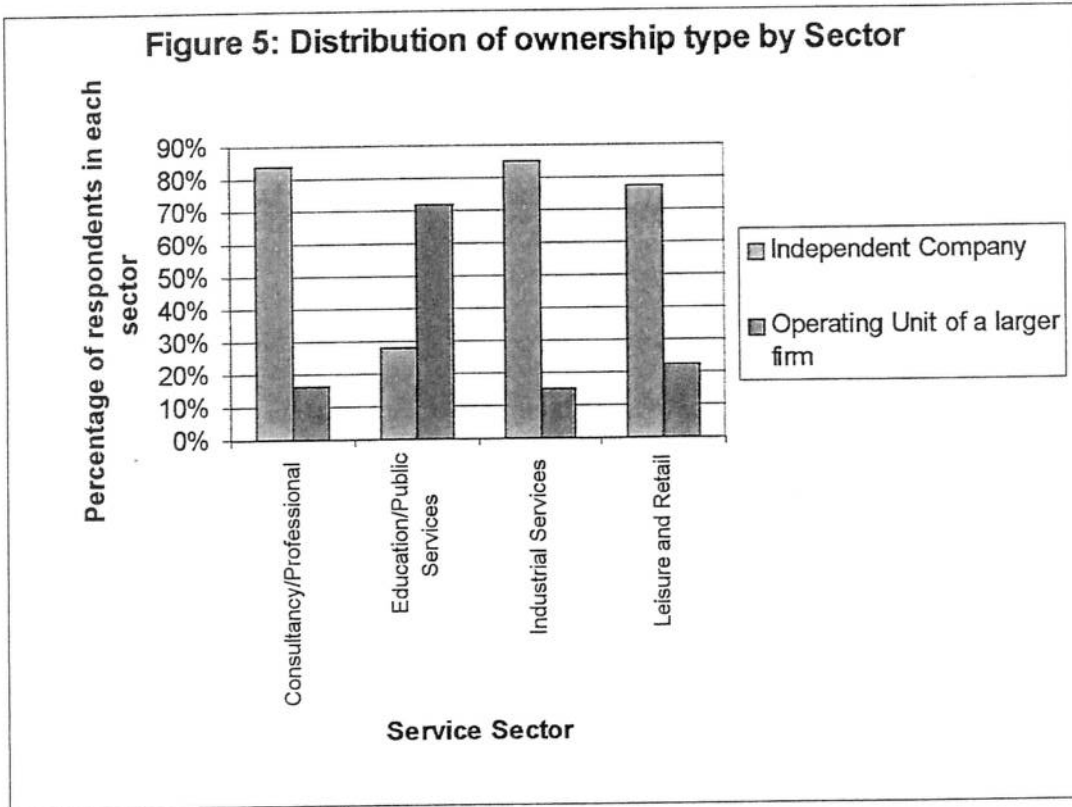
The majority of organisations in each size band do not offer their services overseas (Figure 6). The biggest market overseas for each group is Western Europe, but even amongst the small organisations, which have the biggest proportion engaged in this activity, fewer than 30% offer services here. It is interesting to note that the band of small organisations have proportionately bigger numbers of members offering services in the USA and Eastern Europe compared to the other size bands. The large companies have a proportionately greater number offering services in the Asia Pacific compared to the other three size bands.

Figure 6: Percentage of companies by size band offering services to geographic markets
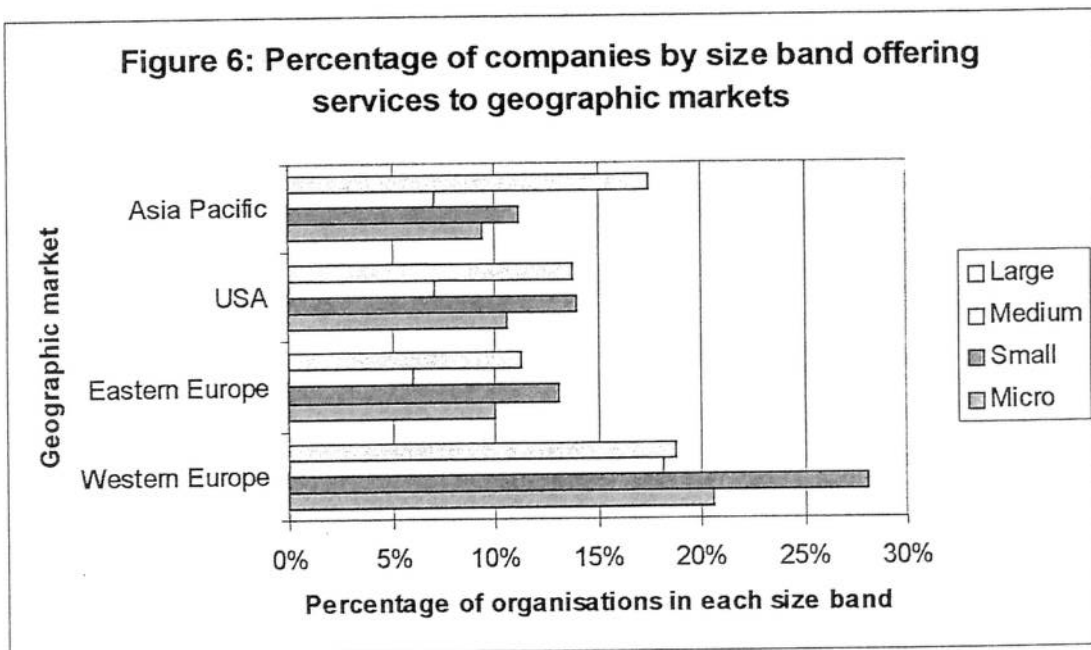
In terms of sector, a greater proportion of companies classified as Industrial Services (34%) offer services overseas compared to the other main sectors (Figure 7). This sector also leads the way with respect to markets in Western Europe, which is the main area outside the UK and the Asia Pacific. Each sector has limited markets in both Eastern Europe and with the relative exception of Leisure and Retail (19%) and Industrial Services (16%), in the USA.

Figure 7: Percentage of organisations by sector offering services to geographic markets
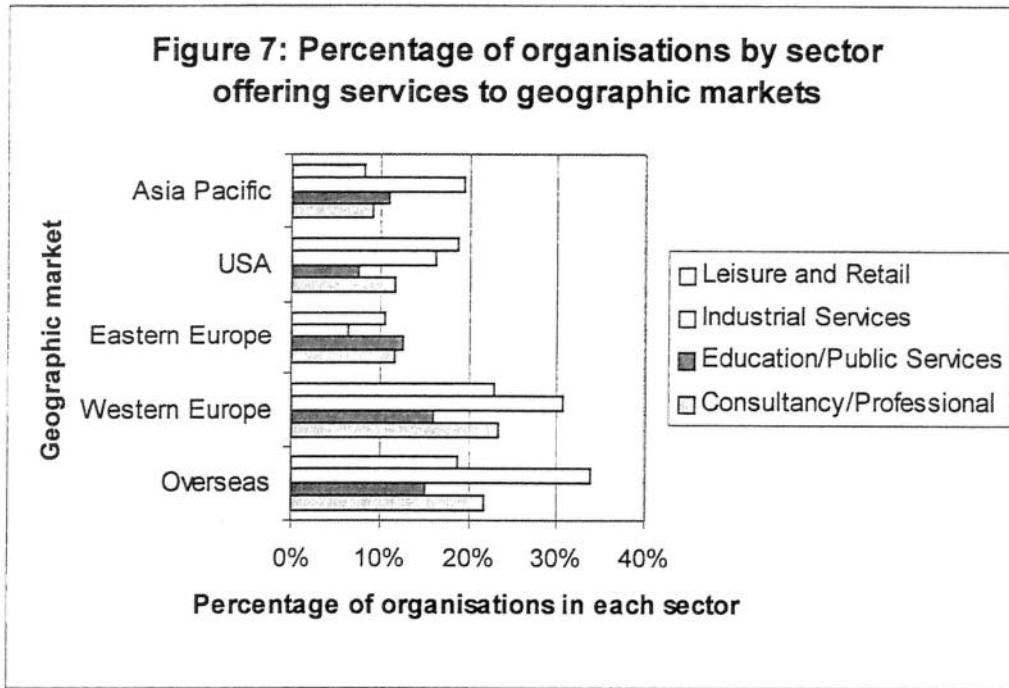
Section 2: World-Class Maturity Levels in Service Operations

How can the North East sample be best described?

Organisations reaching a score of at least 80% on both scales (practice and performance) are deemed to have achieved World-Class standards. Figure 8 shows the aggregate practice and performance scores for each of the 448 organisations.

Figure 8: North East Organisations – Service Sector (448 organisations)
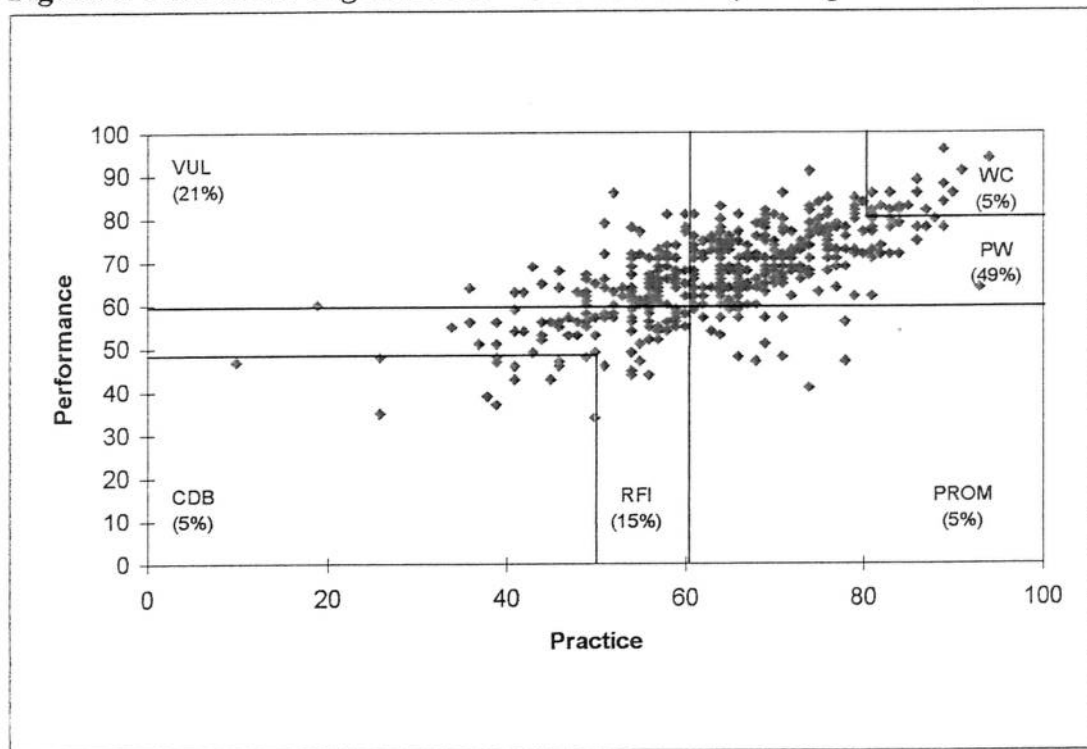
The sample was sub-divided further into six categories based on their practice and performance scores, which are defined below:

World Class (WC)
Only 5% reached this level.

Potential Winners (PW)
This group has achieved relatively high levels of practice and performance, though many of them could still achieve more. They represent 49% of the service sample.

Room for Improvement (RFI)
These respondents demonstrate worryingly low practice and performance levels and account for 15% of the organisations.

Vulnerable (VULN)

This group represents 21% and are achieving high performance levels but without the support of good practices, making them particularly susceptible to market changes or world class competitors. Typically, their high level of performance is achieved at a high cost, perhaps including an over stretched workforce compensating for some weak business processes.

Promising (PROM)

A small proportion (5%) are adopting good to better practice but have yet to realise the improvements in their performance.

Could do Better (CDB)

5% are classed as 'Could do better'. They have a long way to go if they are to achieve world class performance.

Does the data suggest that better practices lead to higher performance?

Applying the practice-performance model, there is an established belief that if an organisation adopts best practice, then this will lead to high operational performance. To what extent is this true amongst the North East service organisations?

Overall there is significant association at the 0.1% level between overall practice and performance score. Equally significant is the association between the two aggregate measures amongst the leading organisations, who have been described as PW/WC. This would suggest that this cohort of organisations have strong underlying practices and high operational performance. Conversely, there is also highly significant association (at the 0.1% level) practice level and operational performance just fails to be significant for the CDB and RFI cohorts. A level of association would be expected since these groups have a relatively low level of both practice and performance.

To what extent do other factors such as size, ownership and industrial sector have an impact on World Class Status?

Does organisation size influence World Class Status?

There appear to be differences in the proportion of organisations by World Class status in each of the size bands (Figure 9). The Potential Winner is highly represented amongst the medium sized organisations, but under represented in the cohort of small organisations. Vulnerable organisations are over represented in the latter, whilst there is a large proportion of Promising organisations in the large size band. However, despite these differences there is no statistically significant association between size and World Class status amongst the service organisations.

Figure 9: Differences from overall (%) by World Class Category
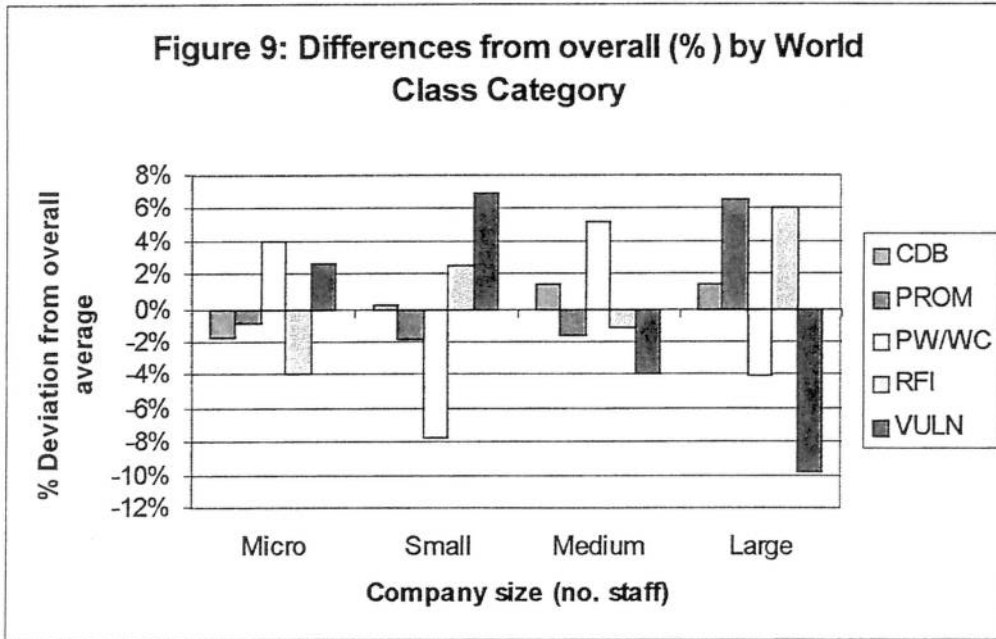
Does ownership influence World Class Status?

Operating units of larger organisations provide a greater proportion of the 'Promising' group than expected; the independents tend to have a smaller than average proportion of these 'Promising' organisations (Figure 10). There is little difference in terms of the proportion of other categories for the two types of ownership and statistically there is no significant association between ownership and World Class status.

Figure 10: Differences from overall (%) by World Class Category
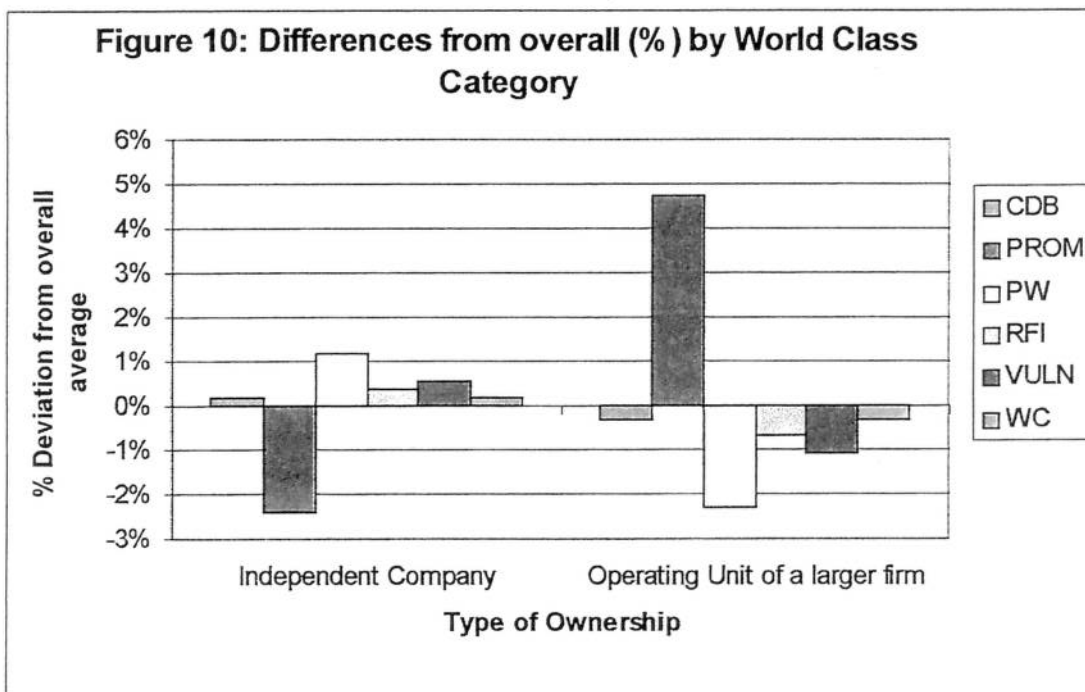
Does Service Sector Influence World Class Status?

A concentration of certain categories of World Class status within certain service sectors can be observed (Figure 11). Industrial Services have a much higher proportion

18

of Vulnerable organisations, whilst the Education and Public Services and Industrial Services sectors have a much smaller proportion than expected number of PW/WC organisations. There is overall association between sector and World Class status that is significant at the 5% level.

Figure 11: Differences from overall (%) by World Class Category

Y-axis: % Deviation from overall average (12%, 8%, 4%, 0%, -4%, -8%, -12%)

X-axis (Service Sector): Consultancy/Professional, Education/Public Services, Industrial Services, Leisure and Retail

Legend: CDB, PROM, PW/WC, RFI, VULN
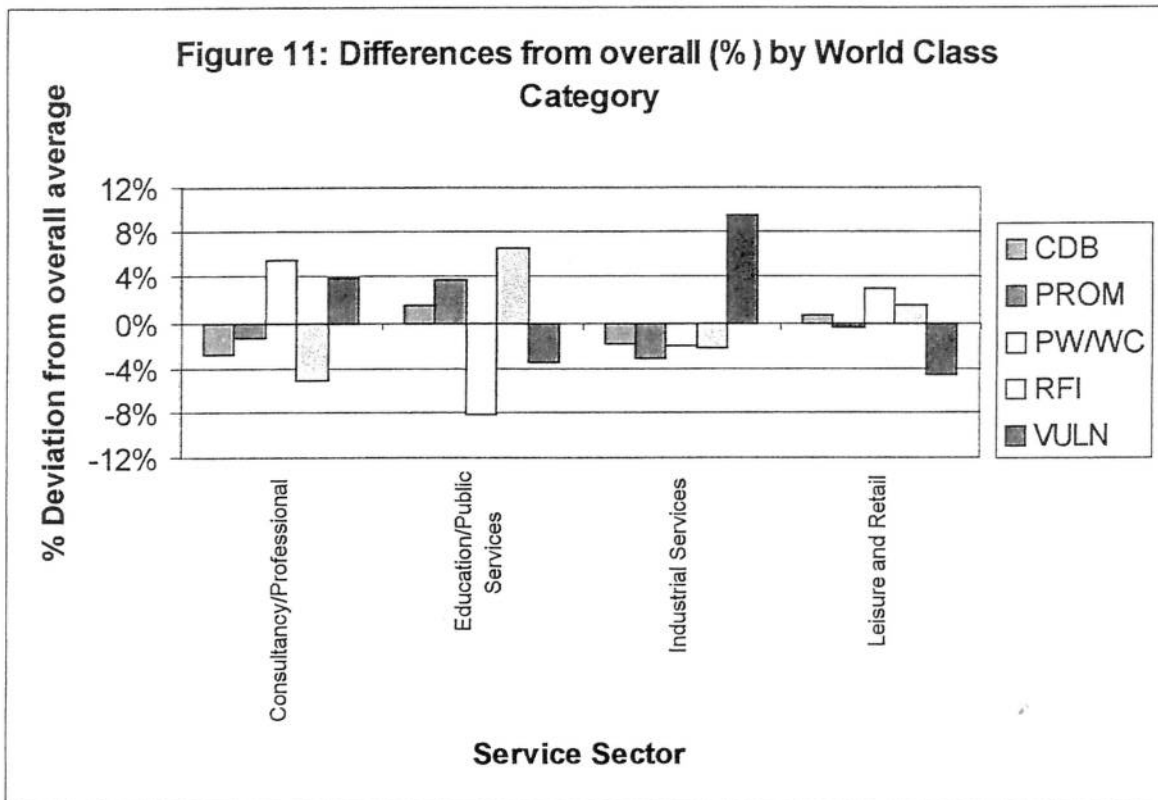
How do the North East service sectors compare with their peers within the UK and the USA?

The PILOT benchmarking tool is a derivative of the Service PROBE tool developed for an Anglo-American benchmarking study that was published in 1997 (Voss et al, 1997). This link makes possible some comparison between the North East findings and those from this earlier international study. Whilst the comparison is interesting, it must be treated with caution. The Anglo-American study focused upon a total of 310 organisations across two countries, whereas the North East study included 448 participants. The latter must therefore be considered a much 'deeper' cross-section of the business population. The time lag of several years between the two studies should also be borne in mind, although the data gathered through the continuing PROBE benchmarking scheme does not suggest that a major shift has taken place in the UK-wide picture. Given this background, it is perhaps surprising that the North East sample contains a proportion of World Class organisations (5%) which matches that found in the UK sample. Significantly, 13% of the US sample fell within the World Class category. The most notable contrast is that the North East sample contains a much higher proportion (21%) of vulnerable organisations than the UK (13%). Whilst this may be partly explained by differences in the samples, it sounds a warning note for the region's businesses.

Section 3: Overall Patterns of Practice and Performance

How are the average practice and performance results distributed overall?

All respondents scored from one to five for each of twenty-eight practices and nineteen performance measures. These scales represented a scale from the worst to the best in terms of practice adoption and operational performance. Figure 12 below shows the two percentage distributions for the average practice and performance scores achieved by all organisations in the sample. The results are quite widespread and demonstrate the extent of variability in adoption and achievement. The overall pattern of distribution in both cases is almost identical, confirming the high degree of association between practice and performance (referred to in Section 2). As a slight variation to that pattern, performance lags practice at the lower end of the 'practice' scale, with the reverse being the case for the higher values of practice scores. It is interesting also to note that none of the forty-seven measures considered had an average exceeding four and none had an average below two. In other words, there is no single attribute for which the whole service sector on average, has achieved world class standards, and there are none for which they have barely started.
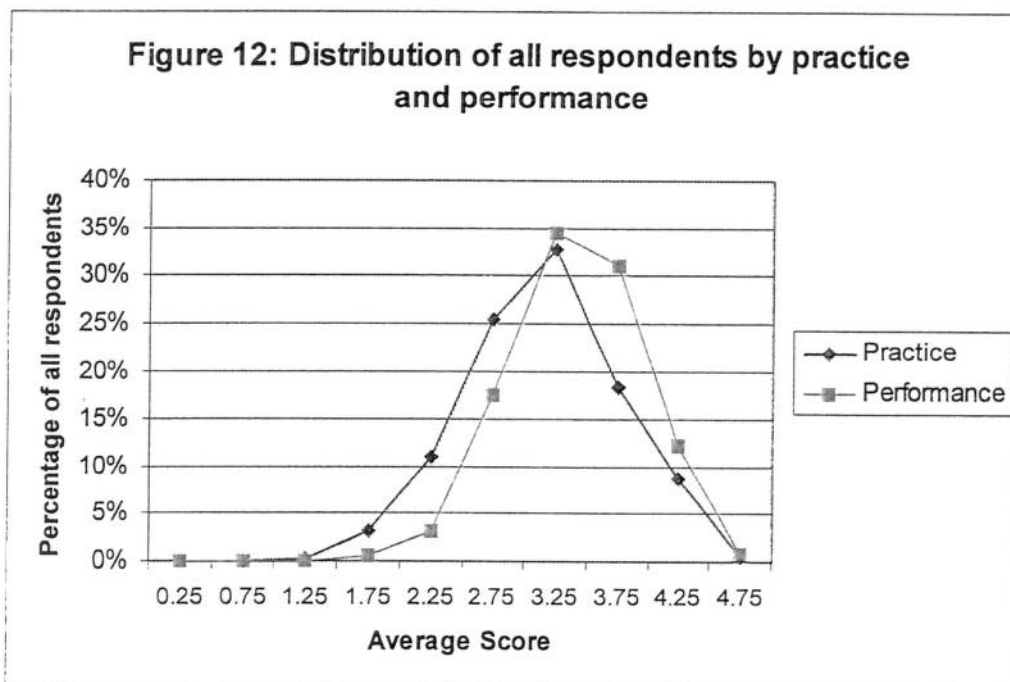
Figure 12: Distribution of all respondents by practice and performance

How are the average scores for practice and performance related to World Class Status?

Figures 13 shows the distribution of average practice and performance scores for the two extreme categories of PW/WC and CDB organisations, which clearly show the high degree of association between practice and performance.

Figure 13a: Distribution of CDB respondents by practice and performance

Figure 13b: Distribution of PW/WC respondents by practice and performance
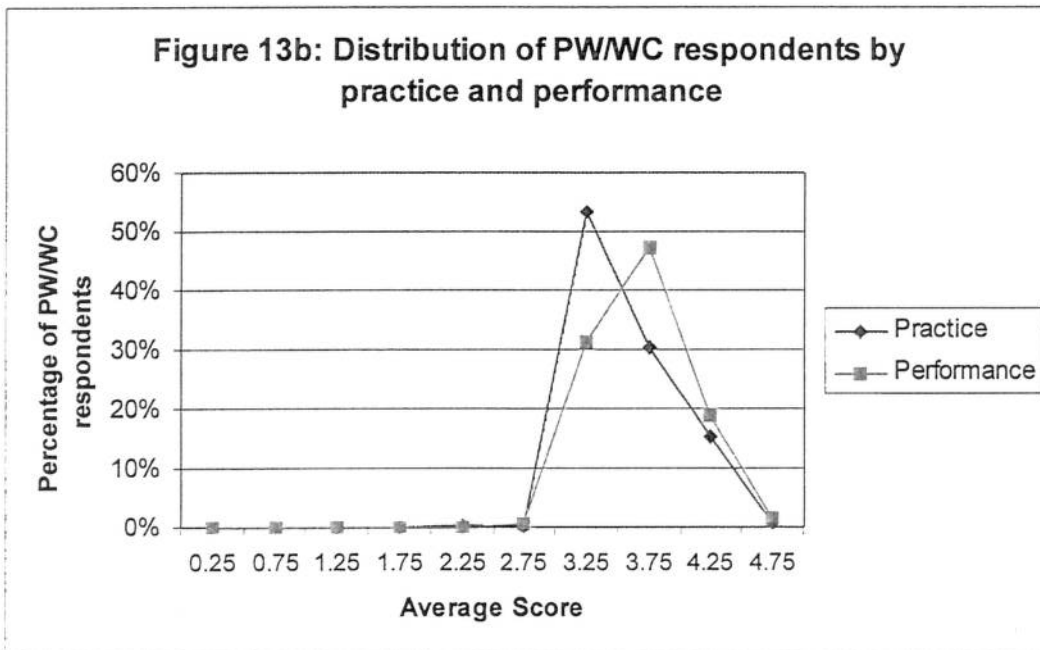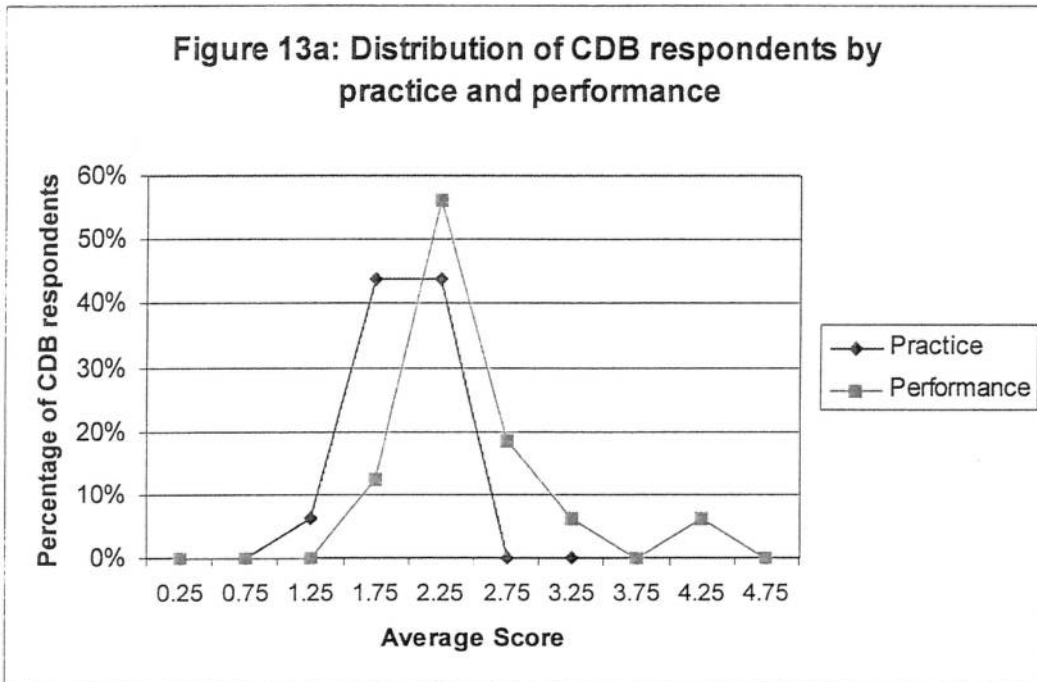
For the remainder, both sets of figures vary but do so consistently. Within 'Vulnerable' organisations, performance leads practice whilst 'Promising' organisations exhibit exactly the opposite characteristics. The 'RFI' organisations reflect patterns similar to the overall sample, but exhibit some of the 'Vulnerable' organisation characteristics in that performance leads practice quite substantially at the higher practice end, as indicated within Figures 14a, 14b and 14c.

Figure 14a: Distribution of VULN respondents by practice and performance

Figure 14b: Distribution of PROM respondents by practice and performance
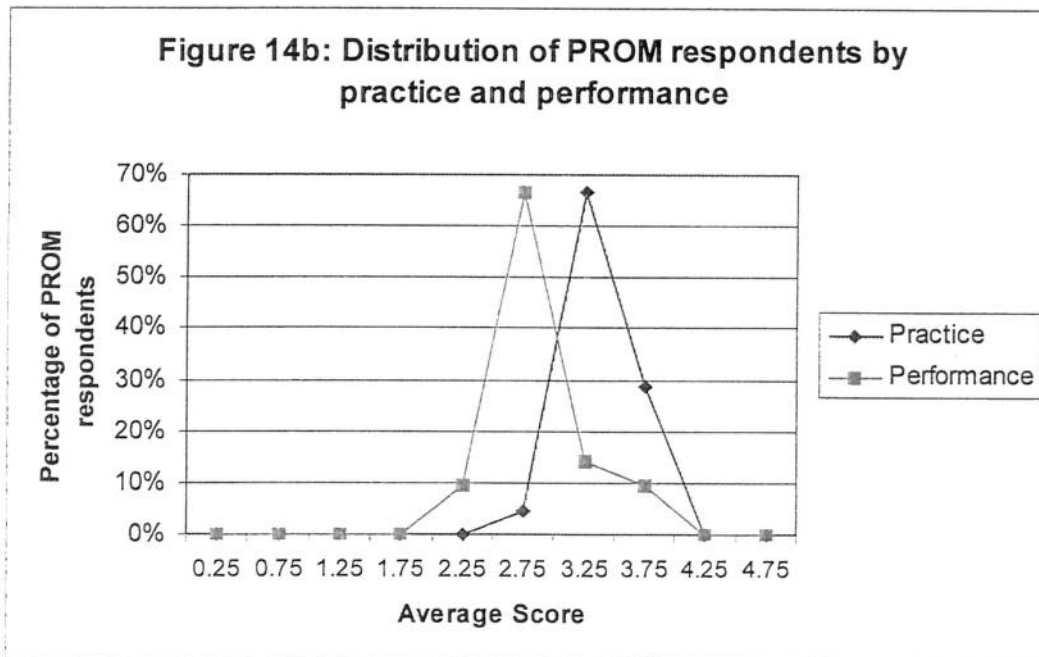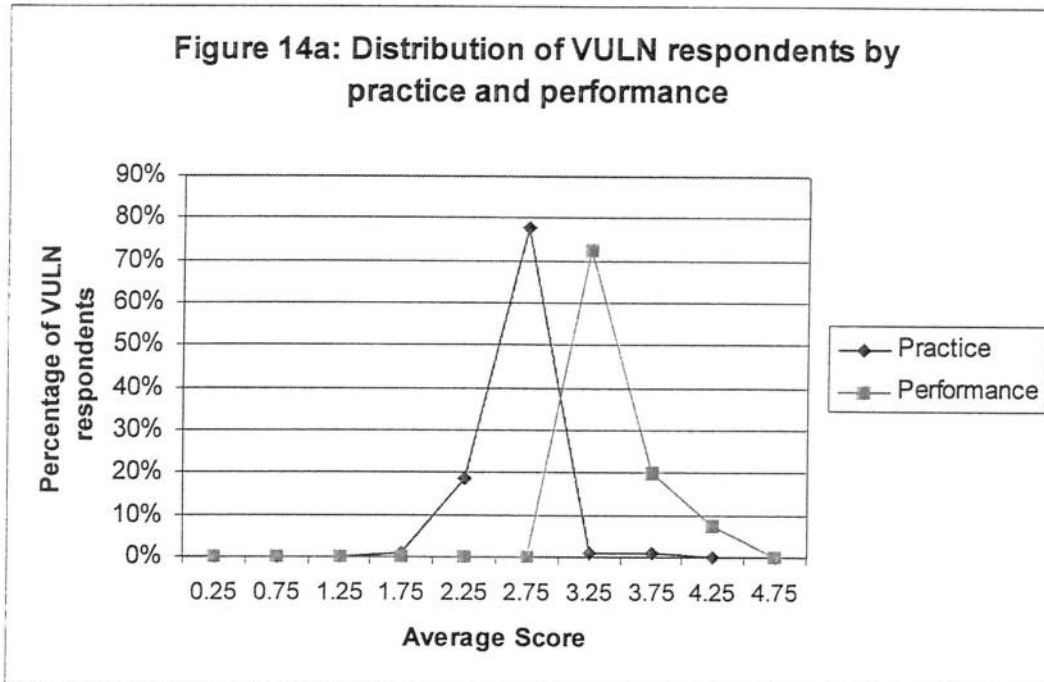
Figure 14c: Distribution of RFI respondents by practice and performance
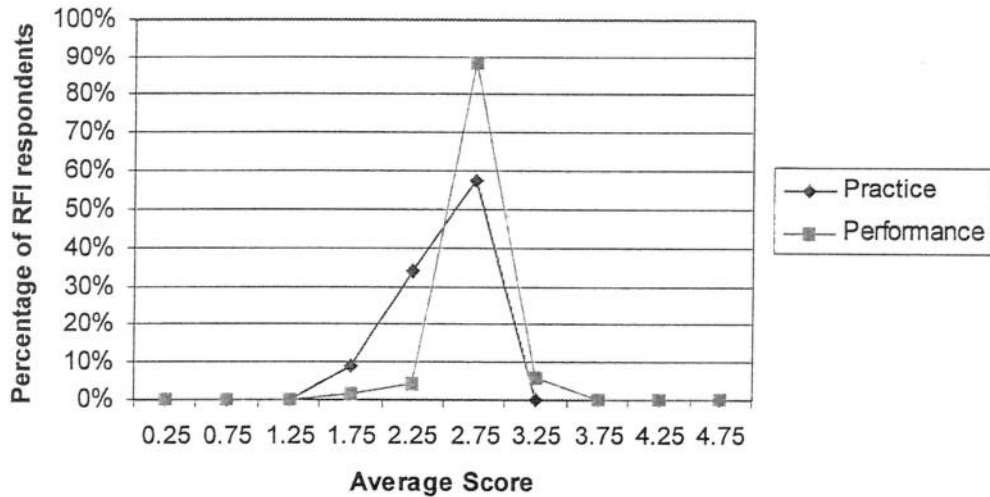
Does the size of an organisation have any bearing on its overall practice and performance score?

Figure 15: Average Practice and Performance compared to all data by Company Size
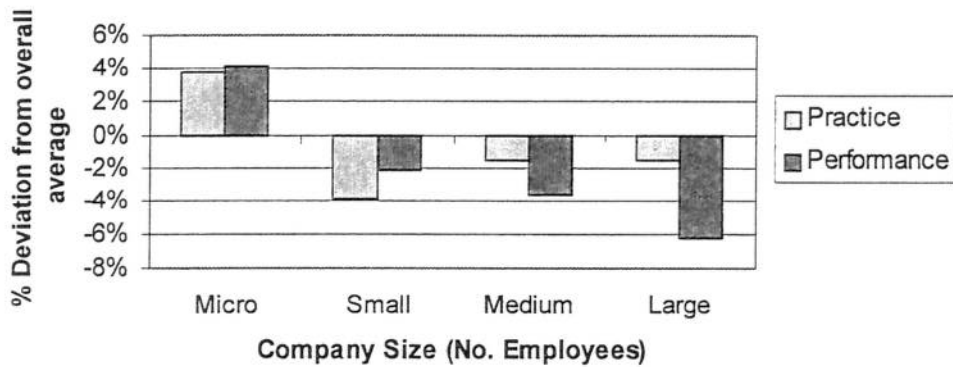
Figure 15 shows that overall average practice and performance scores are much higher on average amongst micro organisations compared to other size bands. It also appears that whilst the micros have relative advantage both in practice adoption and performance outcomes, it is with respect to the letter where their advantage is marginally greater.

In contrast, small, medium and large organisations have below average practice and performance scores relative to the whole of the service sector. In addition, some interesting patterns emerge. As an organisation increases in size, its underlying practices are on average improving but the level of operational performance is diminishing relative to the whole service sector. This relatively poor indication of performance is visible for the large organisations.

Do overall practice and performance scores vary across sectors?

A number of clear patterns can be observed in the service data (Figure 16). Organisations in the Consultancy and Professional sector are clearly well above the average practice and performance scores compared with every other service sector. Typically, organisations in this sector are on their way to being 'potential winners'. Moreover, the relative level of attainment with respect to practices amongst this sector is greater than their operational performance.

Figure 16: Average Practice and Performance compared to all data by Sector
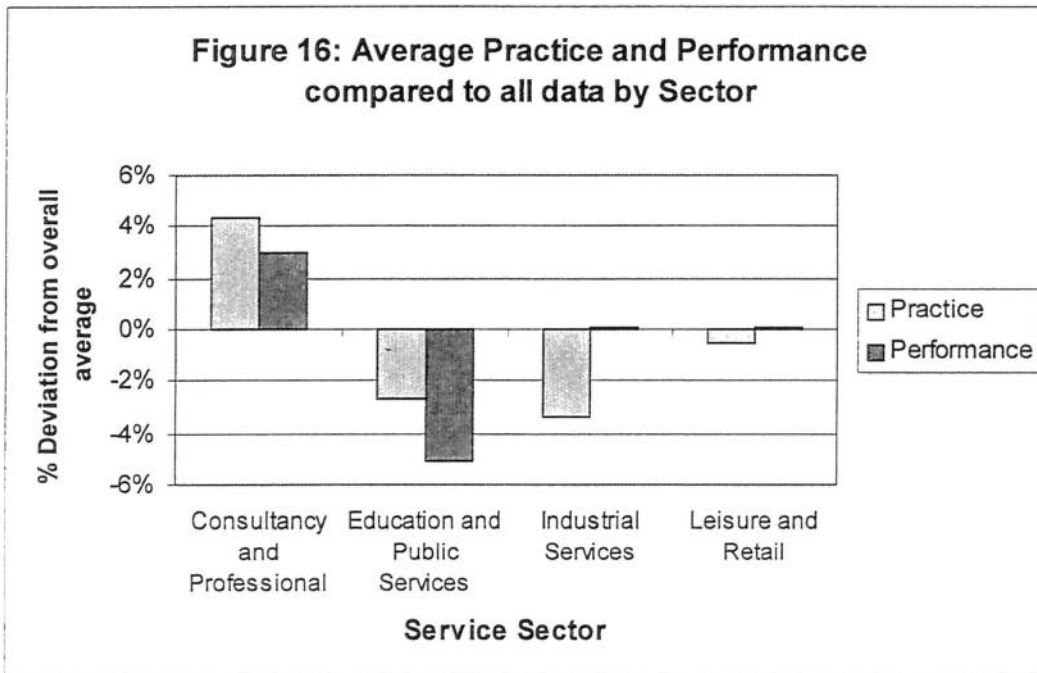
In contrast, organisations in the Education and Public Services sector exhibit the opposite characteristics, namely lower than average practice and performance levels. Such organisations have a tendency towards being 'room for improvement' or 'could do better'. Relatively, their performance attainment is worse than their underlying practices. Finally, organisations in the Industrial Services and Leisure and Retail sectors have relatively weak underlying practices and average levels of performance for the service sector. The typical level of practice is particularly weak amongst the Industrial Services cohort. As a consequence, both groups have a tendency towards 'vulnerability'.

Does ownership of an organisation have any bearing on practice adoption levels performance attainment levels?

Practice and performance characteristics are polarised with respect to organisation ownership (Figure 17). Independent organisations in the North East service sector typically reflect 'winning' tendencies since they have practice and performance scores which are above average compared to the whole of the service sector. This suggests that typically, independents are 'winning', with the opposite being true for operating units of larger organisations. The relative strength of the Independent organisations is with respect to their operational performance more than the underlying practices.

Figure 17: Average Practice and Performance compared to overall data by Type of Ownership
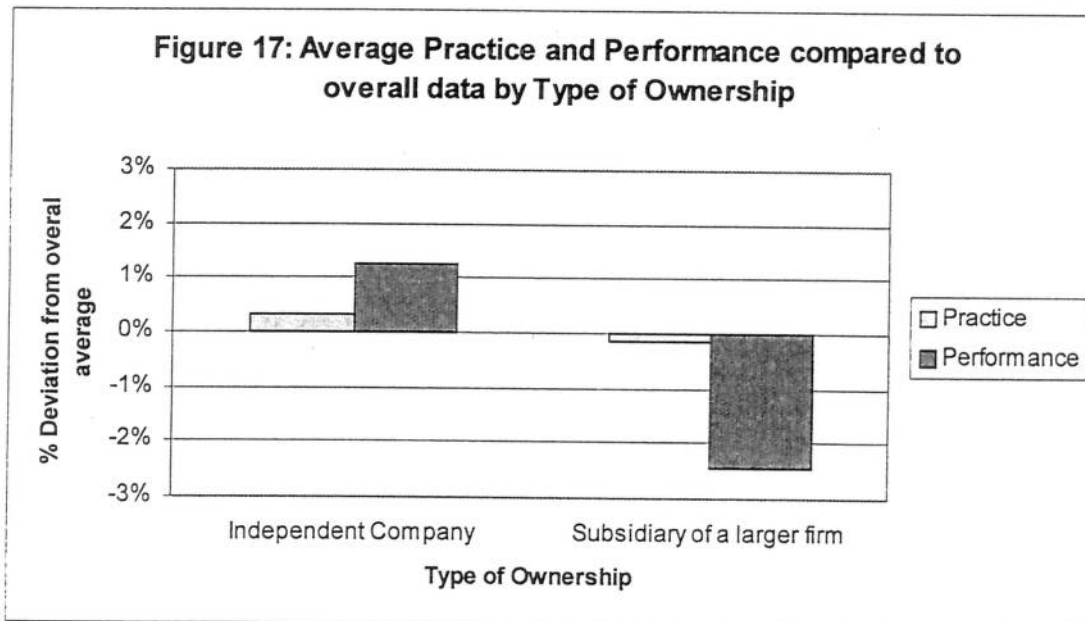
Does ownership location of an organisation have any bearing on practice adoption and performance attainment levels?

Figure 18: Average Practice and Performance compared to all data by location of Ownership
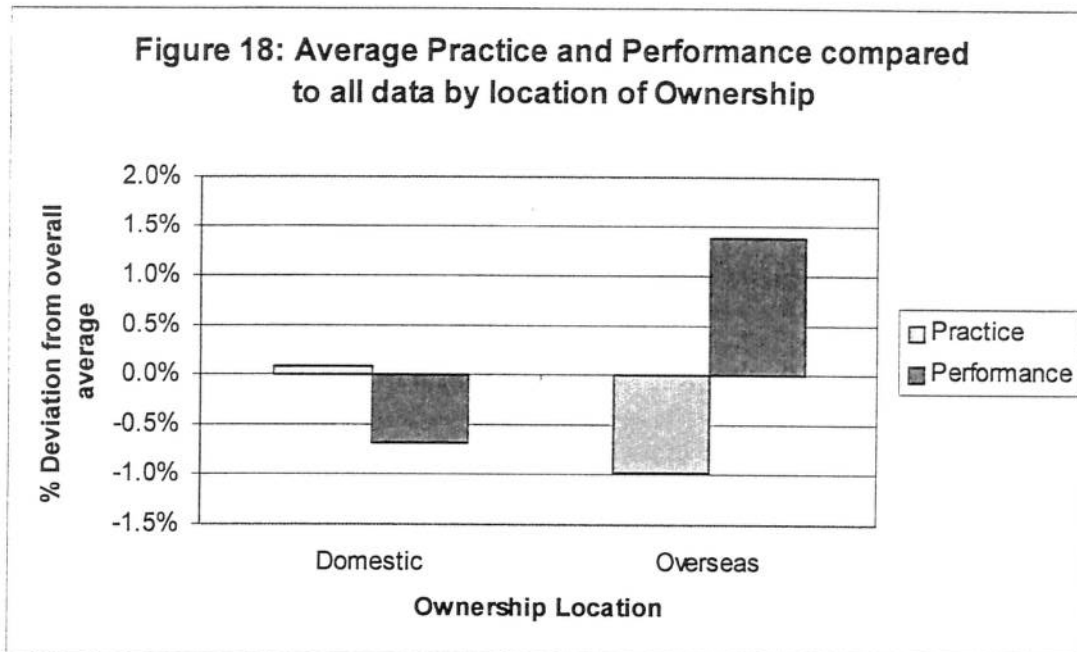
Figure 18 indicates that compared to the service sector average, those organisations which are owned within the UK (i.e. domestically owned) are practice led, whilst the overseas owned service organisations have taken a lead compared to the whole of the sector in terms of operational performance.

Does World-Class status demonstrate the link between overall practice levels and their corresponding performance levels?

When compared with the average practice and performance levels for the service industry as a whole, the differences within each World-Class category is absolutely clear. Organisations categorised as PW/WC have overall practice and performance scores that are clearly above average compared to the rest of the service sector. In contrast, the organisations that are labeled as either CDB or RFI lag behind compared to the whole data set with respect to both practice and performance, the former more so than the latter in respect to both measures. Finally, the 'promising' and 'vulnerable' cohorts of service organisations exhibit opposite characteristics, with former being practice led but with below average attainment in operational performance.

Section4: Further Insights into Service Practice and Performance

Which practices and performances are more emphasised?

Some key questions arise from the above overall distribution pattern. For example, which of the twenty-eight practices adopted by the service sector are being implemented most successfully? A similar question could be asked of the achievements in relation to the nineteen specific performance measures. Also, are practice adoption levels and performance outcomes related to organisation size or sector?

For the purpose of this analysis, all measures related to a business activity are grouped together. They do not necessarily represent all possible practice or performance measures in that business area. The five chosen headings relate to strategic/core issues, human resource issues, service delivery and quality, service design and innovation, and service value and measurement. Where appropriate both practice and performance measures are described. Three sets of figures summarise the survey statistics. The first represents average (practice) adoption levels and (performance) achievement levels within each business area. An average score of three and above, represents a greater level of adoption for a given practice or a higher degree of success in achieving a given performance outcome. The second and third sets of figures relate to differences from the overall average figures between the various sizes and service sector.

Measures related to Strategic/Core Issues in Service Operations

Figure 19 summarises the average scores for six practices. The first three relate to strategic issues and the remainder to core values in service operations management. Most scores are around three or below and reflect further scope for improvement.

In terms of the *leadership's role in developing service culture*, the average score of 3.36 reflects support from top management. However, this is delegated down rather than promoted actively through leadership's personal and visible participation. With regard to *quality values* forming part of an employee's core values, the average score of 3.27 represents a position where individual managers and employees may adhere to them, but they are not made explicit in mission statements nor promoted actively. On knowing the organisation's *competitive positioning*, the average score of 2.90 reflects some understanding of how their services compare with their competition. However, this is a long way from using market information to help position and differentiate their services.

Three other practices highlight the organisational culture of the service sector. *Skill and Job Training and education* of employees, which normally would be critical in any quality-driven business, appears not to get the high priority it deserves. The average score of 3.29 points reflects, at minimum, some skills development and training for all employees. At best, it reflects some attempt at establishing training plans and devoting a reasonable proportion of an employee's time to training. The measurement of operational performance and comparisons with competitors would be an essential practice in a world-class organisation. The responses suggest a need for far greater attention than is currently provided. *Performance measurement and reporting,* with its average score of 2.72 reflects simply the use of cost and output measures but not the full range of balanced score-card measurements possible. Equally, very little emphasis is given to *benchmarking* against competition and world class standards At best the average score of 2.39 reflects limited use of benchmarks within their own organisation or group.

Figure 19: Strategic/Core Issues in Services

Practice	Average Score
Role of leadership in developing service culture	3.36
Quality values	3.23
Skill and job training and education	3.29
Competitive positioning	2.90
Benchmarks	2.39
Performance measurement and reporting	2.72
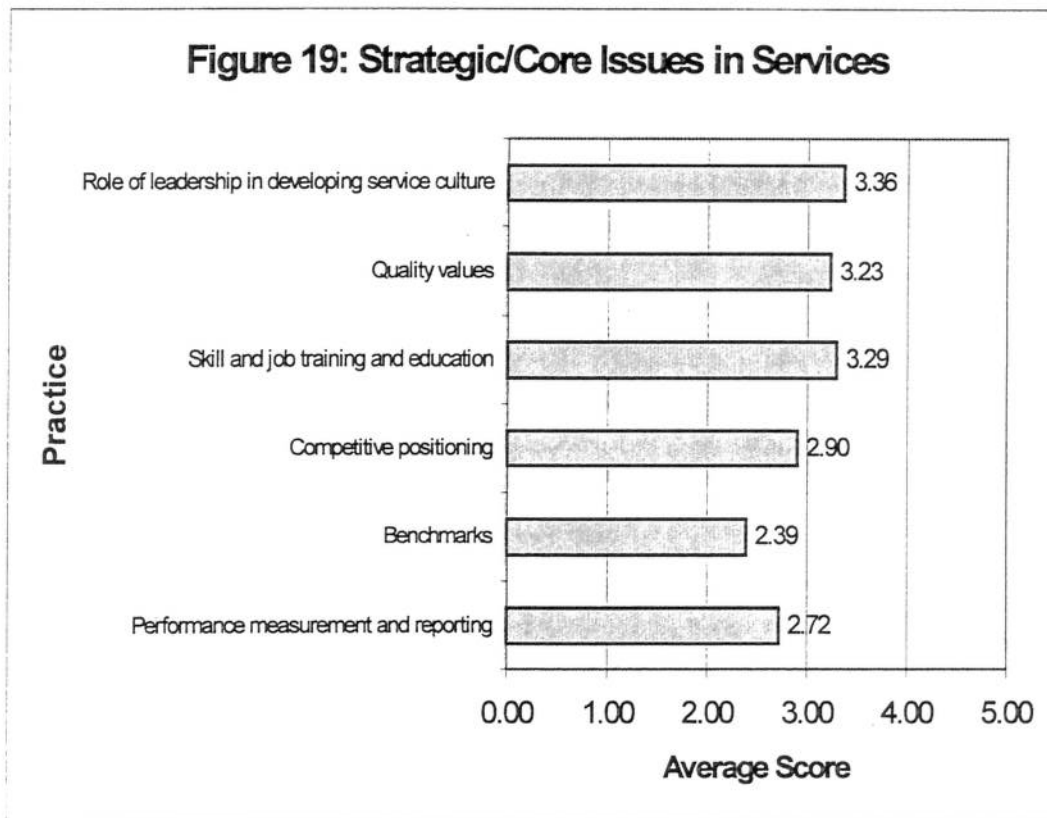
Organisational size does impact on individual or groups of practices in this area (Figure 23). For example, the role of leadership in developing a service culture diminishes from being above average in micros to being well below average in large organisations. On the other hand, Quality values and a grasp of competitiveness is unaffected by size. Amongst the core skills of training and education, external benchmarking and performance measurement and reporting, all sizes reflect below average outcomes except in large organisations where practice scores are significantly above average expectations. These organisations recognise the use of formal processes for measurement and control.

Figure 20: Strategic Practices in the Services by Company Size
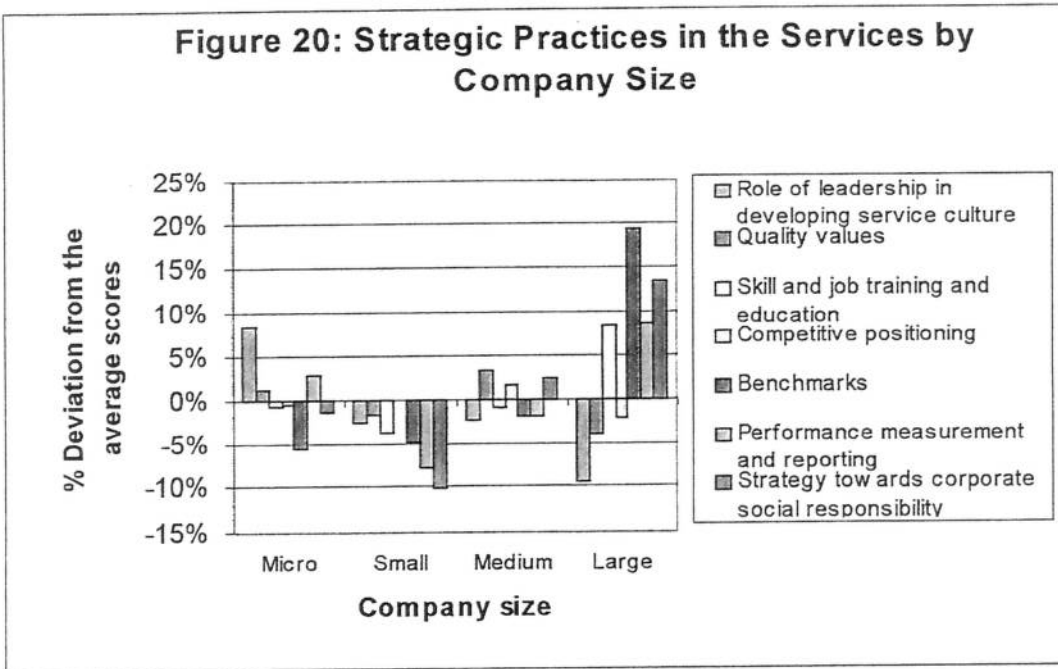
Sector-wise, different patterns are observed (Figure 21). The role of leadership in developing service culture and quality values is fairly uniform with some fluctuations across all sectors. An understanding of their competitiveness is below average in the Education and Public Service sectors but the rest has only a slight edge over average levels. Training and education is well below average for the Industrial Services and Leisure and Retail sectors and marginally better than overall average in other sectors. Benchmarking is below average in the Consultancy and Industrial Services sectors but better than average in the remaining sectors. Performance Measurement is particularly weak in the Industrial Services and Retail sectors.

Figure 21: Strategic Practices in the Services by Sector
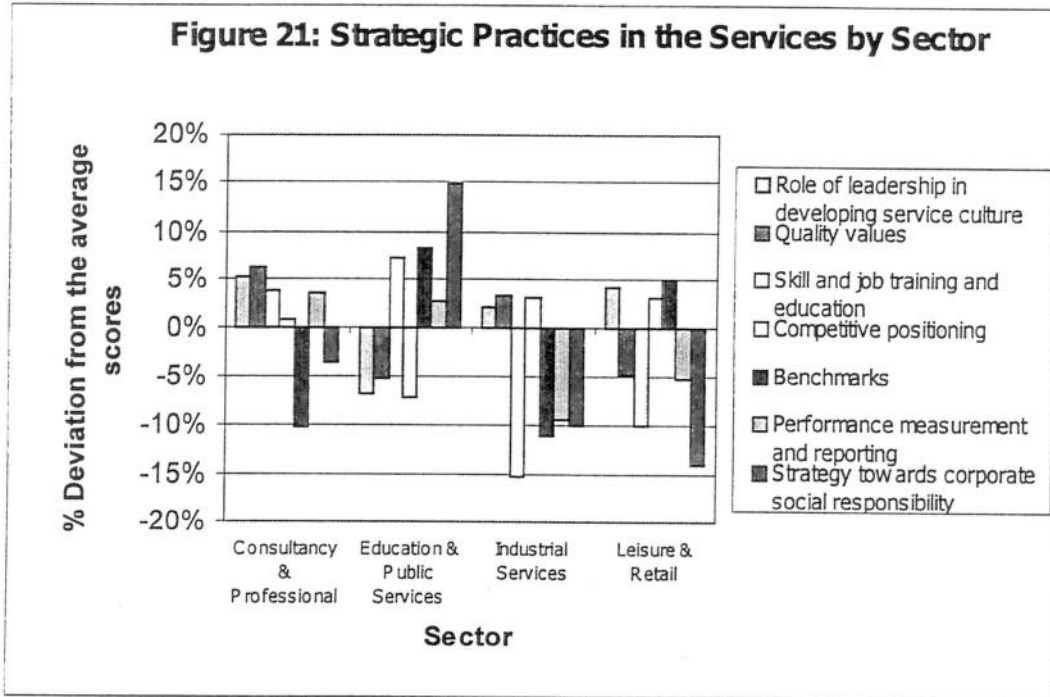
Measures related to Human Resource Issues

The results of seven practices and two performance measures are shown in Figures 22 and 23. The average scores are mainly around the value of three, with one exception. This reflects reasonable adoption levels but equally highlights considerable scope for improvement in most cases.

Emphasis is the greatest on *day to day teamwork* and *customer orientation* with scores of 3.5 and 3.22 respectively. Employee participation in day to day teamwork is encouraging, with between 35 to 50% of them being involved. With respect to *customer orientation*, the score represents an emphasis on customer service, tracking their requirements and disseminating them throughout the business. However, more could be achieved through partnerships and user groups. *Workforce flexibility* with its score of 3.15 reflects a flexible allocation of work assignments, but wide variations in output and skill levels still exist. True flexibility, in terms of an educated workforce with flexible skills, working in autonomous teams and empowered to solve problems as they occur, has yet to be achieved. Current levels of *employee involvement* in improvement teams and suggestion schemes indicate limited success. There is ample scope for greater involvement, where employees could make real contributions to business improvement.

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However, other practices in employee relations, which are fundamental to the achievement of leadership in quality and service, are less emphasised. For example, *sharing of vision, mission and goals* is currently limited to management commitment only. Full engagement of all personnel is something that escapes most organisations by some margin. Also, providing *employee recognition and reward* for service performance is typically limited to only exceptional performance by individuals. It is still not everyone's responsibility and does not account for both internal and external expectations. As far as *listening to staff* is concerned, some mechanisms exist to obtain their views and ideas, but these could be more comprehensive.

In terms of *employee loyalty, relative to industry*, the score of 3.54 reflects high levels of loyalty and commitment and relatively low staff turnover. *Employee satisfaction* is felt to be generally low with accompanying moderate internal morale problems.

Figure 22: Practice Issues in Human Resources

Practice	Average Score
Shared vision, mission and goals	3.10
Customer orientation	3.22
Recognition and Reward	2.63
Employee involvement	3.03
Listening to staff	3.16
Day to Day Teamwork	3.50
Workforce flexibility	3.15

Figure 23: Performance Issues in Human Resources
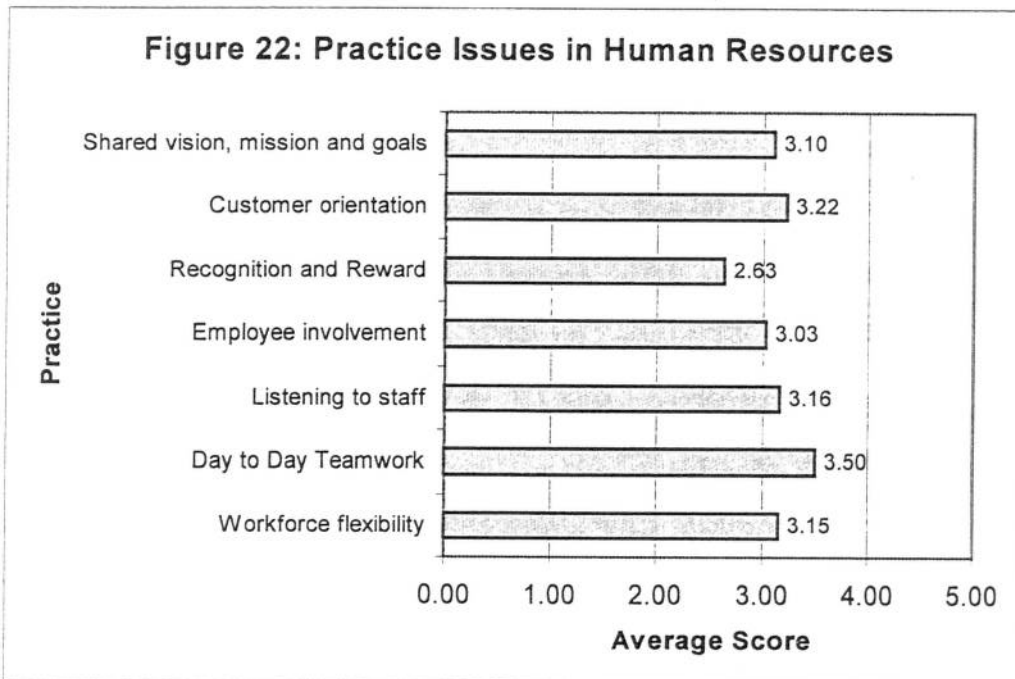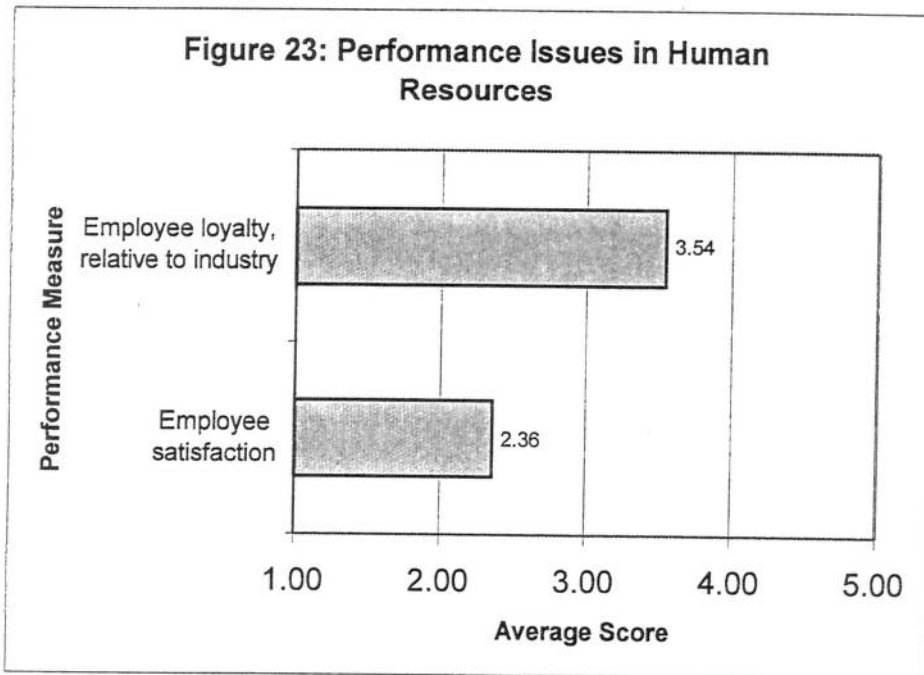
The impact of organisation size on HR practice issues is clear. As organisation size increases adoption levels of all practices reduce to well below average for the whole sample (Figure 24). Size also has a clear impact on both employee satisfaction and loyalty. Large organisations have, by far, the worst performance.

Figure 24: Human Resource Practices - An analysis by Company size
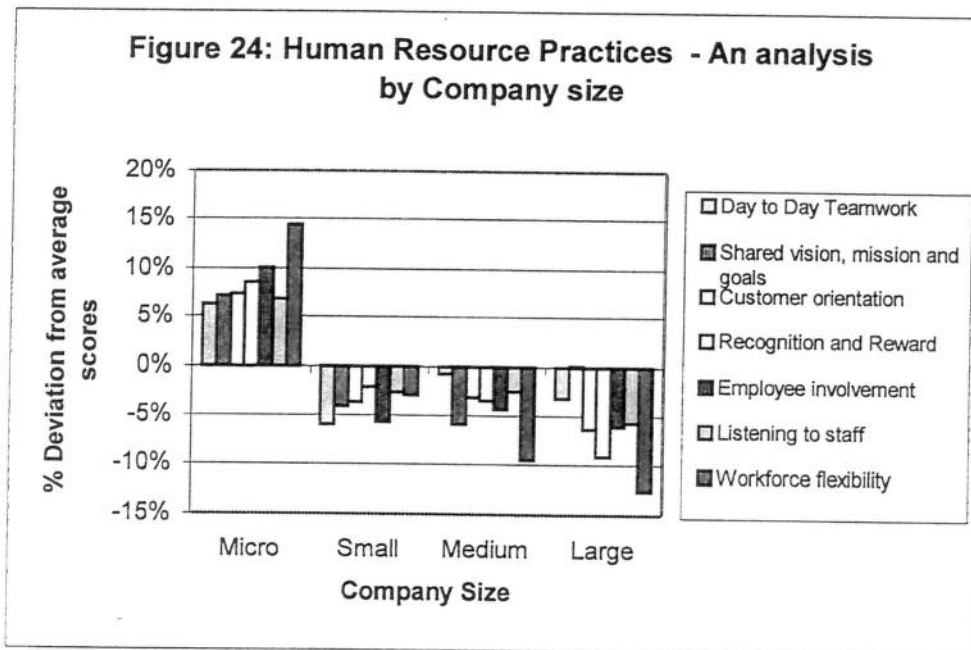
Sector-wise, the Consultancy and Professional sector has above average scores on all measures (Figure 25). The Educational and Public sector has mainly average scores across all practices with some deviation. The Industrial Services sector is well below average scores on almost all practices. Leisure and Retail sector has a mixed bag of strengths and weaknesses, but again mainly average scores.

Sector-wise, employee loyalty and satisfaction fluctuates. Employee satisfaction is lowest in the Education and Public sector and highest in the Consultancy and Professional sector.

Figure 25: Human Resource Practices - An analysis by Sector
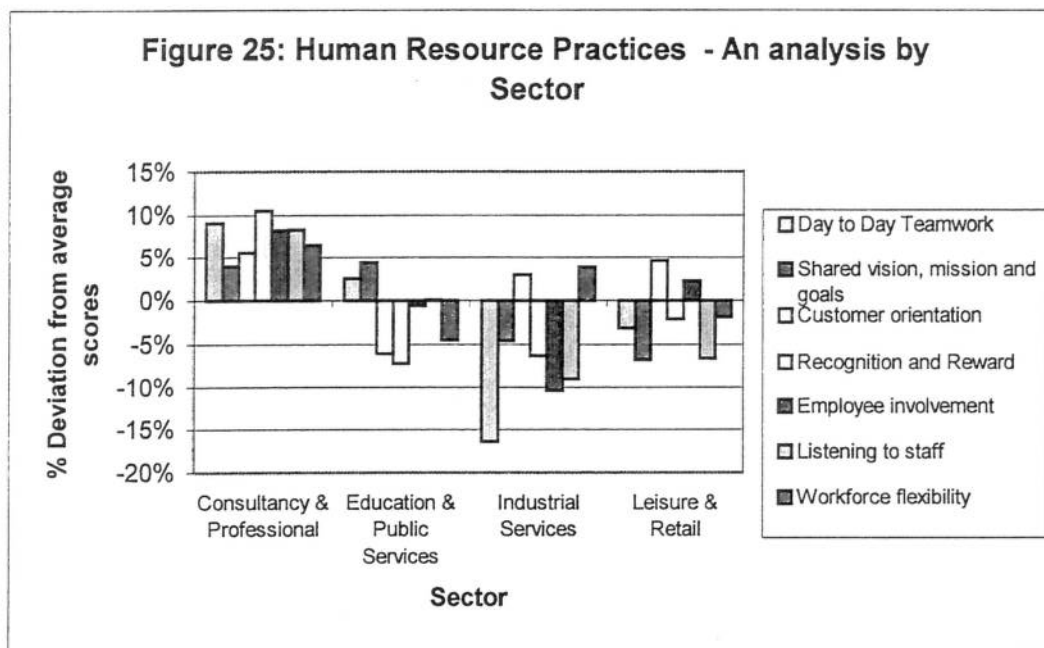
Measures related to Service Delivery and Quality

The average scores for five practices and four performance measures related to service delivery and its quality are shown in Figures 26 and 27.

On service quality, the picture is mixed. In general, scores for practice levels are lower than those for performance. For example, the average organisation's *Quality mindset* is, at best, one of inspection and control with some data collection undertaken. This is a long way from achieving total quality and ownership of work processes by all employees. Similarly, on *Quality procedures and framework,* even though the former are generally documented, they are limited in scope. As for using quality frameworks such as the EFQM Excellence Model, few claims were being made. Finally, even though *customer complaint data* is captured and used to assess service performance, it is not actively solicited. On the other hand performance measures indicate reasonable customer satisfaction. In terms of *service reliability*, the sector usually delivers what it promises, indicating further scope for improvement. Individual organisations are achieving *quality performance* levels that are roughly equal to the overall service standard. However, gaining a reputation for quality and

notable services that are significantly better than competition, still remains an unfulfilled goal for many.

On service delivery, practices also lag performance. For example *problem-solving* approaches are moving towards process analysis and use of teams for identifying and responding to problems. More can be achieved by viewing problems as opportunities for improvement and empowering all employees to resolve them. *Handling of service problems/failures* by employees does take place but sporadically, and not necessarily in real-time. Despite this relative weakness, *staff responsiveness* to customer needs is rapid though it has typically yet to reach the level where employees go out of their way to assist customers over and above the requirements of core service. Also, staff *accessibility* is generally high. Staff respond fairly quickly to telephone queries and are readily available during normal working hours. However, it is still possible to improve customer responsiveness and accessibility, for example in terms of opening hours that meet customer needs.

Figure 26: Practice Issues in Service Delivery and Quality

Practice	Average Score
Problem solving	2.67
Quality mindset	2.95
Quality procedures and framework	2.64
Real time' employee handling of service problems/failures	3.35
Use of customer complaint data	3.20

Figure 27: Performance Issues in Service Delivery and Quality

Performance Measure	Average Score
Reliability	3.41
Quality performance, relative to industry	3.47
Staff responsiveness	3.48
Accessibility	3.54

Size affects service delivery and quality practices in different ways. For example, quality procedures become more documented and comprehensive as size increases. However, the reverse occurs with problem solving approaches, with employee attitudes towards quality and with handling of problems/failures in real time mode (Figure 28).

Figure 28: Service Delivery and Quality - An Analysis of Practices by Company Size

Legend:
- Problem solving
- Quality mindset
- Quality procedures and framework
- Real time' employee handling of service problems/failures
- Use of customer complaint data

X-axis (Company Size): Micro, Small, Medium, Large
Y-axis: % Deviation from average scores (-10% to 15%)
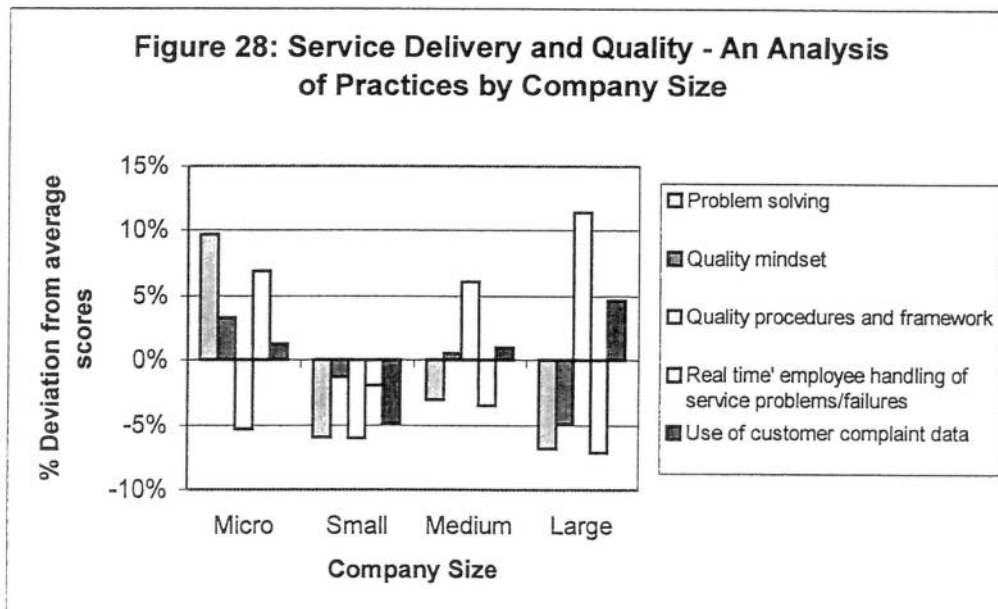
Sector differences can be observed from Figure 29. The Consultancy and Professional sector has consistent and above average scores on all practices, with exactly the opposite outcomes in the Education and Public sectors. Quality procedures and frameworks are particularly above average in the Industrial Services sector but generally weaker in the Leisure and Retail sector.

Figure 29: Service Delivery and Quality - An Analysis of Practices by Sector
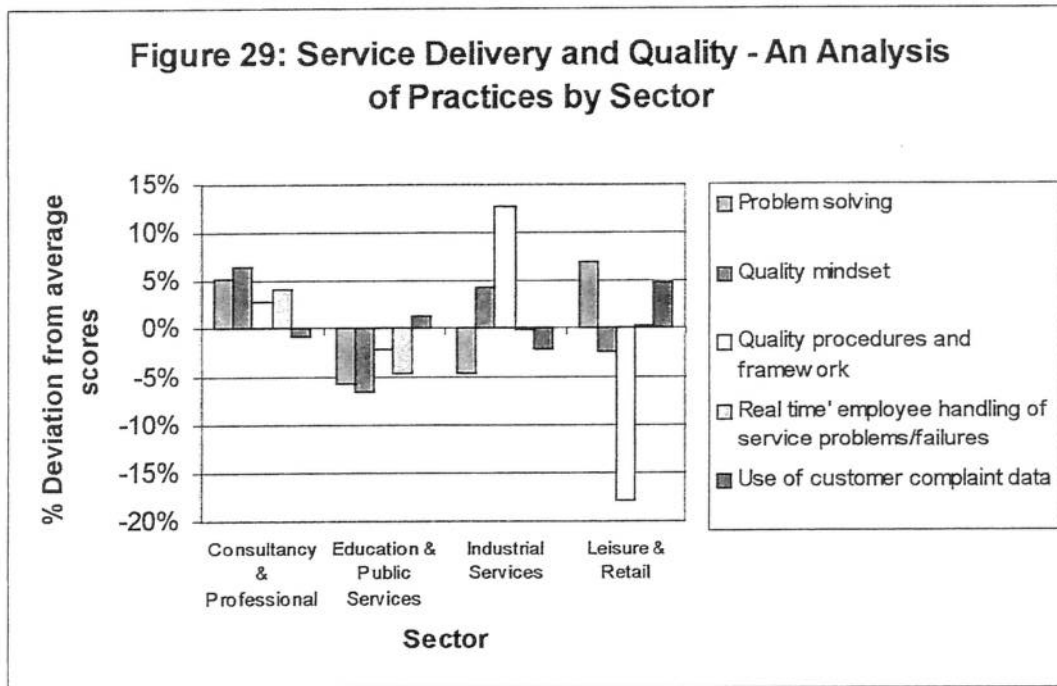
Size clearly has an impact on service delivery and quality performance (Figure 30). From a position in the micros, where all measures have well-above average scores, the picture deteriorates to well below average scores for all measures in large organisations.

Figure 30: Service Delivery and Quality - An Analysis of Performance by Company Size

A bar chart titled "Figure 30: Service Delivery and Quality - An Analysis of Performance by Company Size." The vertical axis is labelled "% Deviation from average scores" ranging from -12% to 10%. The horizontal axis is labelled "Company Size" with categories Micro, Small, Medium, Large. The legend shows: Accessibility, Reliability, Quality performance, relative to industry, Staff responsiveness.
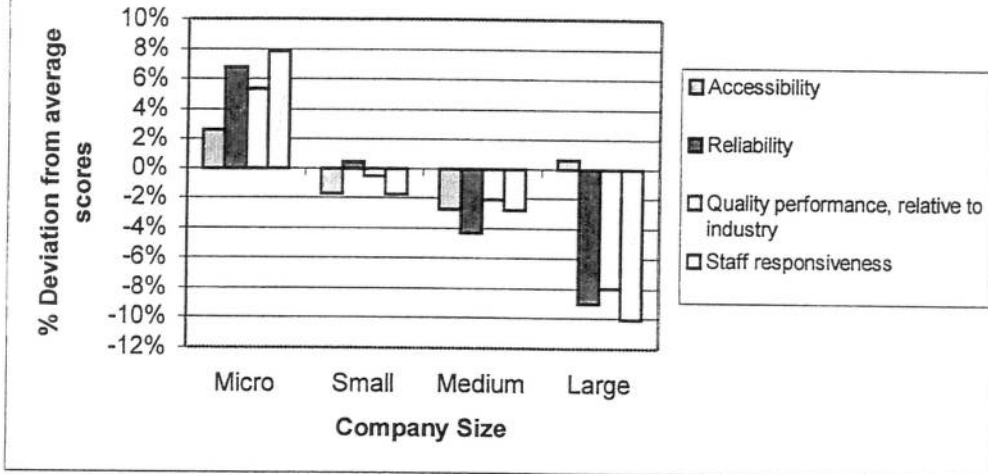
Each sector has its own pattern of overall performance (Figure 31). The Consultancy and Professional sector has mainly above average scores for all except accessibility. The Education and Public sector has generally worse than average performance on all delivery and quality measures. The other two are good at particular performance measures. In the Industrial Services sector this relates to accessibility and in the Leisure and Retail sector to quality performance.

Figure 31: Service Delivery and Quality - An Analysis of Performance by Sector

A bar chart titled "Figure 31: Service Delivery and Quality - An Analysis of Performance by Sector." The vertical axis is labelled "% Deviation from average scores" ranging from -8% to 10%. The horizontal axis is labelled "Sector" with categories Consultancy & Professional, Education & Public Services, Industrial Services, Leisure & Retail. The legend shows: Accessibility, Reliability, Quality performance, relative to industry, Staff responsiveness.

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Measures related to Service Design and Innovation

Figures 32 and 33 summarise the practice and performance scores for service design and innovation. Practice scores are marginally lower than performance scores, though the latter are mainly around the score of three.

In relation to service design, *listening to the customer* is mainly informal or through customer complaints which then get incorporated into service standards. However, there is further scope for developing formal mechanisms, which identify customer expectations and build them into service design and standards. In terms of *processes for new service design and development*, no set processes exist, even though services are developed and improved regularly. Therefore any benefits from having formal and reproducible processes have yet to be realized. Also, the *generation of innovative product concepts* is ad hoc. However, there is some shift towards involving marketing and technical functions for developing and screening new products. The impact of these practices are seen in some of the performance measures. The *speed of* (new product/service) *development relative to competition* is at best just about equal to competition and certainly a long way from providing any competitive edge. Also, there is generally a belief that current *services meet customer needs*, but that could be enhanced further by becoming consistent and even exceeding those needs. Finally, even though the *concept of service* is transmitted clearly to all employees, a clear vision of the service needs to be developed and shared between customers and staff.

On innovation, there is some attempt to exploit existing internal strengths though considerable further progress is still possible. For example *the role of support functions* in service provision is seen as important and given attention but it is still regarded as separate from and in some ways less important than the front office services. Thus missing the opportunity for creating new market opportunities through superior (support) processes. Similarly when it comes to the *management of business processes*, these are defined and mapped but have yet to be redesigned and improved through process ownership and performance measurement. Also the *current use of information technology* is aimed at improving functional response rather than to support redesign of those business processes that will radically change the basis of sector competition. *Innovativeness* in the Sector is therefore limited to regular innovations in service and an occasional major breakthrough.

Figure 32: Practice Issues in Service Design and Innovation

Practice	Average Score
Listening to the customer	3.32
New service design and development process	2.73
Role of support functions	2.85
Management of business processes	2.92
Current use of information technology	3.12
Generation of innovative product concepts	2.44
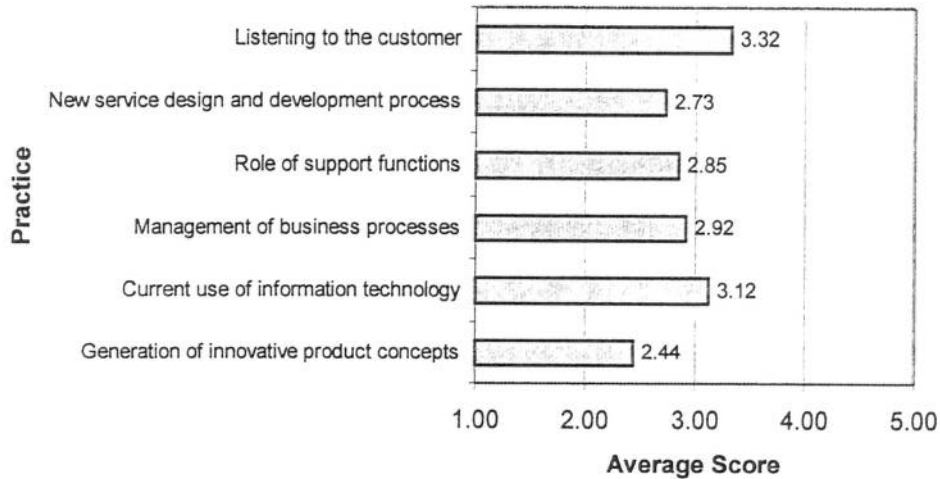
Figure 33: Performance Issues in Service Design and Innovation

Performance Measure	Average Score
Innovativeness	2.90
Clarity of service concept	3.23
Speed of development relative to competition	2.98
Service meeting customer needs	3.23
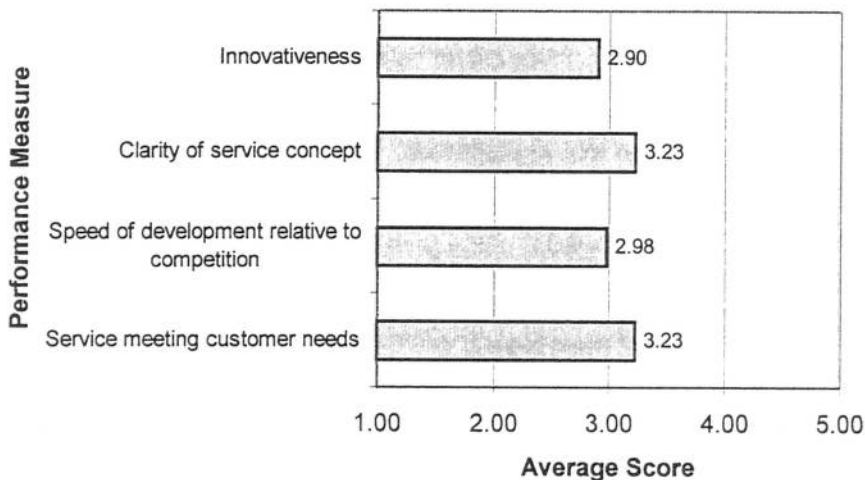
No overall patterns emerge for a given size group (Figure 34). However, individual practices follow different patterns. Listening to the customer is generally not influenced by size, whilst the current use of Information Technology is linked to size, with greater application amongst the medium and large organisations. New service design and development process also improves with size but role of support functions reduces with size.

Sector-wise there is also little deviation from the average scores for most practice measures. However, the Leisure and Retail sector exhibits some advantages in relation to listening to the customer, in generating innovative product concepts and the role of its support functions.

In general all service design/innovation performance measures deteriorate as size increases. Large organisations are at a disadvantage with below average scores for all performance measures.

Figure 34: Service Design/Innovation Performance - An Analysis by Company Size
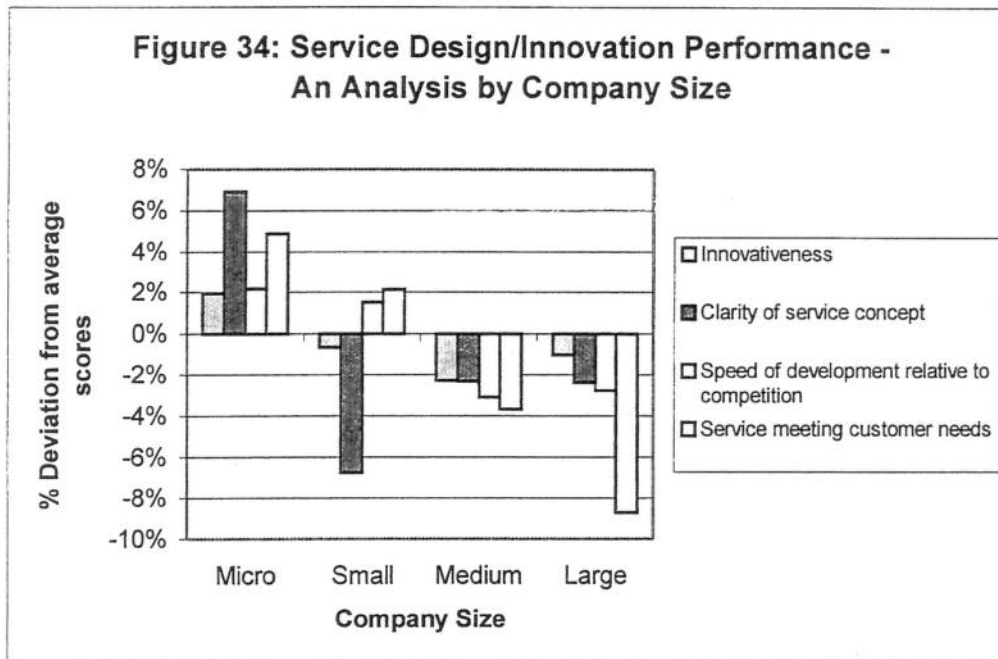
Sector-wise, the patterns vary for each sector. Both the Consultancy and Professional sector and Leisure and Retail sector have above average performance records on all measures. The Education and Public sector performs predominantly below average with respect to most criteria, whilst the Leisure and Retail sector has a marginal advantage over others on most measures (Figure 35).

Figure 35: Service Design/Innovation Performance - An Analysis by Sector
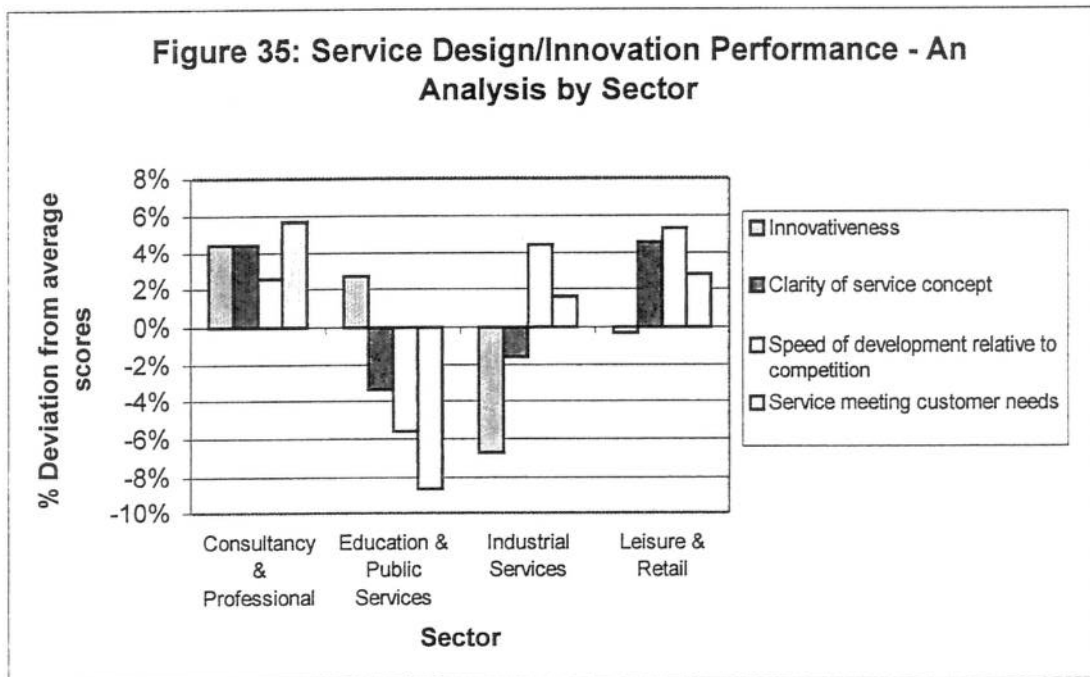
Measures related to Service Value and Measurement

Figures 36 and 37 summarise the practice and performance scores for service value and measurement. Practice scores are lower than performance scores, which are marginally above the score of three.

Four practices are analysed. For example, on *eliminating 'waste'*, non-value-adding activities have yet to become a focus of managerial attention in many organisations. In terms of *clarity of goals*, service quality is still seen in narrow terms of outcomes only, such as customer satisfaction, and not in relation to the processes that drive them. Regarding *visibility and communication of service standards*, these are clear to all employees but not shared with customers. Finally, some *customer satisfaction measurement* takes place, but it is mainly based on general research in broad-based samples of customers, rather than becoming more sophisticated and discriminating.

Service performance measures indicate an unspectacular achievement for the sector as a whole. For example on providing *value (quality/price)* for money, this is generally regarded as being slightly better than other major competitors. In terms of *customer retention*, the customer base is seen as stable but not exceptionally loyal. Finally the *level of customer satisfaction* is fairly high with expectations being met and even exceeded occasionally. However, bearing in mind that many organisations are limited in their approach to measuring satisfaction, it seems likely that some perceptions of satisfaction levels could be optimistic.

Figure 36: Practice Issues in Service Value and Measurement

Practice	Average Score
Elimination of 'waste'	2.71
Clarity of goals	3.19
Visibility and communication of service standards	3.11
Customer satisfaction measurement	2.36
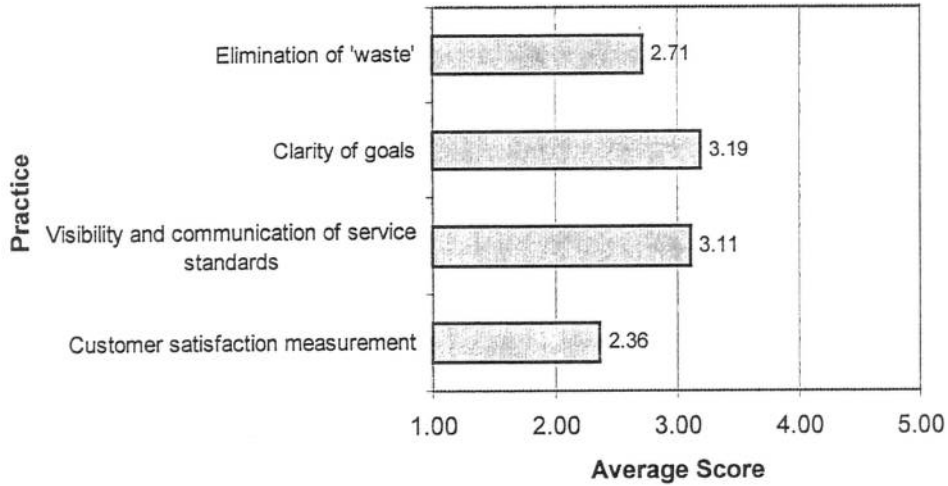
Figure 37: Performance Issues in Service Value and Measurement

Performance Measure	Average Score
Value (quality/price)	3.34
Customer retention	3.40
Level of customer satisfaction	3.11
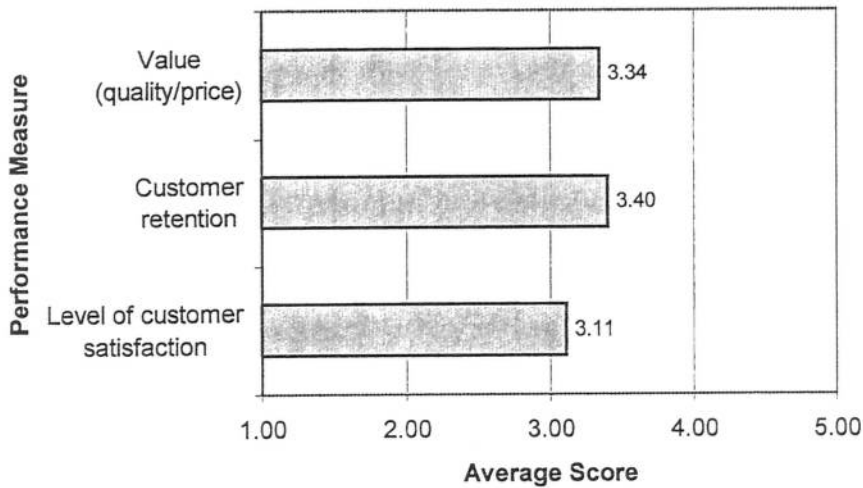
Both ends of the size spectrum have better than average practice adoption levels. However, the situation deteriorates in the small and medium sized categories (Figure 38).

Figure 38: Service Value and Measurement Practice - An Analysis by Company Size
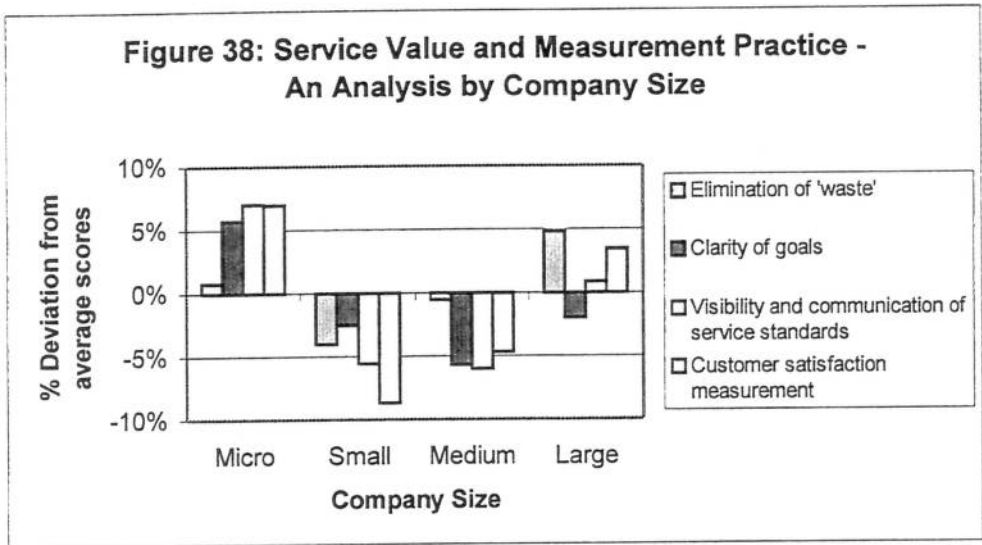
Sector-wise, the picture is similar. Two sectors, Consultancy and Professional and Leisure and Retail have marginal advantage in terms of most practice scores. The remaining two have marginal disadvantages in terms of below average scores for most measures.

On every performance measure, size presents a picture of inverse relationships. Micro organisations have the greatest success in terms of above average scores. The performance worsens through size until for the large organisation, the deviations below average scores are quite substantial (Figure 39).

Figure 39: Service Value and Measurement Performance - An Analysis by Company Size
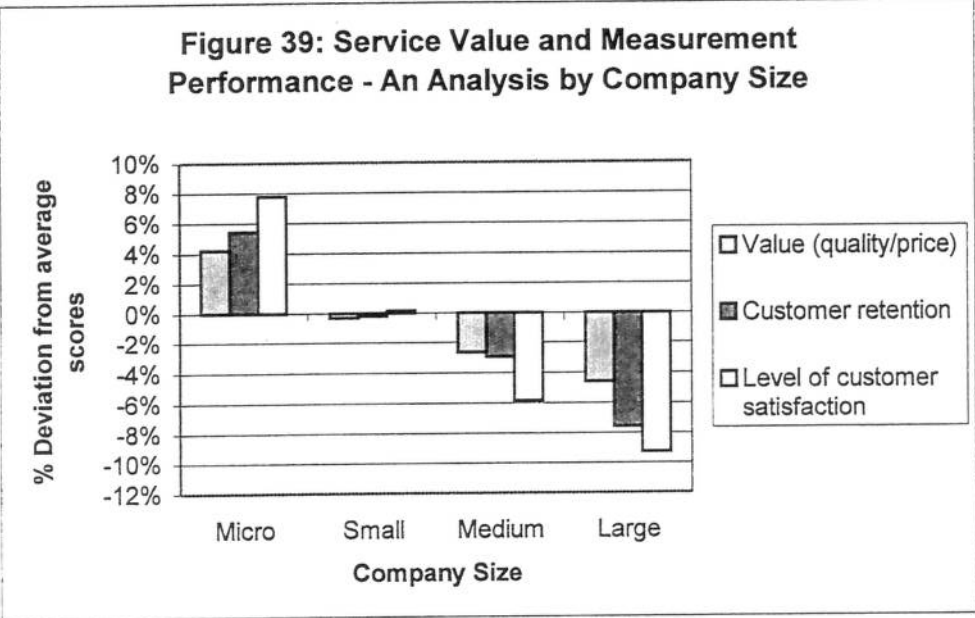
All sectors except the Education and public services sector, have above average performance scores on service value and measurement. However, the deviations from the overall average scores is relatively small.

Measures related to Business Performance

Five measures were reviewed (Figure 40). In all cases, actual figures were not requested but simply indications of (upward or downward) trends and/or comparisons to the competition. In general, the average scores provided reflect a slight increase in *market share*, a marginally positive *cash flow* position and *productivity* gains with moderate improvements. With respect to *return of net assets* and *operating costs*, the organisations generally believe they are equal to their competition.

Figure 40: Issues in Business Performance

Performance Measure	Average Score
Market share (of primary services or line of business)	3.15
Cash flow	3.09
Overall productivity within organisation	3.12
Return on net assets	3.05
Operating costs	2.86
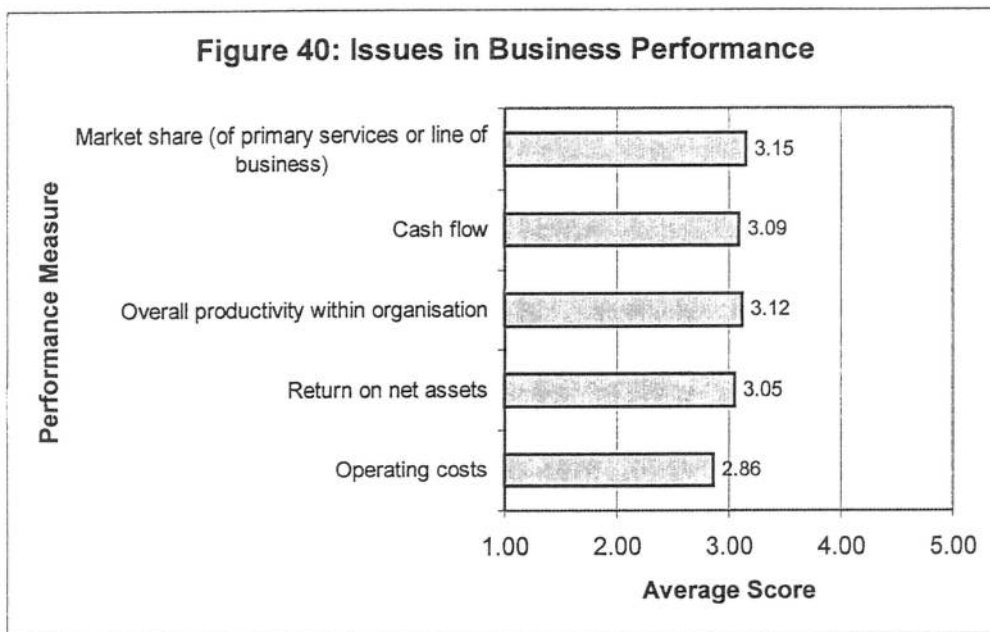
An inverse relationship exists between size of an organisation and its business performance. Micro organisations have the edge on most performance measures. In many cases this advantage is relatively small (Figure 41).

Figure 41: Business Performance - An Analysis by Company Size
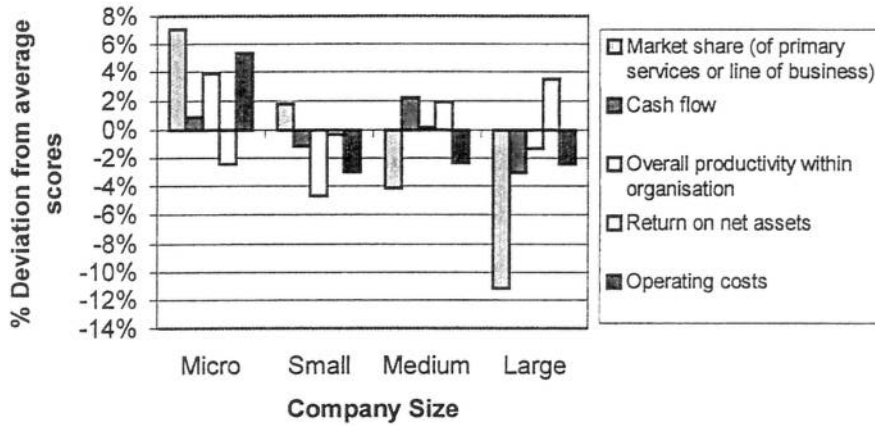
Sector-wise, each has its own pattern on all measures (Figure 42). The Consultancy and Professional sector along with Leisure and Retail have marginal advantage in terms of above average scores for most measures. The Education and Public Services sector has below average scores on all measures whilst the Industrial Services sector has a mix of below and above average performance scores.

Figure 42: Business Performance - An Analysis by Sector
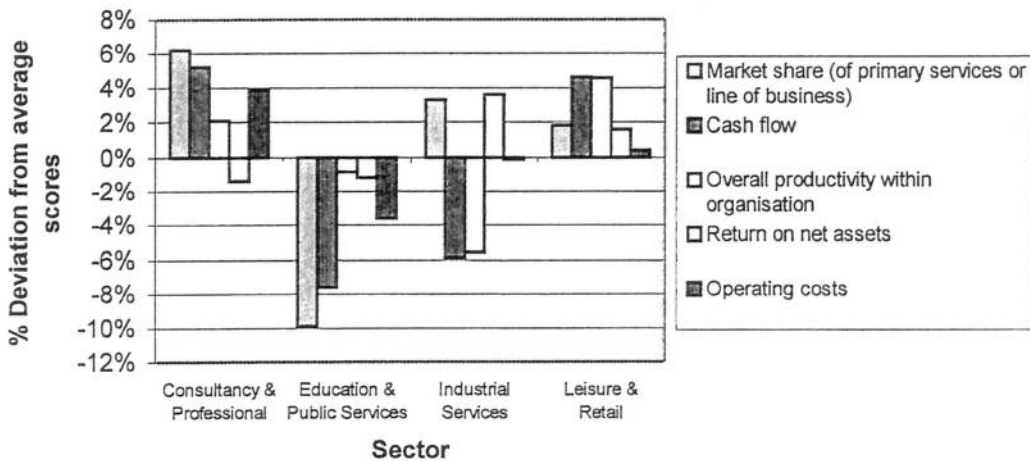
Other influences on 'practice' levels and 'performance' outcomes

(1) Does the ownership of an organisation (independents v/s subsidiaries) have any impact on the results?

Table 1 shows those practices where the independents lead the subsidiaries. They cover a range of business functions. In contrast, where the subsidiaries have taken the lead, this is concentrated in one particular area of business, namely Strategic Issues.

Table 1: PRACTICE MEASURES WHERE DIFFERENCES OCCUR BETWEEN TYPES OF OWNERSHIP

Measure	Independents	Subsidiaries
Strategic Issues		
Role of leadership in developing service culture	••	
Skill and job training and education		•
Benchmarks		•
Performance measurement and reporting		•
Human Resource Issues		
Workforce flexibility	•	
Service Design and Innovation		
Role of support functions	••	

(Note: In Table 1 and onwards • represents significance at the 5% level, ••represents significance at the 1% level and ••• represents significance at the 0.1% level (i.e. highly significant))

Table 2 shows that those performance measures where significant differences exist, subsidiaries only lead the independents with respect to one performance measure. This measure is again in the area of Strategy. In contrast, where independents lead, the number of performance measures are far greater and cover a wider range of business areas.

Table 2: PERFORMANCE MEASURES WHERE DIFFERENCES OCCUR BETWEEN TYPES OF OWNERSHIP

Measure	Independents	Subsidiaries
Strategic Issues		
Strategy towards corporate social responsibility		•••
Human Resource Issues		
Employee loyalty, relative to industry	••	
Employee satisfaction	•••	
Service Delivery and Quality		
Reliability	•••	
Quality performance, relative to industry	••	
Service Design and Innovation		
Clarity of service concept	•	
Service meeting customer needs	•••	
Service Value and Measurement		
Customer retention	•	
Level of customer satisfaction	••	
Business Performance		
Market share (of primary services or line of business)	••	

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(2) Does the ownership of an organisation (domestic v/s overseas) have any impact on the outcomes?

Table 3: PRACTICE MEASURES WHERE DIFFERENCES OCCUR BETWEEN OWNERSHIP ORIGIN

Measure	Domestic	Overseas
Human Resource Issues		
Employee involvement	•	
Service Design and Innovation		
Listening to the customer		•

Table 3 indicates that only two significant differences occur in the mean scores for the two groups of service organisations and there is no particular theme or pattern attached to these differences.

Likewise, there are only two performance measures (Table 4), *Service design and innovation* and *Return on net assets*, which show a significant difference between the two cohorts. In both cases, the organisations owned overseas score higher on average.

Table 4: PERFORMANCE MEASURES WHERE DIFFERENCES OCCUR BETWEEN OWNERSHIP ORIGIN

Measure	Domestic	Overseas
Service Design and Innovation		
Speed of development relative to competition		•
Business Performance		
Return on net assets		•

Section 5: Lessons from our Leading Organisations

The previous sections have shown that wide variation exists amongst the North East service sector with respect to adoption of best business practices and operational performance. In this section, the areas of practice and performance where the leading organisations are ahead will be identified.

The leading organisations (referred to as leaders) and those organisations with the greatest room for improvement (referred to as laggers) will be compared. The former represent the top 20% of the service sample, as defined by their average performance score, whilst the latter represent the bottom 20%.

Where do the leaders perform better than the laggers?

Nineteen performance measures were considered which cover six areas of business; Strategic Issues, Human Resource Issues, Service Delivery and Quality, Service Design and Innovation, Service Value and Measurement and Business Performance. With respect to all nineteen measures, the leaders scored significantly higher on average compared to the laggers, with each difference being significant at the 0.1% level. Table 5 shows the percentage lead achieved on each performance measure grouped by the business area they represent compared to the average achievement of the whole service sector.

Table 5: How much better do the leaders score in terms of performance?

Performance Measure	Percentage difference from sample mean
Strategic Issues	
Strategy towards corporate social responsibility	23.2%
Human Resource Issues	
Employee satisfaction	28.8%
Employee loyalty, relative to industry	19.6%
Service Delivery and Quality	
Staff responsiveness	25.1%
Quality performance, relative to industry	20.1%
Reliability	17.9%
Accessibility	10.4%
Service Design and Innovation	
Speed of development relative to competition	27.2%
Innovativeness	26.6%
Clarity of service concept	26.3%
Service meeting customer needs	19.0%
Service Value and Measurement	
Level of customer satisfaction	23.2%
Customer retention	21.1%
Value (quality/price)	19.6%
Business Performance	
Cash flow	24.1%
Market share (of primary services or line of business)	22.2%
Overall productivity within organisation	19.6%
Return on net assets	19.1%
Operating costs	12.6%

What practices put the leaders ahead of the laggers?

Twenty-eight practice measures were considered which cover the business areas listed above. With respect to all practices, the leaders scored significantly higher on average compared to the laggers, with each difference being significant at the 0.1% level, except for *Quality procedures and framework* (a measure of Service Delivery and Quality), where the difference was significant at the 1% level. Table 6 shows the relative advantage in higher adoption levels achieved by the leading group in all the business areas considered.

Table 6: How much better do the leaders score in terms of practices?

Practice Measure	Percentage difference from sample mean
Strategic Issues	
Performance measurement and reporting	20.2%
Benchmarks	17.2%
Role of leadership in developing service culture	17.0%
Quality values	15.6%
Skill and job training and education	13.8%
Competitive positioning	10.3%
Human Resource Issues	
Recognition and Reward	25.1%
Workforce flexibility	22.1%
Day to Day Teamwork	20.5%
Customer orientation	19.8%
Shared vision, mission and goals	18.6%
Employee involvement	18.1%
Listening to staff	15.1%
Service Delivery and Quality	
Problem solving	23.9%
Quality mindset	23.2%
Use of customer complaint data	17.1%
Real time employee handling of service problems/failures	14.7%
Quality procedures and framework	3.8%
Service Design and Innovation	
Generation of innovative product concepts	39.2%
Management of business processes	16.7%
Role of support functions	16.0%
Listening to the customer	15.2%
New service design and development process	13.7%
Current use of information technology	7.0%
Service Value and Measurement	
Customer satisfaction measurement	26.8%
Visibility and communication of service standards	22.4%
Elimination of 'waste'	15.0%
Clarity of goals	14.6%

To what extent does size impact upon the differences in performance between leaders and laggers?

Table 7 suggests that amongst the micro, small and medium sized organisations the leaders (as defined for the whole data set earlier) dominate the laggers in practically all aspects of business performance, again with many differences being significant at the 0.1% level. To a slightly lesser extent, the same can also be said for the large service organisations, although there is less significant difference (in terms of the number of performance measures) with respect to Service Delivery and Quality.

Table 7: PERFORMANCES WHERE THE LEADERS ARE AHEAD OF THE LAGGERS BY SIZE BAND

Measure	Micro	Small	Medium	Large
Strategic Issues				
Strategy towards corporate social responsibility	•••	•••		••
Human Resource Issues				
Employee loyalty, relative to industry	•••	•••	•••	
Employee satisfaction	•••	•••	•••	•••
Service Delivery and Quality				
Reliability	•••	•••	•••	
Quality performance, relative to industry	•••	•••	•••	•••
Staff responsiveness	•••	•••	•••	••
Accessibility	•••	•	••	
Service Design and Innovation				
Innovativeness	•••	•••	•••	•••
Clarity of service concept	•••	•••	•••	•••
Speed of development relative to competition	•••	•••	•••	•••
Service meeting customer needs	•••	•••	•••	•••
Service Value and Measurement				
Value (quality/price)	•••	•••	•••	•••
Customer retention	•••	•••	•••	•••
Level of customer satisfaction	•••	•••	•••	•••
Business Performance				
Market share (of primary services or line of business)	•••	•••	•••	•••
Cash flow	•••	•••		••
Overall productivity within organisation	•••	•••	•••	•••
Return on net assets	•••	•••	••	•••
Operating costs	••		•••	••

To what extent does size impact upon the differences in practices between leaders and laggers?

The picture here is again similar to that seen in the context of performance. Table 8 indicates that the leaders (as defined for the whole data set earlier) dominate the laggers in all aspects of business performance, again with many differences being significant at the 0.1% level within the micro, small and medium size bands. In contrast, the proportion of measures showing significant differences between the leaders and laggers is much smaller for the large organisations. Apart from the Human Resource Issue and Service Delivery and Quality practices, only a relatively small number of practices show significance between the two groups within the large size band, particularly in the areas of Strategy, Service Design and Innovation and Service Value and Measurement.

Table 8: PRACTICES WHERE THE LEADERS ARE AHEAD OF THE LAGGERS BY SIZE BAND

Measure	Micro	Small	Medium	Large
Strategic Issues				
Role of leadership in developing service culture	●●●	●●●	●●●	
Quality values	●●●	●●●	●●●	
Skill and job training and education	●●●	●●	●●	
Competitive positioning	●●	●●●	●●	●
Benchmarks	●●	●●●		●●
Performance measurement and reporting	●●●	●●	●●●	
Human Resource Issues				
Shared vision, mission and goals	●●	●●●	●●	●
Customer orientation	●●●	●●●	●●●	●●
Recognition and Reward	●●●	●●●	●●●	●
Employee involvement	●●●	●●●	●●	
Listening to staff	●●●	●●●	●●	
Day to Day Teamwork	●●●	●●●	●	
Workforce flexibility	●●●	●●●	●●●	●
Service Delivery and Quality				
Problem solving	●●●	●●●	●●●	●
Quality mindset	●●●	●●●	●●●	●●
Quality procedures and framework		●●		●
Real time employee handling of service problems/failures	●●●	●●●	●	●●●
Use of customer complaint data	●●●	●●●	●	
Service Design and Innovation				
Listening to the customer	●●●	●●●	●●●	
New service design and development process	●●●	●●●	●●	●
Role of support functions	●●●	●●	●●●	
Management of business processes	●●●	●●●	●●	
Current use of information technology	●●	●●	●●	
Generation of innovative product concepts		●		
Service Value and Measurement				
Elimination of 'waste'	●●	●●●	●●	
Clarity of goals	●●●	●●●	●●●	
Visibility and communication of service standards	●●●	●●●	●●	●
Customer satisfaction measurement	●●●	●●●	●	

To what extent does service sector impact upon the differences in performance between leaders and laggers?

Table 9 indicates that in all of the four sectors considered, the leaders outperform the laggers in all of the business areas considered, with many of the measures showing significance at the 0.1% level. The only sector showing any area with any departure from this, is Industrial Services where a number of Business Performance measures show no significant differences between the leaders and laggers.

Table 9: PERFORMANCES WHERE THE LEADERS ARE AHEAD OF THE LAGGERS BY SECTOR

Measure	Industrial Services	Leisure and Retail	Professional and Consultancy	Public Services and Education
Strategic Issues				
Strategy towards corporate social responsibility	●●	●	●	●
Human Resource Issues				
Employee loyalty, relative to industry	●	●●	●●●	●●●
Employee satisfaction	●●●	●●●	●●●	●●●
Service Delivery and Quality				
Reliability	●●●	●●●	●●●	●●●
Quality performance, relative to industry	●●●	●●●	●●●	●●●
Staff responsiveness	●●●	●●●	●●●	●●●
Accessibility	●●	●●	●●	●
Service Design and Innovation				
Innovativeness	●●●	●●●	●●●	●●●
Clarity of service concept	●●●	●●●	●●●	●●●
Speed of development relative to competition	●●●	●●●	●●●	●●●
Service meeting customer needs	●●●	●●●	●●●	●●●
Service Value and Measurement				
Value (quality/price)	●●●	●●●	●●●	●●●
Customer retention	●●●	●●●	●●●	●●●
Level of customer satisfaction	●●●	●●●	●●●	●●●
Business Performance				
Market share (of primary services or line of business)	●●●	●●●	●●●	●●●
Cash flow		●●●	●●	●●●
Overall productivity within organisation	●●●	●	●●●	●●●
Return on net assets	●●	●●	●●	●●●
Operating costs		●	●	●●

To what extent does service sector impact upon the differences in practices between leaders and laggers?

Table 10 indicates that like the performance measures, the leaders dominate the laggers in the Professional and Consultancy sector in all of the business areas considered, with many of the measures showing significance at the 0.1% level. The extent of the dominance shown by leaders over laggers is slightly less in the other service sectors. With regard to Education and Public Services, there are a number of Strategic Issues where no significant difference occurs between the leaders and laggers and this is also repeated with respect to Service Value and Measurement for the Leisure and Retail sector.

Table 10: PRACTICES WHERE THE LEADERS ARE AHEAD OF THE LAGGERS BY SECTOR

Measure	Industrial Services	Leisure and Retail	Professional and Consultancy	Public Services and Education
Strategic Issues				
Role of leadership in developing service culture	•••	••	•••	
Quality values	••	•••	•••	•••
Skill and job training and education	•	••	••	
Competitive positioning	•		•••	
Benchmarks		••	••	••
Performance measurement and reporting	••	•••	•	•••
Human Resource Issues				
Shared vision, mission and goals		••	•••	••
Customer orientation	•••	•	•••	•••
Recognition and Reward	••	••	•••	•••
Employee involvement	••	•••	•••	••
Listening to staff		••	•••	••
Day to Day Teamwork	••	•••	••	
Workforce flexibility	••	••	•••	•••
Service Delivery and Quality				
Problem solving	••	•••	•••	•••
Quality mindset	•••	•	•••	•••
Quality procedures and framework	•			•
Real time employee handling of service problems/failures	•	•	•••	•••
Use of customer complaint data	•		•••	••
Service Design and Innovation				
Listening to the customer	•••	••	•••	•••
New service design and development process	••	•	••	•••
Role of support functions	•	••	••	•••
Management of business processes	•	••	•	•••
Current use of information technology			•	
Generation of innovative product concepts		•••		••
Service Value and Measurement				
Elimination of 'waste'			•••	
Clarity of goals	••	••	•••	••
Visibility and communication of service standards	•••	•••	•••	•••
Customer satisfaction measurement	••		•••	••

To what extent does the type of organisation impact upon the differences in performance between leaders and laggers?

Significant differences exist for all performance measures within both the Independent and Subsidiary cohorts between the leaders and laggers (as defined for the whole data set earlier), with most differences being significant at the 0.1% level.

To what extent does the type of organisation impact upon the differences in practices between leaders and laggers?

Again, significant differences exist for all practices within both the Independent and Subsidiary cohorts between the leaders and laggers (as defined for the whole data set earlier), with most differences being significant at the 0.1% level. The only measure that shows no significant difference is *Current use of information technology* amongst the subsidiaries.

To what extent does the market served impact upon the differences in performance between leaders and laggers?

Table 11: PERFORMANCES WHERE THE LEADERS ARE AHEAD OF THE LAGGERS BY MARKETS SERVED

Measure	Overseas	Western Europe	Eastern Europe	USA	Asia Pacific
Strategic Issues					
Strategy towards corporate social responsibility		•	••	•	•
Human Resource Issues					
Employee loyalty, relative to industry	•••	••	••	•	•••
Employee satisfaction	•••	•••	•••	••	•••
Service Delivery and Quality					
Reliability	•••	•••	•••	•••	•••
Quality performance, relative to industry	•••	•••		•••	•••
Staff responsiveness	•••	•••	•••	••	••
Accessibility	••	•			•
Service Design and Innovation					
Innovativeness	•••	•••	•••	•••	••
Clarity of service concept	•••	•••	••	••	•••
Speed of development relative to competition	•••	•••	•••	•••	•••
Service meeting customer needs	•••	•••	•	••	•••
Service Value and Measurement					
Value (quality/price)	•••	•••	•••	•••	••
Customer retention	•••	•••	•••	•••	•••
Level of customer satisfaction	•••	•••	•••	•••	•••
Business Performance					
Market share (of primary services or line of business)	•••	•••	•••	•••	•••
Cash flow	•••	•••	••		••
Overall productivity within organisation	•••	•••	••	•	••
Return on net assets	•••	•••	••	••	••
Operating costs	••	•••	•	••	••

Table 11 indicates that leaders dominate laggers in nearly all aspects of performance for those organisations who offer services Overseas. The one exception is the Strategic Issue *Strategy towards corporate social responsibility* where no significant difference exists. For those organisations with particular overseas markets, the leaders dominate the laggers with respect to nearly every measure of operational performance considered.

To what extent do the customer's served impact upon the differences in practices between leaders and laggers?

Table 12: PRACTICES WHERE THE LEADERS ARE AHEAD OF THE LAGGERS BY MARKETS SERVED

Measure	Overseas	Western Europe	Eastern Europe	USA	Asia Pacific
Strategic Issues					
Role of leadership in developing service culture	●●●	●●●	●	●●●	●
Quality values	●●	●●●	●	●	●●
Skill and job training and education			●		
Competitive positioning	●●	●	●●		●●
Benchmarks		●	●●		●
Performance measurement and reporting	●	●	●		●
Human Resource Issues					
Customer orientation	●●●	●●		●	●●
Recognition and Reward	●●●	●●●	●●	●●	●●●
Employee involvement	●●	●●●	●	●●	●
Listening to staff	●●	●●	●	●	●
Day to Day Teamwork	●●	●	●		
Workforce flexibility	●●●	●●●	●	●●	●
Service Delivery and Quality					
Problem solving	●●	●●●	●●●	●●	●
Quality mindset	●●	●●●	●		●
Quality procedures and framework		●●	●	●●	●●
Real time employee handling of service problems/failures	●●●	●●●	●●●	●	●●●
Use of customer complaint data	●	●			
Service Design and Innovation					
Listening to the customer	●●				●
New service design and development process		●	●●●		●●
Role of support functions	●●	●			
Current use of information technology		●●		●	●
Generation of innovative product concepts	●●	●●●	●	●●	●●
Service Value and Measurement					
Elimination of 'waste'	●	●●	●●●		●
Clarity of goals	●●	●●	●		
Visibility and communication of service standards	●●	●●●	●●	●	●

Table 12 indicates that significant differences exits between the leaders and laggers for the organisations providing services to the locations listed, again with many practices showing significance at the 0.1% level. The only real exception to this is amongst those organisations serving the USA where a number of practices in the areas of Strategy, Service Design and Innovation and Service Value and Measurement show no significant differences between their leaders and laggers.

To what extent is the performance level of the respondent related to World Class status, organisation size and manufacturing sector? As expected there is significant association between performance level and World Class status, this being at the 0.1% level. A greater than expected number of PW/WC are leaders, whilst a greater than expected number of RFI and CDB are laggers. Similarly, size is also significantly associated, again at the 0.1% significance level, with a greater than expected number of leaders amongst the micro organisations and a greater than expected number of laggers found within the large size band. There was significant association between performance level and sector at the 1% level with a greater than expected number of Consultancy and Professional and Leisure and Retail being performance leaders and a greater than expected number of organisations in the Education and Public Services being performance laggers.

As suggested earlier, there is a significant difference between the mean score for each of the practice and performance measures between the two groups defined 'performance leaders' and 'performance laggers'. Does a combination of practice measures significantly discriminate between the two groups, and equally is there a combination of performance measures that discriminate significantly in the same way? Such a combination of the two groups of measures is shown below (Table 13). Both groups of measures represent a subset of all measures considered in this analysis. They are potentially useful in that they provide a shortened set of criteria for determining which service organisations are either leading or lagging in terms of operational performance. They indicate which practices when adopted discriminate significantly with respect to overall business performance. Table 13 shows the combination of measures indicates both strategic and operational initiatives.

Table 13: Factors which combine to discriminate between performance leaders and laggers

Business Area	Practice Predictors	Performance Predictors
Strategic Issues	Competitive positioning	Strategy towards corporate social responsibility
Human Resource Issues	Customer orientation Recognition and reward Workforce flexibility	Employee loyalty, relative to industry
Service Delivery and Quality	Quality mindset	Quality performance, relative to industry Staff responsiveness
Service Design and Innovation	Role of support functions	Innovativeness Clarity of service concept Speed of development relative to competition
Service Value and Measurement	Elimination of 'waste'	Customer retention Level of customer satisfaction
Business Performance		Cash flow Overall productivity within organisation Return on net assets

Section 6:
Business Growth and Competitiveness of North East Services

In addition to measuring the performance of the North-East service organisations and the extent to which they were adopting world class practices, the participants also reviewed certain growth characteristics with respect to the previous three years of business. Growth was judged from the point of view of sales turnover, product range, number of customers and profitability. The measurements provided were in terms of the extent to which growth or decline took place. This makes possible analysis of the relationship, if any, between rates of growth and other factors. Growth or decline in numbers of employees and suppliers was also recorded. This is not to suggest of course that 'growth' in all of these measures would necessarily be regarded as a positive indicator.

Do the rates of growth bear any relationship with the world class status, size or service sector of the participants?

Figure 43: Growth Characteristics - Comparison by Company Size
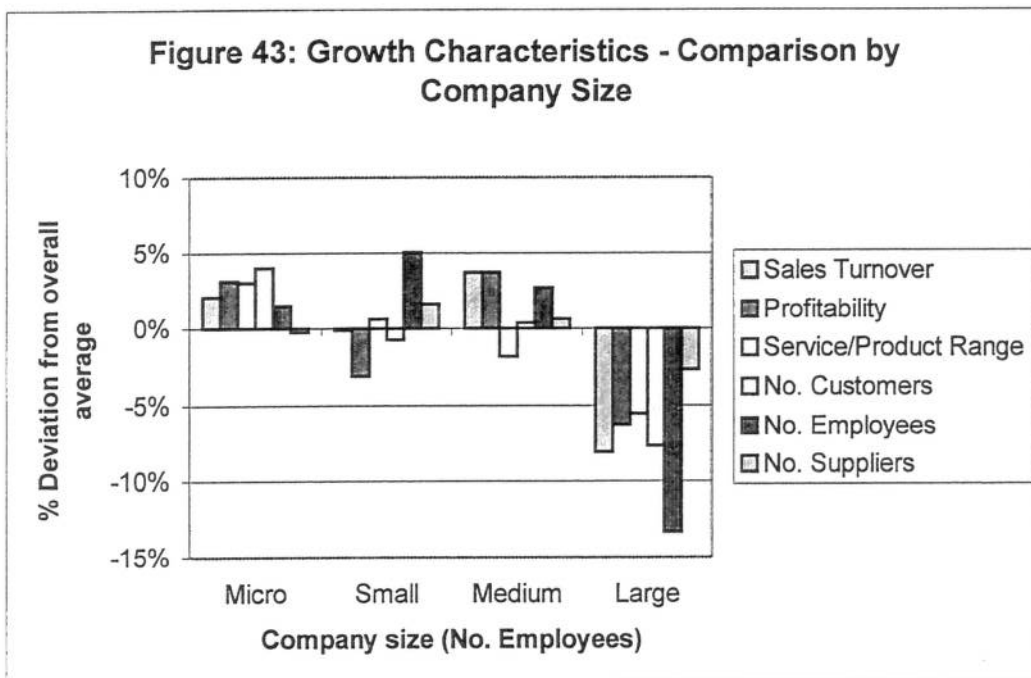
Quite distinct patterns of growth can be seen between different size of organisations (Figure 43). Micro organisations are typically in the process of relatively high growth compared to the whole service sector. They have the ideal profile in terms of above average growth in turnover, profitability, product range and customers, and in order to meet this growth have been increasing their numbers of employees. At the same time, the micros have been demonstrating leanness in terms of below average growth in terms numbers suppliers relative to the whole sector.

Small organisations exhibit a degree of relative vulnerability in that they have relatively low growth in terms of profitability, but have greater than average growth in terms of numbers of employees and suppliers.

Large organisations have the slowest growth rates of all. Their average growth rates were well below average relative to the whole service sector for all of the factors

considered, particularly with respect to numbers of employees and sales turnover. In fact, both measures showed an average decline for the large organisations.

To what extent are the rates of growth associated with service sector?

Again, widely different growth patterns can be seen between different sectors (Figure 44). Two sectors, Consultancy and Professional and Industrial Services, have performed well above average on all measures whilst the other two, Education and Public Services (in particular) and Leisure and Retail have well below average growth rates on most measures.

The Consultancy and Professional sector demonstrates above average growth rates on all measures considered. The Industrial Services sector has seen above average growth rates in sales turnover, profitability and in particular growth in numbers of employees and suppliers.

The Education and Public Services organisations demonstrate below average growth rates on all measures, performing particularly poorly with regard to turnover, and profitability, and also displaying an average decline in terms of number of employees and suppliers.

Figure 44: Growth Characteristics - Comparison by Sector
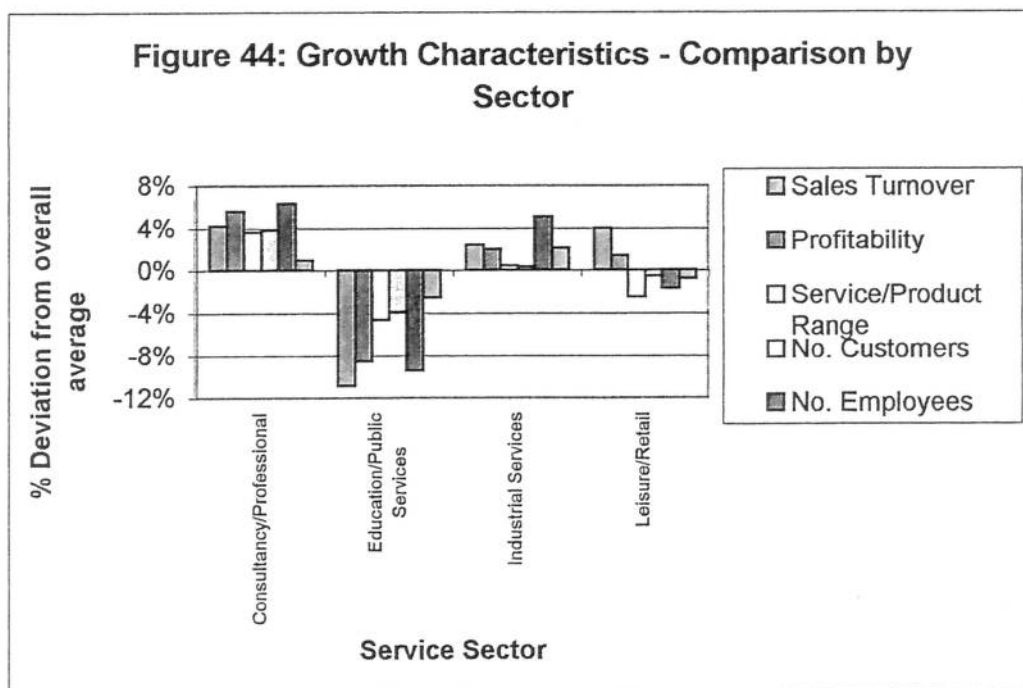
To what extent is World Class Status linked to the growth of the various measures?

The link between World Class status and growth can be seen clearly on all counts (Figure 45). The 'could do better', 'room for improvement' and even the 'promising' organisations exhibit below average growth rates on almost all measures, the exception being the 'could do betters' with above average growth relative to the whole service

sector in terms of numbers of suppliers. The RFI, CDB and PRM cohorts all average a decline in profitability, with the latter two also declining in number of employees.

Vulnerable organisations appear to perform much better than promising organisations in that their growth rates whilst being typically about average compared to the whole of the service sector. Interestingly, these organisations report stronger than average growth in sales turnover, but weaker than average profitability.

PW/WC organisations are clearly ahead of all the other categories in terms of well above average growth rates for all measures, although their relative growth in terms of numbers of suppliers is average relative to the whole sector, indicating a demonstration of leaner servicing.

Figure 45: Growth Characteristics - Comparison by World Class Status
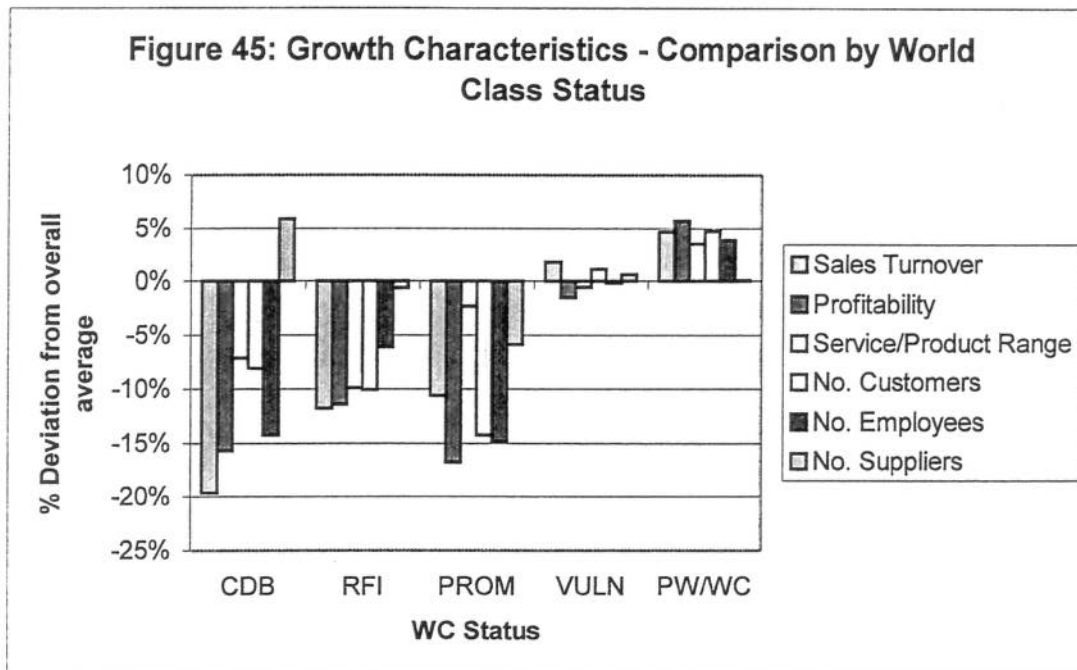
How does the North East service sector compare with respect to their competitors?

Do North East organisations have any advantage on measures such as price, service quality, price, rapid response to customers, reliability and service customisation? Are these advantages related to size, sector or world class status?

Size appears to polarise competitive advantage as measured by the above five criteria (Figure 46). Micro and small organisations (i.e. when considering both size bands together, those employing between 10 and 50 people), have above average levels of perceived competitive advantage on all measures with surprisingly the opposite situation being represented in the medium and large categories of organisation. Medium and large organisations are on average uncompetitive with respect to price.

Figure 46: Growth Characteristics - Comparison by Company Size
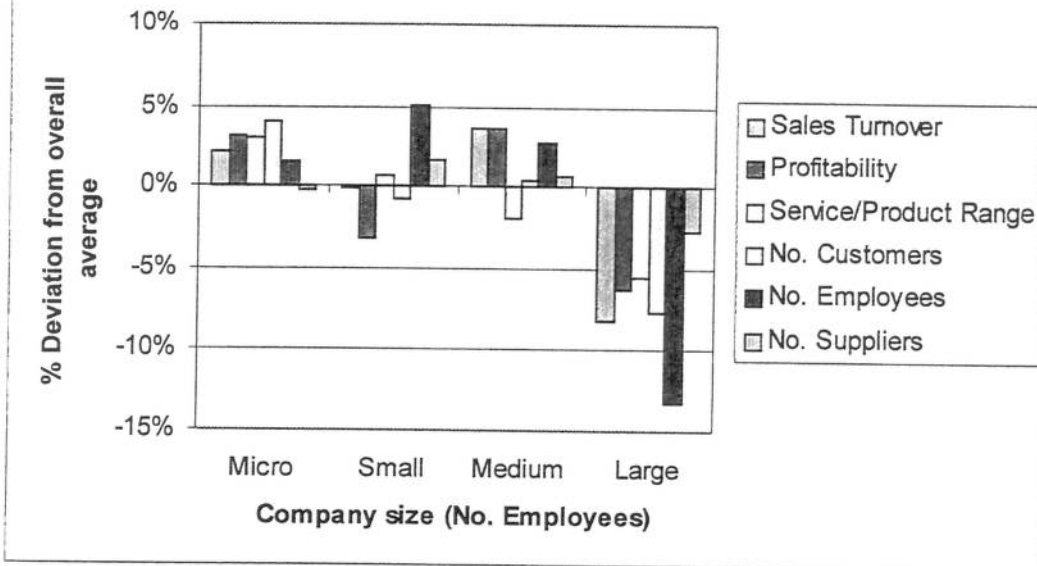
To what extent are these advantages related to service sector?

Figure 47: Growth Characteristics - Comparison by Sector
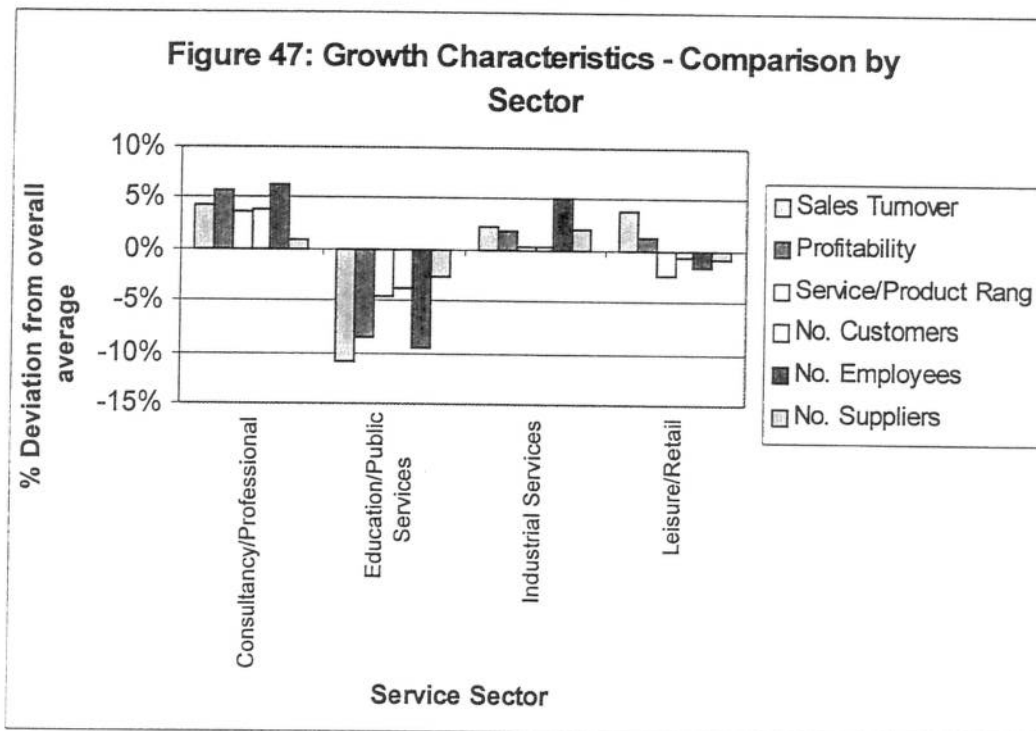
The Consultancy and Professional sector along with Industrial Services is much more competitive on all measures than the other two services (Figure 47). The Consultancy and Professional organisations have much higher perceived competitive advantage than any other sector in terms of service quality and service customisation.

The Industrial Services sector leads the way with respect to rapid response to customers and reliability.

In contrast, Education and Public Services are at a relative disadvantage with regard to all factors apart from Price. The group of organisations in the Leisure and Retail sector is showing typically average levels of advantage with respect to all of the measures compared to the whole of the service sector.

To what extent are these advantages related to World Class Status?

The direct link between world-class status and perceived competitive advantage can be clearly seen (Figure 48).

PW/WC organisations are in the lead, with every measure being above average levels relative to the whole of the service sample. In contrast, at the other end of the World Class status scale, CDB then RFI have the worst record in terms of every aspect of significant advantage, compared to the rest of the service sector. CDB, RFI and PROM organisations are on average uncompetitive with respect to price.

The promising category of organisations has below industry-average levels of competitiveness despite their relatively high level of best practice adoption.

Figure 48: Areas of significant advantege over competitors by World Class Status
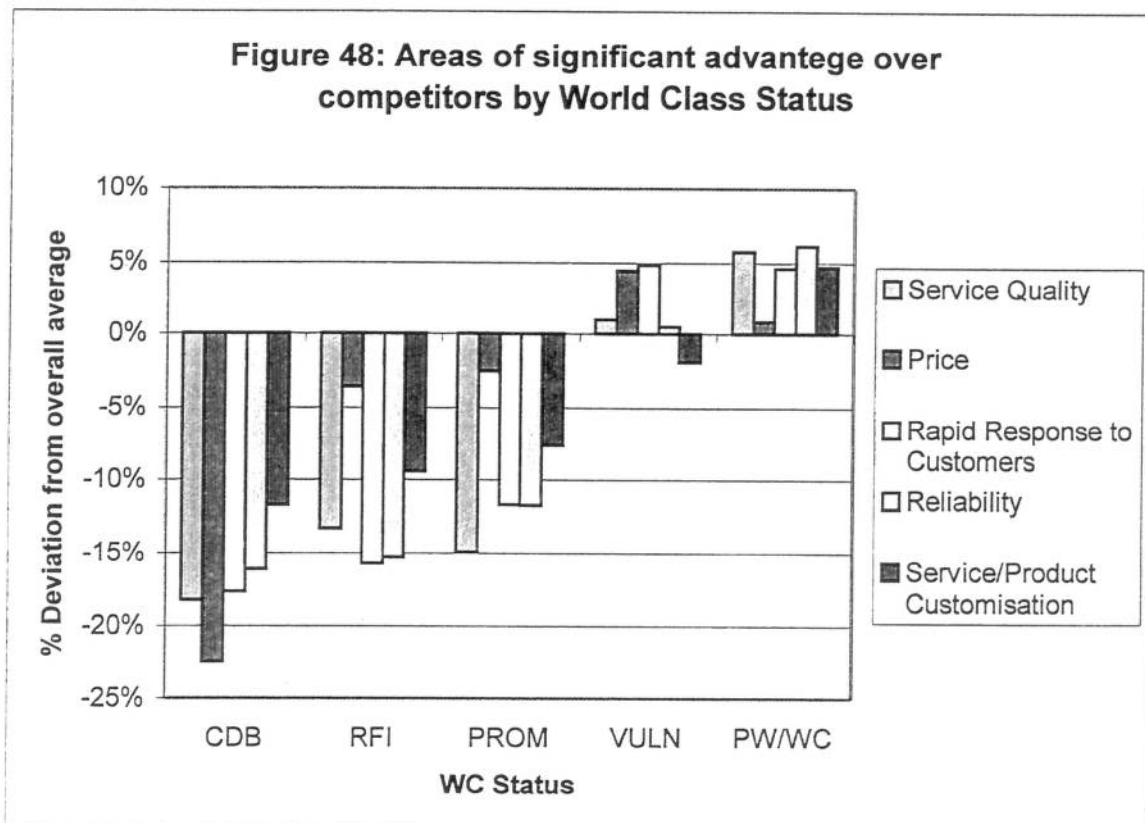
The respondents were also asked, if they personally felt they were able to compete successfully now with the best of their competitors anywhere in the world. An analysis

of their responses by size of organisation, sector and world class status sheds some interesting light on the managers' perceptions. There is no statistical association between sector and perception of being able to compete successfully now. However, size does have a significant (5% level) association with their perceptions. A greater than expected number of medium sized organisations don't know; a greater than expected number of micros feel that they can compete successfully now and a greater than expected number of large and micros feel that they can compete only partially or not at all. It is interesting to note the split in perception amongst the micro participants. The greatest association can be found between perception and World Class Status (0.1% level). A greater than expected number of RFIs Don't Know or believe they can only partially compete, a greater than expected number of 'promising' organisations feel they can only partially compete, whilst a greater than expected number of PW/WC service organisations feel they can compete successfully now.

The extent to which the North East sample were truly 'learning' organisations was also assessed. The participants were assessed to determine whether they considered that change was something they were good at, in that they saw it as opportunity rather than a necessary evil to cope with. An analysis by World Class status, size and service sector showed statistical association with this inherent capability to 'learn'. World Class status was significantly related to this capability (significant at 0.1% level), with a greater than expected number of RFI and CDB being in disagreement, a greater than expected number of 'promising' and 'vulnerable' organisations being neutral and a greater than expected number of PW/WC being in agreement. Size is also a significant factor at this level with large organisations tending to be neutral, whilst a greater than expected number of micro organisations are in agreement. There is also association between status and the organisation's belief that they are good at implementing change (0.1% level). A greater than expected number of RFI and CDB disagree, whilst a greater than expected number of PW/WC agree, with the other organisations tending more towards being neutral. Finally, sector shows significance at the 5% level with a greater than expected number of organisations in the Leisure and Retail and the Education and Public Services sectors being in disagreement, whilst a greater proportion of Consultancy and Professional organisations agree.

What about their future? Would their business environment continue to change significantly and how long would it take to compete with the best competitors in the world were two questions raised with the sample. There was significant association at the 5% level with regard to the business environment continually changing in a significant way in terms of service sector. A greater than expected number of organisations in the Industrial Services sector being in disagreement, whilst a greater than expected number of organisations from Education and the Public Services agreed. In terms of how long in the future it would take them to compete with the best, there was statistical association with regard to this perception and World Class status (at the 5% level), with a greater than expected number of PW/WC feeling that they can compete with the best either now or in the next three years and a greater than expected number of RFI believing it will take them five to ten years.

Section 7: Future issues for service organisations

Over the past two decades, the service sector as whole has had to face enormous changes. In particular, the public services and not-for-profit sectors became increasingly market and customer-oriented businesses striving to adopt world-class practices from leading service multi-nationals. High profile changes included the introduction of the market economy in both primary and secondary health care, the market testing of local authority services during the eighties followed more recently by 'best value' initiatives and the introduction of performance league tables across all tiers of education. These innovations have had an enormous impact upon the public, health and education sectors and were aimed at introducing professional managerial disciplines to both value and quality of services provided. Equally the profit making sub-sectors such as consultancy/professional, industrial services and leisure/retail have had to face enormous competition and adapt their businesses for greater flexibility and responsiveness and the exploitation of emerging information and communication technologies.

The nature and extent to which best practice has been adopted by the sector as a whole has been presented in this report and in this final section, the key strengths and weaknesses of its major sub-sectors are summarised. Also highlighted are the challenges facing the sector as a whole and their implications for achieving the desired attributes of future world-class service organisations.

What are the relative strengths and weaknesses of the key sub-sectors in the North East of England?

In all, four sectors are selected. The '*Public Services*' which represent 27% of the sample along with the three biggest '*private sector*' service groups in the sample, '*Leisure and Retail*' (11%), '*Industrial Services*' (14%) and '*Consultancy*' / '*Professional*' services (27%) are the focus of attention.

Table I displays the relative position of the twenty-eight practices by service sector (1 represents the best measure on average and 28 the poorest, within a given sector). The relative strengths and weaknesses within each of three other service sectors show great similarity to those shown across the Education and Public Services. Association between ranks for the two public groups is significant at the 0.1% level, as is the association between both these groups and the ranks for other service groups. In terms of relative strength, the *role of leadership* is seen as critical by all sectors and so also are the practices related to managing people. Consistent weaknesses exist across all sectors in their use of measurement systems. Relatively poor practice-adoption levels in *performance measurement and reporting*, *benchmarks* and *customer satisfaction measurement* are strong indicators. Also strategies for *innovation* are relatively weak across all sectors.

	Education & Public Services	Consultancy & Professional	Industrial Services	Leisure & Retail
•• sig greater than 3.5, • sig greater than 3.0, ∞ sig less than 3.0 (those not annotated have mean scores which are not significantly different to 3)				
Day to Day Teamwork	1 •	1 ••	16	6 •
Real time' employee handling of service problems/failures	2 •	3 ••	4 •	4 •
Role of leadership in developing service culture	3 •	2 ••	1 ••	2 ••
Listening to the customer	4 •	6 •	5 •	1 ••
Listening to staff	5 •	7 ••	14	15
Quality values	6 •	5 ••	3 •	10 •
Customer orientation	7 •	4 ••	2 •	3 •
Skill and job training and education	6 •	16 •	23	23
Clarity of goals	9 •	9 •	7 •	5 •
Use of customer complaint data	10 •	18	11	9 •
Workforce flexibility	11 •	8 •	6 •	11 •
Employee involvement	12 •	10 •	19	12 •
Shared vision, mission and goals	13 •	17 •	18	22
Current use of information technology	14	12 •	21	18
Visibility and communication of service standards	15	15 •	10	15
Management of business processes	16	20	13	15
Competitive positioning	17	13	9 •	8 •
Quality mindset	18	11 •	8 •	14
Role of support functions	19	19 •	11	7 •
New service design and development process	20	22	17	21
Problem solving	21 ∞	21	20	13
Recognition and Reward	22 ∞	14 •	22 ∞	19
Elimination of 'waste'	23 ∞	23	24 ∞	20
Performance measurement and reporting	24 ∞	25 ∞	26 ∞	26 ∞
Quality procedures and framework	25 ∞	24 ∞	15	28 ∞
Generation of innovative product concepts	26 ∞	27 ∞	25 ∞	24
Benchmarks	27 ∞	28 ∞	28 ∞	27 ∞
Customer satisfaction measurement	28 ∞	26 ∞	27 ∞	25 ∞

Table I: Practices ranked in descending order of attainment

Table II displays the relative position of the nineteen performance measures by service sector (1 represents the best measure on average and 19 the poorest, within a given sector). The relative positions of each performance measure for the Education and Public Services are highly significant (0.1% level). Similar association at the 0.1% level also exists between the ranks for these two sectors and each of the other service groups (except for Education and Industrial Services – significance is at the 1% level). In terms of relative strengths within each of the five sectors, employee loyalty is the clear leader. Service Delivery and Quality is relatively strong across each of the groups. Consistently weak factors centre around business performance measures, especially on *return on net assets* and *operating costs*. *Innovativeness* and *speed of development* score poorly across all sectors, whilst a potential risk for each sector is their disparity between *employee loyalty* and *satisfaction*.

•• sig greater than 3.5, • sig greater than 3.0, ∞ sig less than 3.0 (those not annotated have mean scores which are not significantly different to 3)	Education & Public Services	Consultancy & Professional	Industrial Services	Leisure & Retail
Employee loyalty, relative to industry	1 ••	1 ••	1 ••	2 ••
Staff responsiveness	2 •	2 ••	5 ••	3 •
Accessibility	3 •	9 •	2 ••	6 •
Quality performance, relative to industry	4 •	4 ••	6 ••	1 ••
Reliability	5 •	3 ••	3 ••	6 •
Customer retention	6 •	7 ••	3 ••	8 •
Value (quality/price)	7 •	11 •	9 •	10 •
Service meeting customer needs	8 •	5 ••	8 •	4 ••
Overall productivity within organisation	9 •	13 •	15	12 •
Cash flow	10 •	8 ••	11 •	5 •
Level of customer satisfaction	11 •	10 ••	10 •	11 •
Market share (of primary services or line of business)	12 •	6 ••	7 •	9 •
Strategy towards corporate social responsibility	13 •	19 ∞	19 ∞	19 ∞
Clarity of service concept	14	12 •	14	13 •
Return on net assets	15	17	13 •	15
Speed of development relative to competition	17	14 •	12 •	14 •
Innovativeness	16	18	18 ∞	18
Operating costs	18	16 •	17	16
Employee satisfaction	19 ∞	15 •	16	17

Table II: Performances ranked in descending order of attainment

What are the major differences between the 'Public' services and 'Private-sector' services?

In comparison to the Industrial Services sector, the Education/Public Services (the 'Public Sector') score significantly higher on several Leadership Issues, in particular with their focus on *skills, job training and education* and their strategies toward *corporate social responsibility*. Both differences are significant at the 0.1% level. Again, in key HR practices such as *teamwork, employee involvement* and *listening to staff* the Public sector are significantly ahead compared to their Industrial Services counterparts. However, Industrial Services score significantly higher on HR performance as indicated by *employee loyalty* and *employee satisfaction*, both significant at the 1% level. Industrial Services score consistently higher on several business excellence measures. For example on quality, an area of high attainment across the public services, they score significantly higher on *reliability* (0.1% level) and *accessibility* (1%). They are also better at *customer retention* (0.1% level).

Similar patterns are seen when comparing Public Services with Leisure and Retail. On Leadership and People Issues the Public Services score significantly higher, although Leisure and Retail has better practices for *customer orientation* and achieves greater levels of *employee satisfaction*. In terms of Service Delivery and Quality, and Service Design and Innovation, the Public Services lag behind.

However, the greatest differences (in terms of numbers of measures and significance) are seen between the Public Services and the Consultancy/Professional sector. The latter outperform Public Services both in terms of business practice and operational performance, with ten measures showing significant differences at the 0.1% level. They

lead especially in Service Delivery and Quality, even though this is an area of strength within the Public Services and are also ahead in some measures of HR performance such as *recognition and reward* and *employee satisfaction* which are significant at the 0.1% level. Public Services on the other hand take a lead on some core strategies. They have a significant advantage in terms of *benchmarking* (where in real terms both cohorts score very poorly on average) and in developing *strategies towards corporate social responsibility*, where they lead significantly over all service sectors. The Consultancy/Professional sector also exhibits a number of other strengths. In particular they include a *quality mindset, reliable service, quality performance, meeting customer needs, high levels of customer satisfaction* and *an increasing market share.*

What are the sector's strengths and challenges in the context of future World-Class attributes?

Business Area	Strengths	Challenges	Future World-Class Attributes
Strategic/Core Issues	Role of Leadership Quality Values	Benchmarks Performance measurement and reporting	The Learning Organisation
Human Resource Issues	Day to day teamwork Listening to staff Employee involvement Employee loyalty	Employee satisfaction	Human resource responsiveness 'Teaming' as a core competency
Service Design and Innovation	Listening to the customer	Clarity of service concept Speed of development Generation of innovative product concepts	The networked organisation Continuous innovation and change management
Service Delivery and Quality	Staff responsiveness Accessibility Real-time' handling of service problems/failures	Quality procedures and frameworks	Customer and market Responsiveness
Service Value and Measurement		Visibility and communication of service standards Elimination of 'waste' Customer satisfaction measurement	The 'Lean' organisation
Business Performance	Cash flow Overall productivity within organisation	Return on net assets Operating costs	Provision of Best Value

Table III: Strengths and Challenges for the Service Sector

These have been summarised in Table III above in relation to six key business areas, along with their related strengths as well. Each issue highlighted focuses on an aspect of change, which will have a great impact on the relevant business area and raise current levels of organisational excellence. Concentrating on one or a few of the challenges listed and building upon the strengths already achieved, would be a way forward. Within each business area, attention is also drawn to some of the attributes that are now recognised by practitioners and consultants alike, as being critical for sustaining excellence in the future. It is in the context of these desired attributes that the challenges facing the sector are described below.

The Learning organisation:
Even though the sector has demonstrated the importance of establishing leadership and quality values at the highest level, the fundamental need to measure and report on internal performance and to compare that regularly with other similar establishments has yet to be adopted rigorously. Without such information on its own performance and how it compares with other similar institutions, it is hard to imagine where and how future improvements could take place.

Human Resource Responsiveness & 'Teaming' as a core competency:
One of the Sector's main strengths is its good set of HR practices in terms of listening to staff, in involving them in teamwork and in generally maintaining their loyalty. However, an issue of concern for the Sector is the level of employee dissatisfaction. In some respects it is surprising that this should be the case, given the HR practices already in place. But it does indicate that more needs to be done if the employees are to be motivated to continue with their support for organisational excellence.

Customer and Market Responsiveness:
The HR strengths are also reflected in the generally very satisfactory levels of service delivery and quality. This is shown mainly through staff responsiveness, accessibility and their ability to handle problems in real time. But even this could be enhanced further by the effective use of quality procedures and frameworks such as EFQM or Baldrige, which appear to have a low priority altogether in the Sector. In other words effective but not bureaucratic systems would contribute to greater service levels provided by its staff.

The Networked Organisation and Continuous Innovation & Change Management:
The Sector also faces several challenges in the area of service design and innovation. Even though it has strengths in terms of listening to customers, there is less emphasis on clarity of service provided, on generating innovative products or services and on the speed with which such developments occur. In the current climate where customers expect high levels of service, which are differentiated and customised for their needs, there is always great pressure on the providers to innovate and improve regularly their service provision. This cultural aspect of innovation and change within the sector is perhaps one of the key issues that has been highlighted by this survey.

The Lean Organisation and Provision of Best Value:
The issues raised here relate to the area of service value and measurement but are also partly a reflection of the challenges faced by the Sector in viewing performance measurement and reporting as a strategic/core issue. In this context, the lack of emphasis on visibility and communication of their service standards, on the low priority given to elimination of internal 'waste' in their systems, and the lack of feedback on customer satisfaction, are issues of serious concern. Focussing attention on these issues will not only have a huge impact on reducing operating costs, improving return on assets and service levels, but would provide a powerful impetus for sustaining the business excellence culture within the Sector.

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Report 2

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North East Manufacturing

A Study of Management Practices and Performance in 300 companies

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North East Manufacturing
A Study of Management Practices and Performance in 300 companies

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2. What measurement tool was chosen, why and how was it used?
3. What is the profile of the companies involved?

Key Questions answered:

1. Given the established scales of world-class status, how can the North East sample be best described?
2. Does the above pattern demonstrate that better practice leads to higher performance?
3. Amongst possible discriminants, do company size, industrial sector and ownership have any bearing on the observed world-class groupings?
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3. What are the sector's strengths and challenges in the context of future world-class attributes?

REFERENCES

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EXECUTIVE SUMMARY

I. Overall features of the manufacturing sample

On Strategy and Leadership:
- The sector as a whole is strong on providing the necessary vision and leadership.
- But senior managers need to provide greater investment, commitment and emphasis for developing employee skills especially on improving quality and service levels.
- Also, they need to establish a company-wide culture for measuring and reporting non-financial performance, and make greater use of benchmarking practices.

On Human Relations Issues:
- Greater job flexibility amongst the workforce is being encouraged but there is still a wide variation in their output and skills levels.
- The 'internal customer-service' concept is being emphasised with employees including the tracking and dissemination of (external) customer requirements.
- Sharing of vision, mission and goals is restricted to management only and could be extended much further down the line.
- Employee involvement has yet to achieve wider participation including providing open access to management and empowering individuals throughout the business.
- Problem solving skills are limited to systems and processes for recognising and responding to problems, with little emphasis on people and teamwork.
- Employee morale is generally low and the need to relieve pressure, stress and anxiety fairly high.

On Quality:
- Approaches to quality reflect an emphasis on documentation and accreditation and there is a fundamental need to progress to continuous improvement, greater customer involvement and use of quality frameworks such as EFQM.
- Customer-related measures of quality performance are fairly satisfactory but can improve further. Customer satisfaction measures reflect few complaints but not delighted customers. Product failures in-service are relatively low, but could reduce further. Similarly, the record on meeting delivery commitments is satisfactory but only when considered over a longer period of time.
- However, internal performance measures of quality could improve considerably, particularly in relation to process capability and levels of internal defects.

On Innovation and New Product Introduction:
- Fairly traditional methods and mainly internal resources are used for generating innovative product concepts and generally minimum risk taken with any new ideas.
- In general, greater forethought is required in planning future products, including greater customer involvement in the process.
- Also, design cycle times are at best static, leaving considerable room for improvement. This applies throughout the design cycle, both in the time from initial concept to design freeze, and the time from production release to general availability.

On Manufacturing Operations:

- Strengths on the whole, include the operation of 'pull scheduling' methods for releasing orders into manufacturing; relatively low production cycle times (4 to 5 times raw process time); shorter equipment change-over times; a movement towards smaller and balanced production batch sizes; and generally the maintenance of uncluttered work areas.

- Challenges on the whole include improving equipment layout; reducing levels of work-in-progress and adopting preventative maintenance practices. Also, inventory turns could be substantially raised from current levels of 10 to 15 per annum and the proportion of high priority orders reduced considerably from present levels of typically 10% to 15%.

On Manufacturing Engineering:

- Considerable improvements are possible, and indeed are necessary, in the design/engineering and the design/manufacturing interfaces through concurrent engineering practices and the use of information technology for data management.

On Business Performance:

- Generally this is positive, even though the growth shown by the sector as a whole is modest on all measures considered, namely, market share, return on assets, productivity and cash flows. However, operating costs are increasing and having an impact on competitiveness.

II. How does this profile vary by industrial sector (relative to the whole sector)?

Industrial Sector	Strengths	Challenges
Electrical and Electronic Engineering	Product Technology strategy High levels of job flexibility Documenting and improving quality processes Developing long term supplier relationships Attention to new product introduction Attention to equipment layout and changeover Good levels of 'housekeeping' Competitive in terms of product customisation	Provide vision on customer service and quality Develop performance measurement and reporting Raise staff morale Improve record on delivery commitments met Reduce internal defect levels Adopt preventative maintenance progressively Lower production cycle times Decrease inventory levels Increase levels of customer satisfaction Raise levels of general business performance Improve growth rates Increase current levels competitive advantage
Engineering	Competitive advantage in terms of price and product customisation	Focus on improving business strategies Improve record on delivery commitments met Improve design/manufacturing interfaces Reduce levels of priority orders in the system Raise levels of general business performance Increase profitability Improve competitive advantage on quality, lead times and reliable on-time delivery
Household and General Goods	Vision Good levels of 'housekeeping' Low production cycle times Low levels of priority orders in the system Strong record on delivery commitments met High employee morale Improving market share Growth Rates in turnover and profitability Efficiency gains – reduction in employees Overall Competitive advantage	Improve core business strategies Improve practices in manufacturing engineering Enhance customer orientation Increase horizons for life cycle planning Implement strategies for product development Introduce strategies for in-service design monitoring Increase Cash Flows and return on net assets
Process Industries	Company-wide strategic planning processes H. R. practices and performanc Strong record on delivery commitments met Efficient manufacturing operations Overall business performance Growth in turnover, profitability and customers Efficiency - growth in employees slower Overall competitive advantage	

III. How does this profile vary by size band (relative to the whole sector)?

Size (No. employees on site)	Strengths	Challenges
Micro (up to 20)	Vision Good H. R. practices Satisfied customers Fulfilling delivery commitments Low levels of internal defects Efficient manufacturing operations Increasing Market Share Reasonable Growth rate Overall competitive advantage	Focus on improving business strategies Share vision and ambitions with employees Improve quality processes continuously Develop long term supplier relationships Reduce cycle times (design and time to market) Improve equipment layout Adopt preventative maintenance progressively Reduce levels of priority orders in the system Improve Cash Flows Improve levels of profitability
Small (21 to 50)	Increasing Market Share Overall competitive advantage	Focus on business strategies Share vision and ambitions with employees Increase levels of employee involvement Improve quality processes continuously Reduce levels of internal defects Improve performance on new product introduction Improve Cash Flows
Medium (51 to 200)	Documenting and improving quality processes Developing long term supplier relationships Managing design/manufacturing interfaces	Improve H. R. practices Increase levels of job flexibility Improve overall business performance Raise levels of growth Develop competitive advantage
Large (201+ employees)	Business led manufacturing strategies Performance measurement and reporting Company-wide strategic planning processes H. R. practices New product introduction, life cycle planning Attention to plant and equipment layout Low levels of priority orders in the system Plant preventative maintenance Increasing cash flows Increasing productivity Increasing growth (turnover, profitability etc.) Adoption of lean manufacturing practices	Share vision and ambitions with employees Increase levels of employee involvement Raise staff morale Improve quality processes continuously Develop long term supplier relationships Increase supplier/customer involvement in design Develop competitive advantage

IV. Leaders (top 20% of performers) Vs Laggers (bottom 20% of performers)

- Significant differences exist on all practice and performance measures considered.
- In terms of size, this is repeated to the same extent for both measures amongst micro, medium and large companies, but to a lesser extent in the small size band.
- Sector-wise, a similar pattern on both measures exists within the Engineering and Process sectors, but to a lesser extent in the Household and Electrical sectors.
- In the Electrical sector, differences are not so significant on Strategy and Leadership issues and in manufacturing operations. These features are also observed in the Household sector, where in addition differences are not so significant on new product introduction and business performance measures in general.

Section 1: Background to the NE Regional Benchmarking Study

Why and how was this 'benchmarking' study undertaken?

In the North East of England, the regional Business Support Partnership has developed a common approach to analysing the competitiveness of businesses. Coordinated by Newcastle Business School (NBS) on behalf of One North East (ONE – the Regional Development Agency), this novel approach continues to be deployed and developed, building on an initial 'diagnostic' benchmarking study which involved 740 companies between January 1997 and March 1999.

Two key features of the study were the involvement of every major business support agency in the region, and the intensity of coverage of the business population. Companies were encouraged and assisted to participate by, among others, five TECs and Business Links, the Northern Development Company, five universities, the Regional Technology Centre, the Northern Business Forum, the Regional Chamber of Commerce and CBI, F.E. colleges, local authorities and sector and professional associations. Several of the region's prominent companies encouraged their suppliers to participate, and others opened their doors for the benchmarking programme, allowing participants to see the host's operation at first hand. The sample covered every major sector of the regional economy.

Companies were invited to participate by the agencies most relevant to them, through workshops throughout the region. This provided the opportunity for business advisers to be associated with a company's benchmarking process, and when asked, to assist them with their development.

Participation was voluntary, and the sample cannot be described as statistically random. However, the greater intensity of coverage of a defined population (in relation to comparable benchmarking studies) increases the likelihood of obtaining a representative picture. To make the study sample as representative as possible, participation was monitored throughout and under-represented categories of company were encouraged to participate.

The nature of benchmarking is such that it requires substantial effort on the part of the business to ensure that the data and judgements submitted are as accurate and realistic as possible. If the process is to deliver substantial benefits, it must not be based just upon the readily available; it must also probe into aspects of performance that are not regularly measured. Some aspects are difficult to measure including the company's internal processes, and the extent of deployment of "best practice". Such judgements are not always easy to make - it takes time and effort on the part of the company, and in some cases it requires courage.

What measurement tool was chosen and how was it used?

The benchmarking tool was called PILOT. It built directly upon the work of the Made in Europe studies (Hanson et al, 1994 and 1996), and the International Service Study which followed them (Voss et al, 1997), which has continued in the form of "PROBE", administered in the UK by the Confederation of British Industry (CBI). The University of Northumbria at Newcastle has adapted PROBE for the purposes of the North East's benchmarking approach, to be applicable to smaller businesses and to be more readily applied to a large sample. Compatibility with national/international schemes was incorporated into PILOT to allow comparison of regional findings with the national and international scene.

PILOT compares the company's operational practices and performance (in 5 key areas of Strategy, People, Design, Operations and Quality) with standards regarded as world-class (see Hanson et al 1994).

Data was collected using a self-assessment process involving a questionnaire, undertaken by a small group of company representatives, facilitated and quality assured by the research team at workshops. Representatives from several participating companies met and worked together to calibrate their individual responses. About 75 workshops were held over a two-year period at different venues across the region. Around 50 facilitators who were drawn from various support agencies supported these workshops. The facilitators provided consistency explaining how the process worked and most importantly, stressing the need for honest responses. However, the workshop sessions did highlight that many respondents had drafted their questionnaire responses through limited consultation with colleagues. This was despite encouragement from facilitators to consult more widely within their organisation. In small organisations (i.e. less than 50 employees), it was more likely that the questionnaire was initially completed by a single person. That said, statistical analysis shows there was only a limited number of questions where the response score was significantly associated with the method of completion. Encouragingly, only a small number of companies participated in this survey without attending any workshop. The advantages of the workshop approach include the opportunity to learn about various benchmarking techniques and try one in particular (i.e. PILOT) in a "live" environment with a relatively small investment of time. The workshops also allowed efficient company data validation and proved persuasive in encouraging participants to progress to more in-depth benchmarking. While PILOT focuses on the company's operational practices and performance, supporting data is also gathered covering aspects such as ownership, markets and market development, finance, sustainability and inclusion, the impact of change and usage of external advice and assistance.

What is the profile of the companies involved?

The PILOT manufacturing sample consists of 298 responding companies located in the TEC regions Tyneside, Durham, Tees Valley, Sunderland and Northumberland (Figure 1).
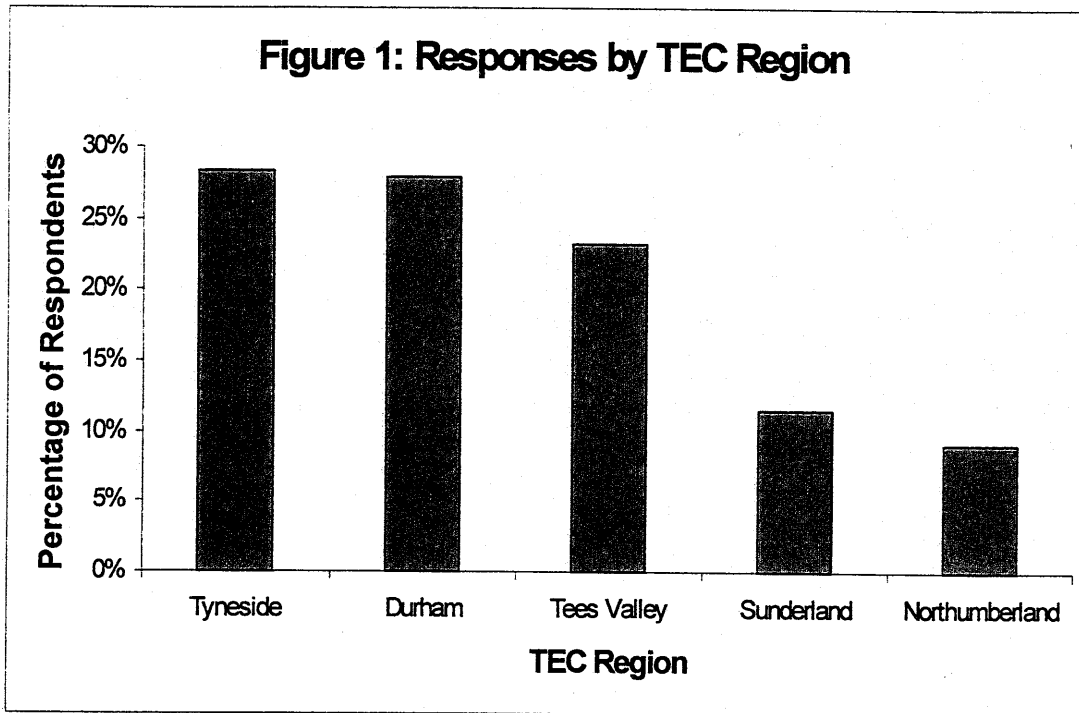
Figure 1: Responses by TEC Region

A bar chart titled "Figure 1: Responses by TEC Region" showing Percentage of Respondents on the y-axis (0% to 30%) versus TEC Region on the x-axis. Bars: Tyneside ~28%, Durham ~28%, Tees Valley ~23%, Sunderland ~11%, Northumberland ~9%.

In this analysis, sites which employed less than 10 people were not targeted, and a separate benchmarking tool specifically for use with micro companies has been developed and deployed. Further development work is on-going with this new tool (Micro Business Review) with a view to involving large numbers of micro-enterprises in benchmarking. The distribution of respondents in the manufacturing sample (Figure 2) by company size (as defined by number of employees on site) was:

- Micro - sites which employ 10-20 people (19%)
- Small - sites which employ 21-50 people (20%)
- Medium - sites which employ 51-200 people (37%)
- Large - sites which employ 200+ people (24%)

Figure 2: Distribution of respondents by company size
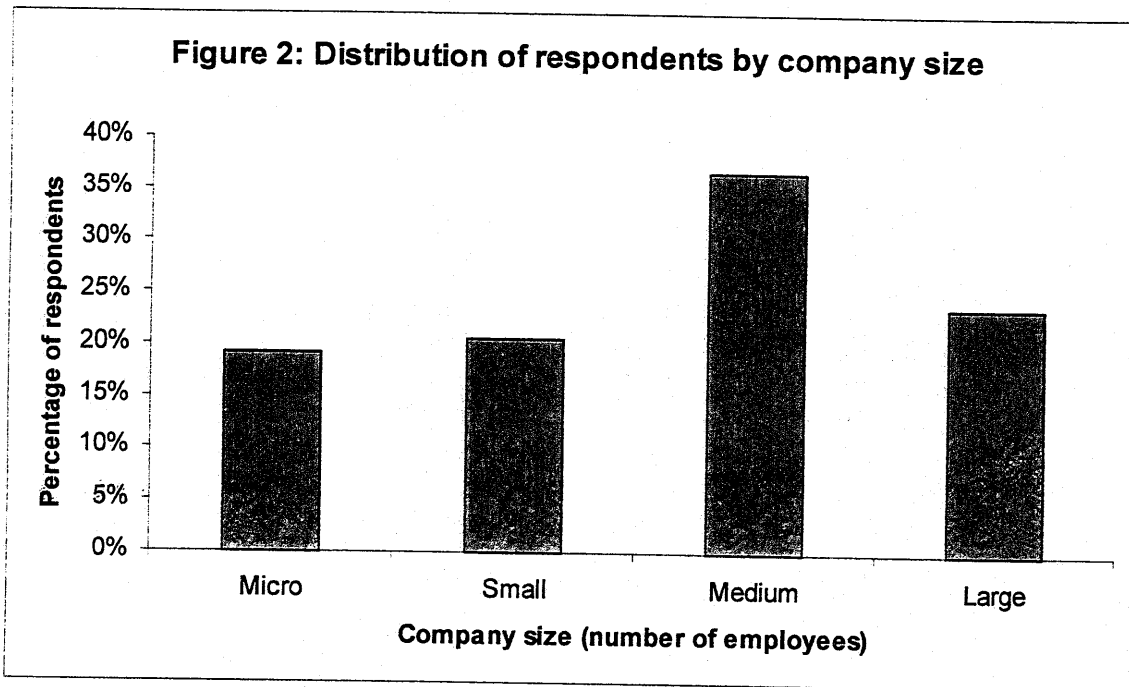
The manufacturers sampled in this survey covered industries involving continuous process and those who are involved in the production or assembly of discrete products. Companies are combined into five main groups (Figure 3).

- Electronics and Electrical Engineering (12%)
- Engineering (37%)
- Household and General Goods (10%)
- Process (29%)
- Other (12%)

Figure 3: Responses by Major Industrial Sector
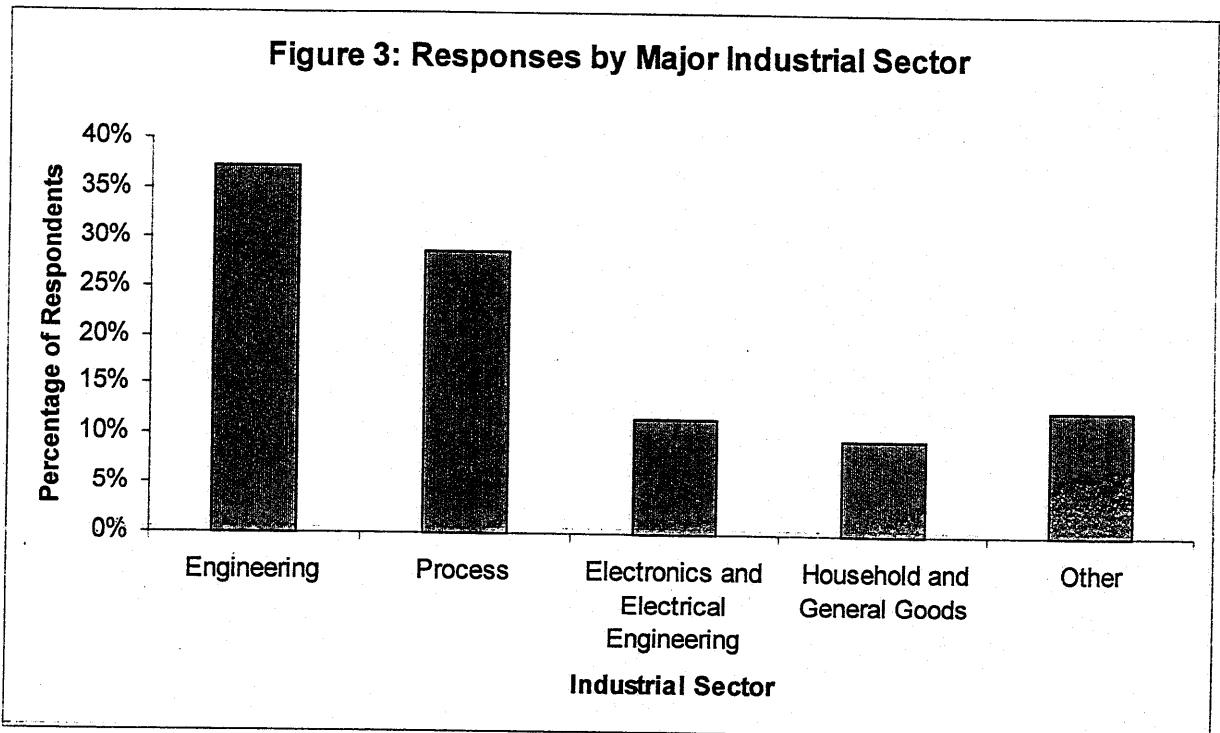
Within the sample, 54% were operating units of a larger company compared to 46% of companies who were owned independently. The overwhelming majority of these (78%) are UK owned (78%). Company ownership is related to both size of the organisation (as indicated by the number of employees on site) and their industrial sector. Over 80% of those respondents who were operating units of a larger company were either medium or large. In contrast, only 6% of the independently owned companies were large (Figure 4).

Figure 4: Distribution of companies within each ownership category by size
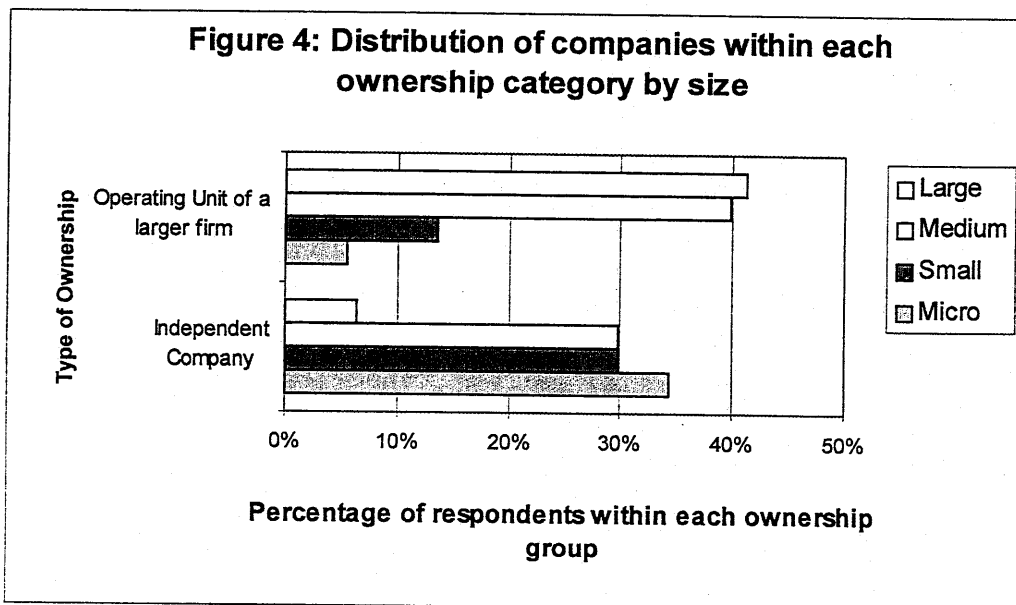
Clear differences in ownership exist amongst the four main sectors considered in this analysis. A clear majority of the Electronics and Electrical Engineering group (67%) and Process (64%) are operating units of a larger company, whilst the majority of Engineering (56%) and Household and General Goods (64%) are independently owned (Figure 5). Moreover, 50% of all independent companies in the data set are Engineering companies.

Figure 5: Distribution of ownership by Sector
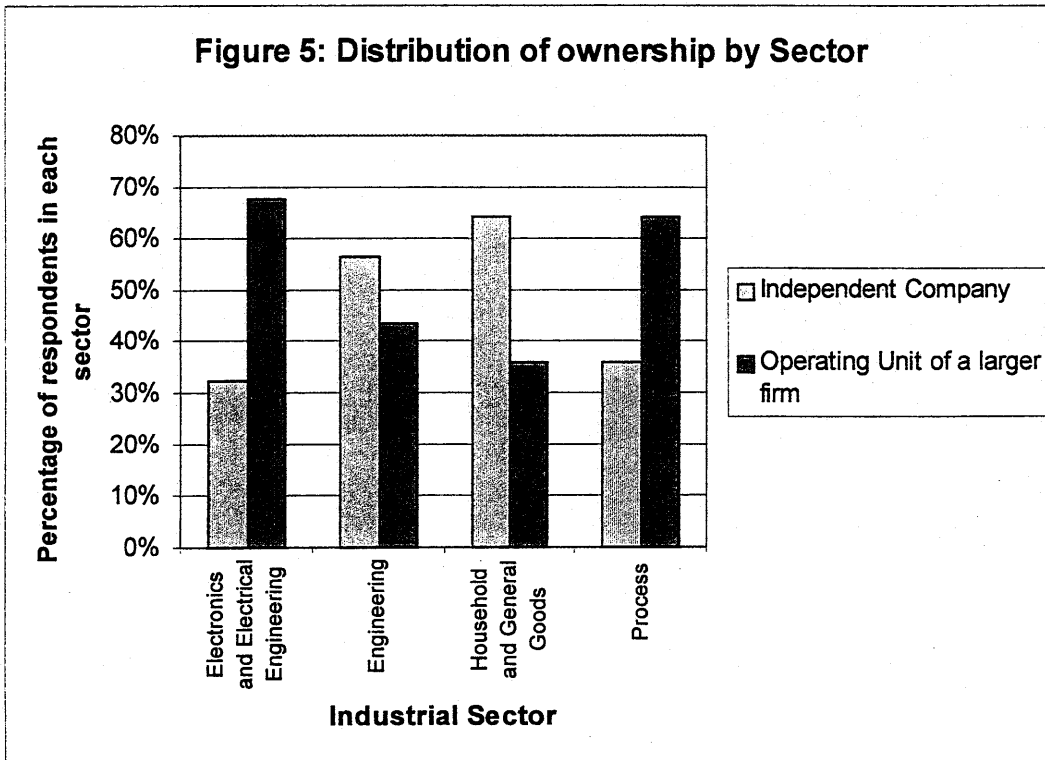
The majority of respondents in each size band serve markets located in the North East region and the rest of the UK. Excluding Eastern Europe and USA, a significant proportion of large companies serve markets in each of the other locations; 76% of these serving markets in Western Europe, 51% in the Asia Pacific and 54% in the Rest of the World. With regard to the other three size bands, only a minority of each group serve markets outside of the UK, with exception of 53% of the medium sized companies serving markets in Western Europe (Figure 6).

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Figure 6: Percentage of companies by size band serving geographic markets
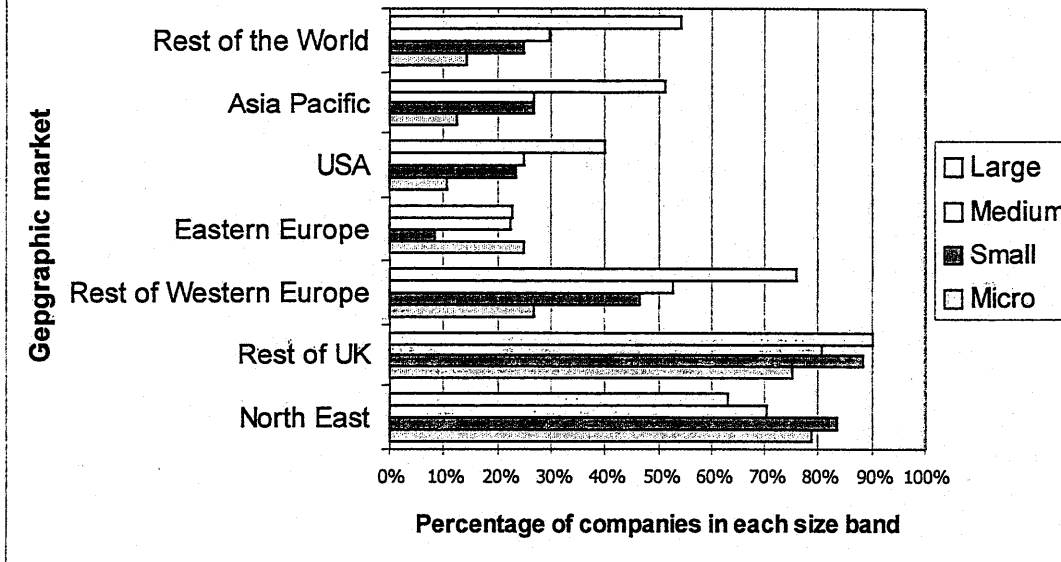
Most of the companies in the four main industrial sectors serve markets in the North East region and in the rest of the UK (Figure 7). A minority of organisations serves markets in each of the overseas locations considered, except for 57% of Electronics and Electrical Engineering companies who serve markets in Western Europe.

Figure 7: Percentage of Companies by Sector serving geographic markets
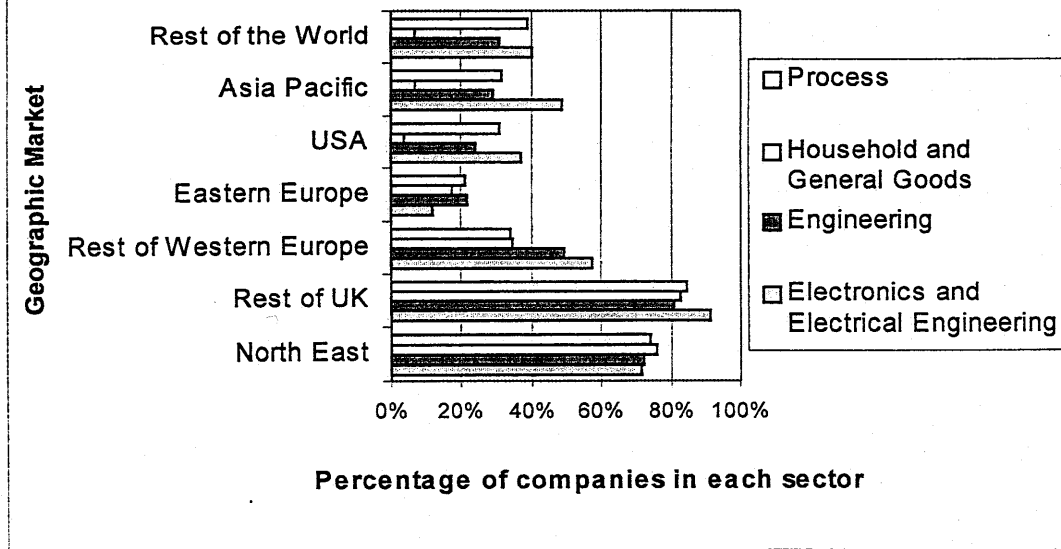
The majority of companies in each of the size bands performed the design of their products on site, ranging from 63% of the large companies in the sample to 71% of the micros (Figure 8).

Figure 8: Percentage of companies by size band with design source
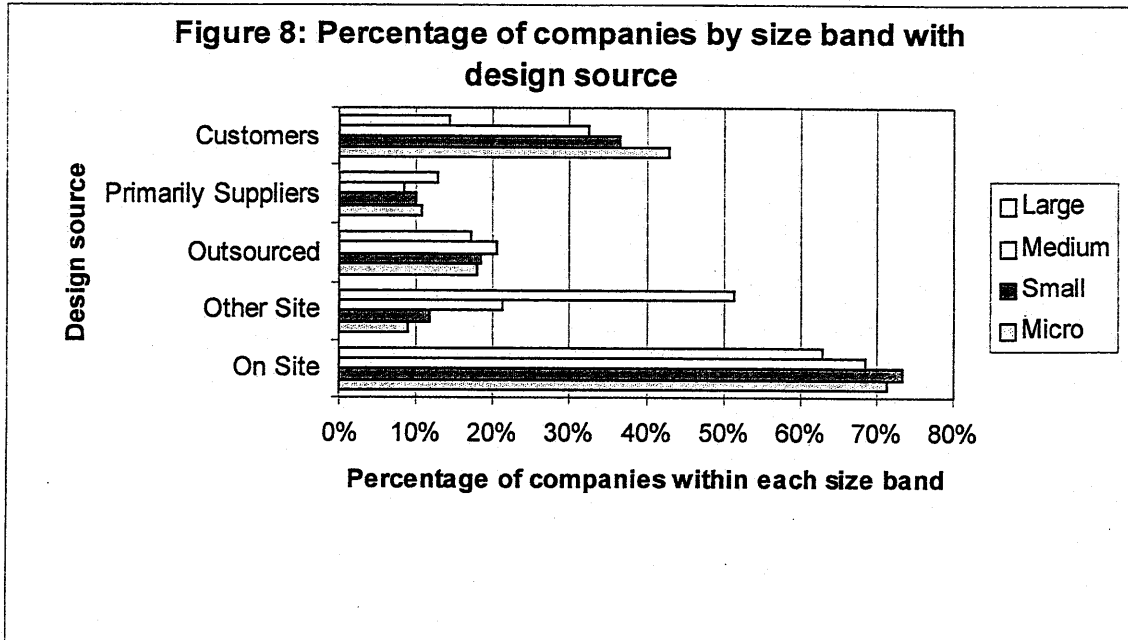
A minority (10%) of respondents in each size group had design work performed by suppliers whilst 18% of each size band outsourced this activity. The use of customers in design is directly related to organisation size, with the micros having the greatest proportion and the large companies the least. In contrast, a clear majority (51%) of the large companies have design work performed on other sites, whilst only 9% of the micros engage in this activity. This result is likely to be related to the nature of company ownership, where the large companies are more likely to be operating units of a larger company.

With respect to sector, the majority of each of the four main groups performs design work on site (Figure 9). The Engineering sector has the biggest proportion of companies who involve Customers in this aspect of their work.

Figure 9: Percentage of Companies by Sector with design sources

Horizontal axis: **Percentage of Companies in each sector** — 0%, 20%, 40%, 60%, 80%

Vertical axis: **Design Source** — Customers, Primarily Suppliers, Outsourced, Other Site, On Site

Legend:
☐ Process
☐ Household and General Goods
■ Engineering
☐ Electronics and Electrical Engineering

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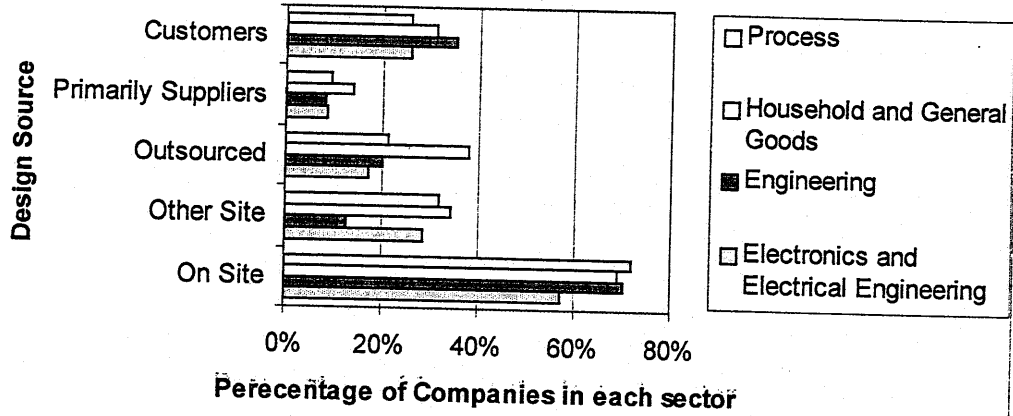
Section 2: World-Class Maturity Levels in Manufacturing

How can the North East sample be best described?

Companies reaching a score of at least 80% on both scales (practice and performance) are deemed to have achieved World-Class standards. Figure 10 shows the aggregate practice and performance scores for each of the 298 companies.
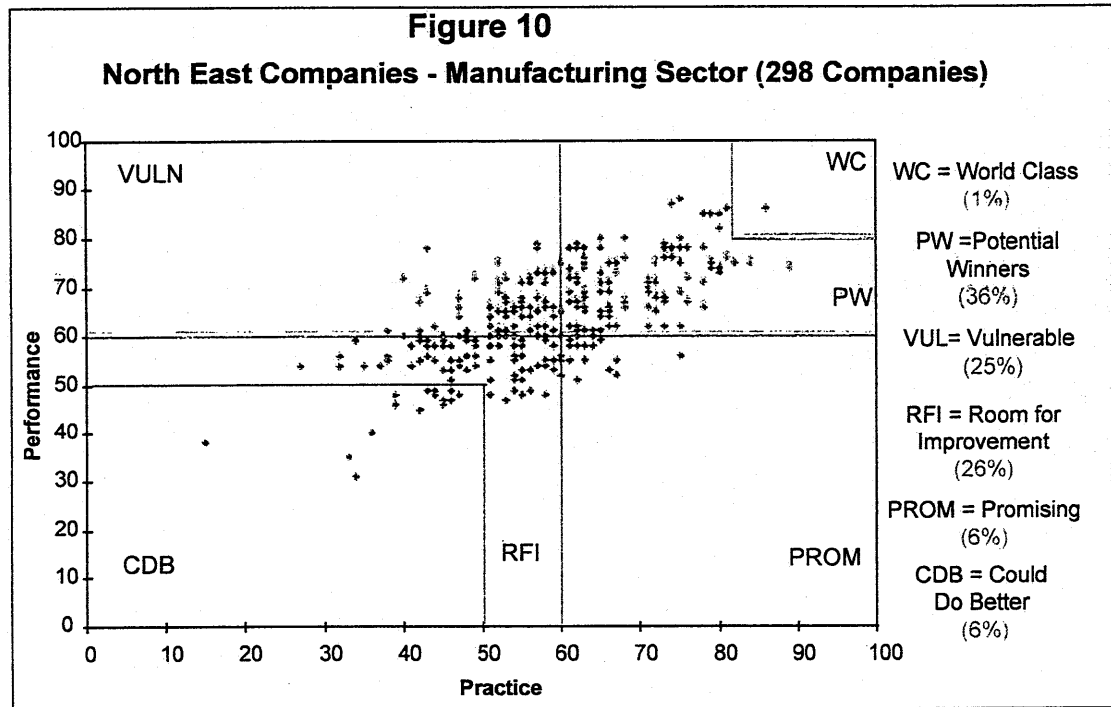
Figure 10

North East Companies - Manufacturing Sector (298 Companies)

WC = World Class (1%)

PW =Potential Winners (36%)

VUL= Vulnerable (25%)

RFI = Room for Improvement (26%)

PROM = Promising (6%)

CDB = Could Do Better (6%)

The sample was sub-divided further into six categories based on their practice and performance scores, which are defined below:

World Class (WC)
Only 1% reached this level.

Potential Winners (PW)
This group has achieved relatively high levels of practice and performance, though many of them could still achieve more. They represent 36% of the manufacturing database.

Room for Improvement (RFI)
These respondents demonstrate worryingly low practice and performance levels and account for 26% of the companies.

Vulnerable (VULN)
This group represents 25% and are achieving high performance levels but without the support of good practices, making them particularly susceptible to market changes or world class competitors. Typically, their high level of performance is achieved at a high cost, perhaps including an over stretched workforce compensating for some weak business processes.

Promising (PROM)
A small proportion (6%) are adopting good to better practice but have yet to realise the improvements in their performance.

Could do Better (CDB)
6% are classed as 'Could do better'. They have a long way to go if they are to achieve world class performance.

Does the data suggest that better practices lead to higher performance?

Applying the practice-performance model, there is an established belief that if a company adopts best practice, then this will lead to high operational performance. To what extent is this true amongst the North East manufacturers?

Overall there is significant association at the 0.1% level between overall practice and performance score. Equally significant is the association between the two aggregate measures amongst the leading companies, who have been described as PW/WC. This would suggest that this cohort of companies have strong underlying practices and high operational performance.

The relationship between practice level and operational performance just fails to be significant for two cohorts of manufacturing companies, namely the RFI and CDB, where the association just fails to be significant at the 5% level. Again, a level of association would be expected since both groups have a relatively low level of both practice and performance.

To what extent do other factors such as size, ownership and industrial sector have an impact on World Class Status?

Does Company Size influence World Class Status?

There is a strong relationship between a company's world class status and its size in terms of number of employees (Figure 11), which is significant at the 0.1% level. The PW/WC Company is more likely to be large, namely employing more than 200 people, than any other size. Large companies also have a greater than average proportion of the 'Promising' group. On the other hand, the 'Vulnerable' type of company can be found in greater proportions in the micro and small sized company, namely those employing less than 50 people. Finally, those companies with room for improvement account for a greater than expected number in the medium size band.

Figure 11: Differences from overall (%) by WC Category

Legend: CDB, RFI, PROM, VULN, PW/WC

X-axis (Company Size (no. staff)): Micro, Small, Medium, Large
Y-axis (% Deviation from overall average): -20% to 20%
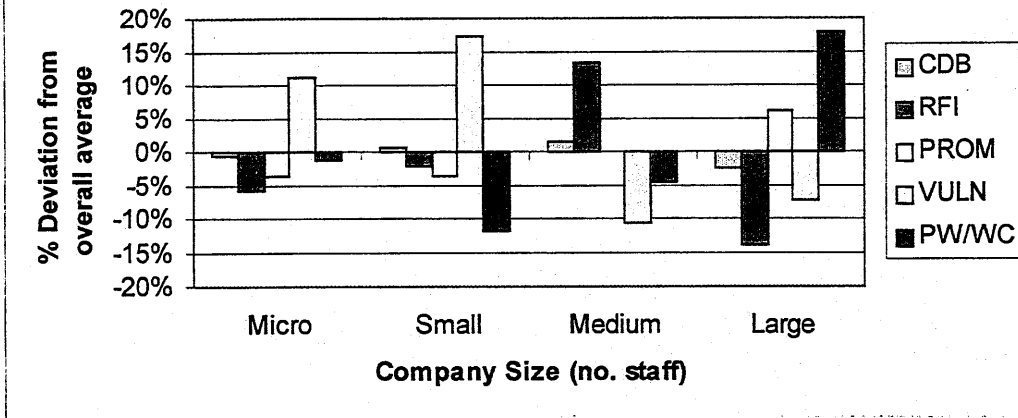
Does Ownership influence World Class Status?

Independent companies have a far greater proportion of 'Vulnerable' companies, whilst the operating units of large companies tend to have a greater than average proportion of PW/WC and 'Promising' companies (Figure 12). This association is significant at the 1% level.

Figure 12: Differences from overall (%) by type of ownership

Legend: CDB, RFI, PROM, VULN, PW/WC

X-axis (Ownership): Independent Company, Operating Unit of a larger firm
Y-axis (% Deviation from overall average): -10% to 12%

21
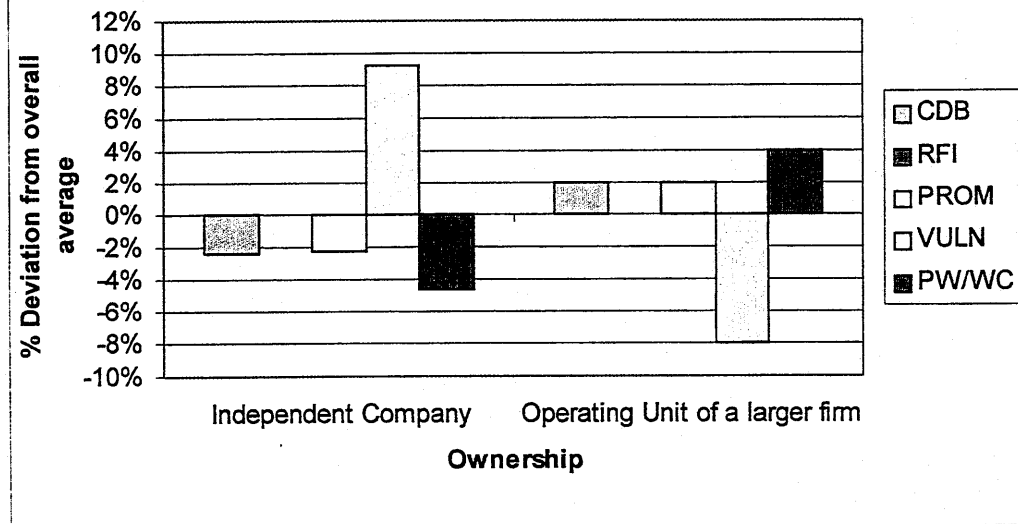
Does Industrial Sector influence World Class Status?

A concentration of certain categories of World Class status within certain industry sectors can be observed (Figure 13). Process industries have a much higher proportion of PW/WC companies, whilst the engineering sector has a much smaller proportion than the average of PW/WC companies. However, the overall association between sector and World Class status is not statistically significant despite the differences that appear in certain groups.

Figure 13: Differences (%) from overall by Industrial Sector
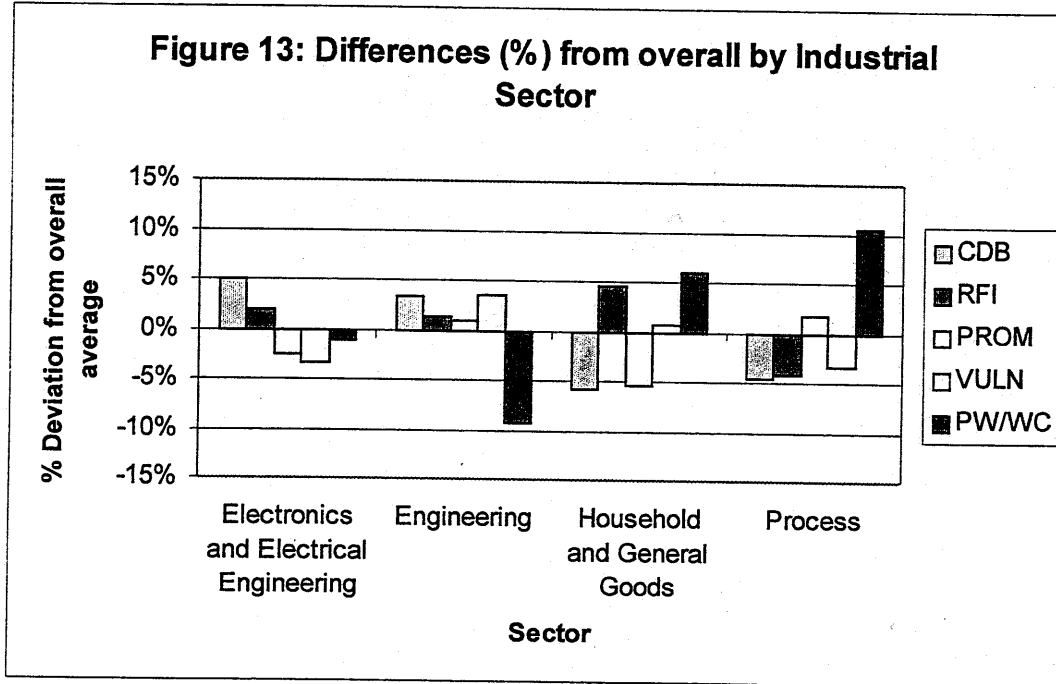
How does the North East manufacturing sector compare with their peers both within the UK and the Rest of Europe?

This breakdown is similar to the UK Best Practice statistics produced in the Made in Europe report (Hanson et al, 1994-1996) except that the North East has a much higher proportion of Vulnerable companies, 25% compared to 9.5% in the National sample (Figure 14). A possible explanation for this is the much larger proportion of 'supplier' companies where attention tends to focus on delivery performance set by the customer, rather than on the practices by which it is achieved. The North East sample also has a greater proportion of companies who are RFI or CDB, i.e. relatively weak in terms of both practice and performance.

Figure 14: Percentage of Companies deviating for each WC category
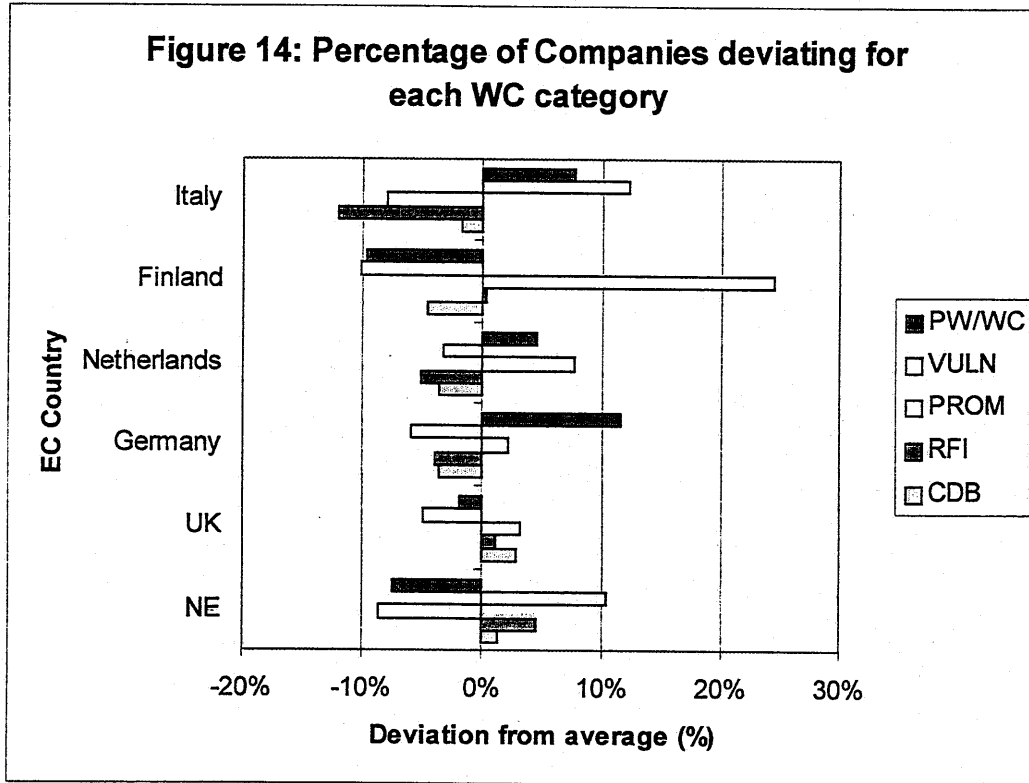
Moreover, the major EC participants in similar benchmarking surveys typically have a greater proportion of respondents who are Promising (with the exception from Finland) or PW/WC when compared to the North East manufacturers (Figure 15).

Figure 15: Percentage difference in WC Categories and other EC Countries
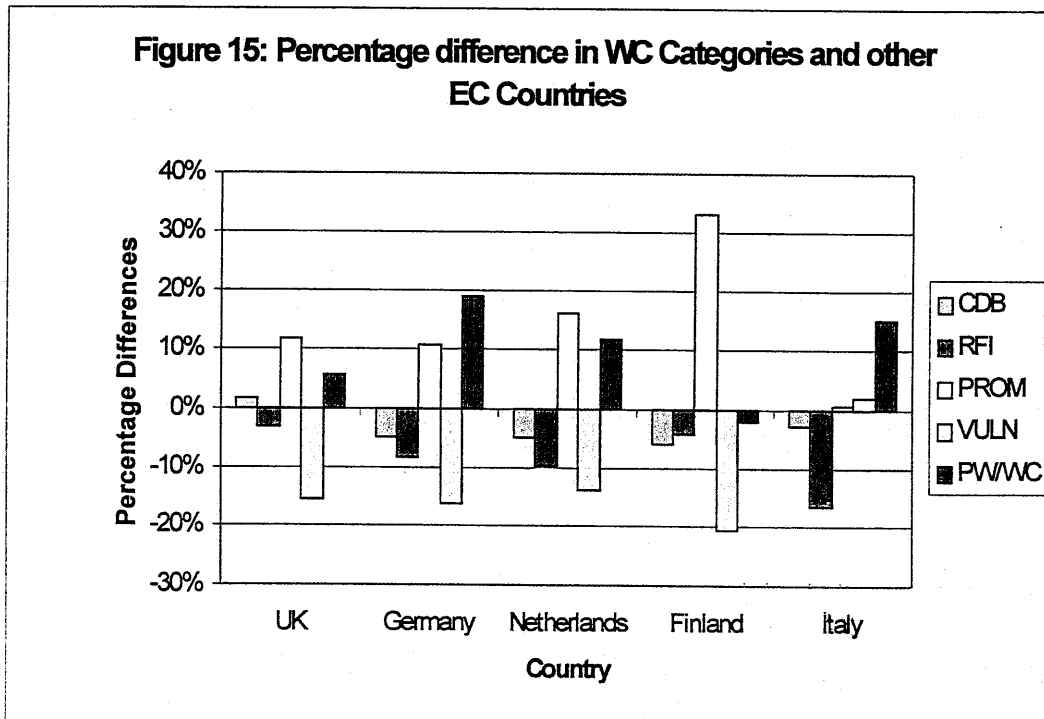
Section 3: Overall Patterns of Practice and Performance

How are the average practice and performance results distributed overall?

All respondents scored from one to five for each of thirty practices and twenty performance measures. These scales represented a scale from the worst to the best in terms of practice adoption and operational performance. Figure 16 below shows the two percentage distributions for the average practice and performance scores achieved by all companies in the sample. The results are quite widespread and demonstrate the extent of variability in adoption and achievement. The overall pattern of distribution in both cases is almost identical, confirming the high degree of association between practice and performance (referred to in Section 2). As a slight variation to that pattern, performance lags practice at the lower end of the 'practice' scale, with the reverse being the case for the higher values of practice scores. It is interesting also to note that none of the fifty measures considered had an average exceeding four and none had an average below two. In other words, there is no single attribute for which the whole manufacturing sector on average has achieved world class standards, and there are none for which they have all barely started.
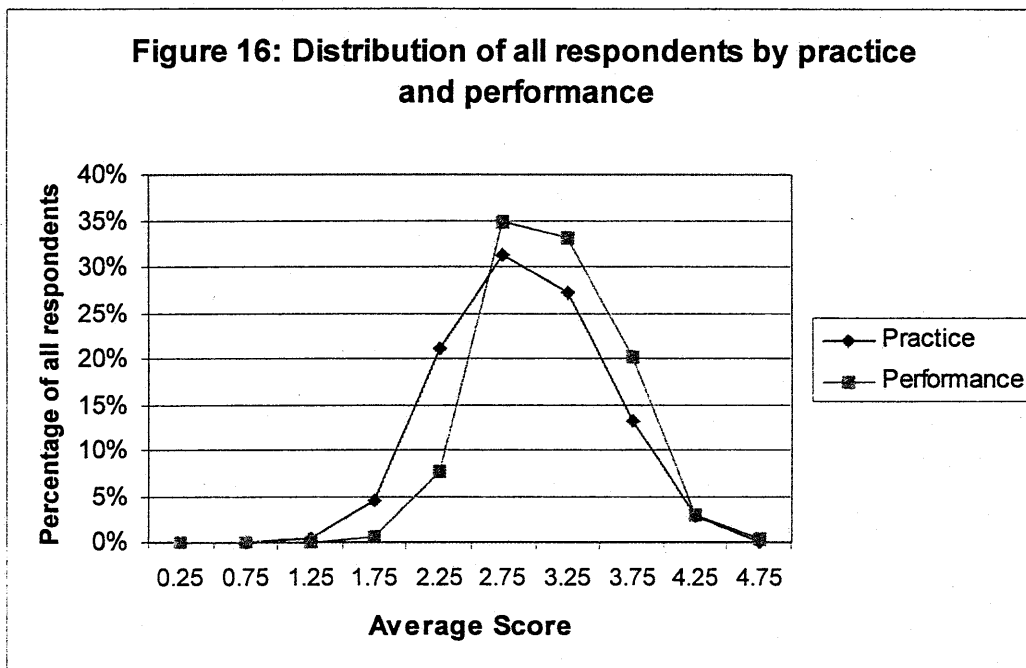
Figure 16: Distribution of all respondents by practice and performance

How are the average scores for practice and performance related to World Class Status?

Figures 17 shows the distribution of average practice and performance scores for the two extreme categories of PW/WC and CDB company, which clearly show the high degree of association between practice and performance.

Figure 17a: Distribution of CDB respondents by practice and performance

Figure 17b: Distribution of PW/WC respondents by practice and performance
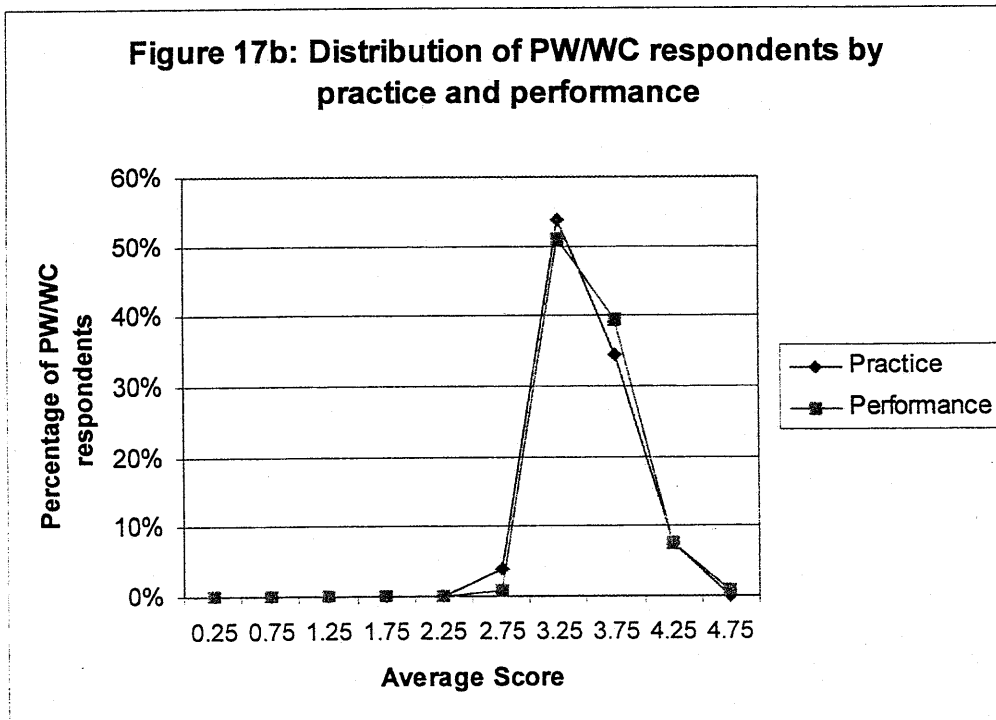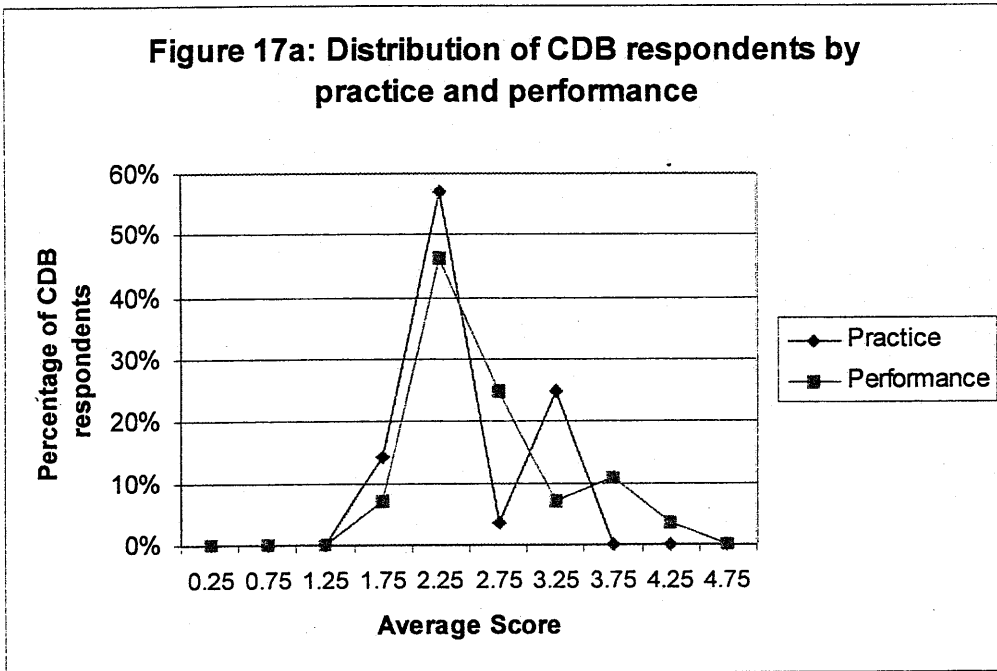
For the remainder, both sets of figures vary but do so consistently. Within 'Vulnerable' companies, performance leads practice whilst 'Promising' companies exhibit exactly the opposite characteristics. The 'RFI' companies reflect patterns similar to the overall sample, but exhibit some of the 'Vulnerable' company characteristics in that performance leads practice quite substantially at the higher practice end, as indicated by Figures 18a, 18b and 18c.

Figure 18a: Distribution of VULN respondents by practice and performance
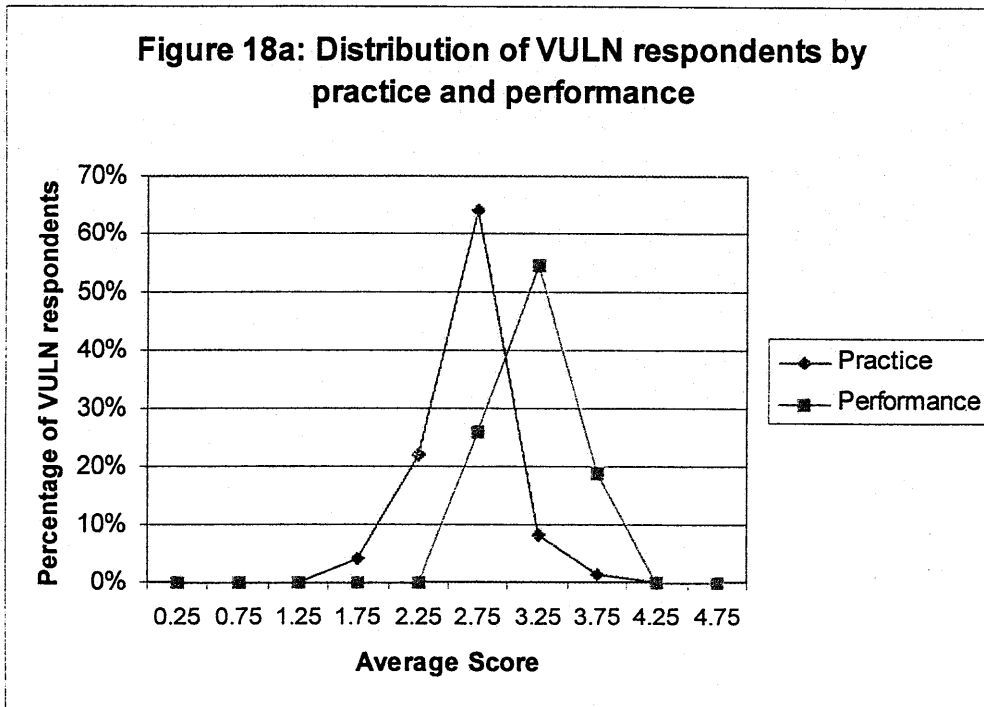
Figure 18b: Distribution of PROM respondents by practice and performance
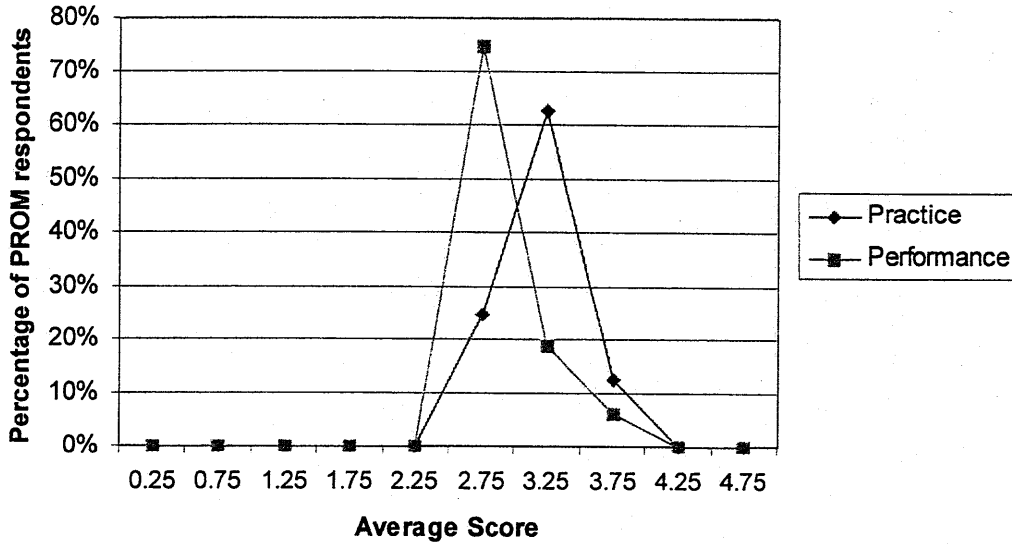
Figure 18c: Distribution of RFI respondents by practice and performance
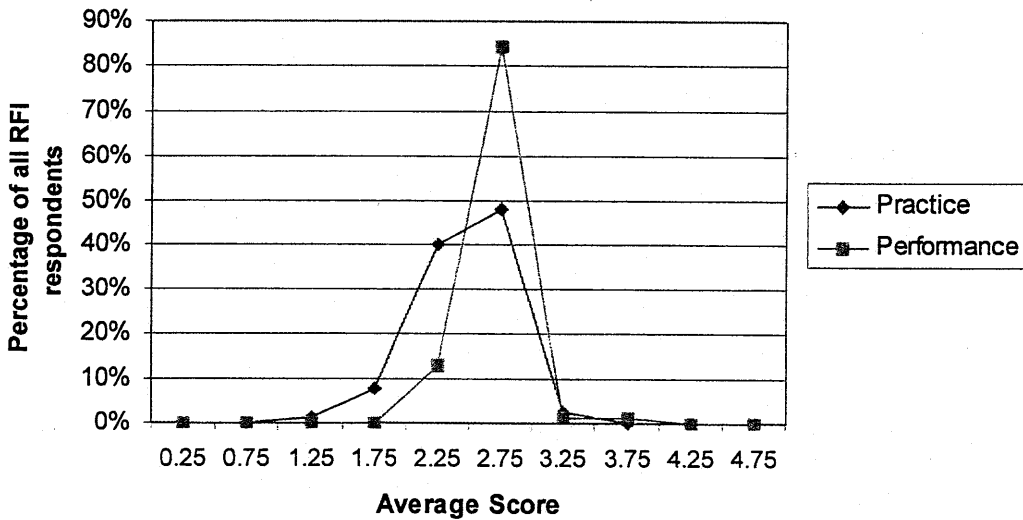
How does each World Class Category compare to the rest of the sample with respect to practice and performance?

Does World Class status demonstrate the link between overall practice levels and their corresponding performance levels?

When compared with the average practice and performance levels for manufacturing industry as a whole, the differences within each World Class category are clear (Figure 19). Companies categorised as PW/WC have overall practice and performance scores that are well above average compared to the rest of the manufacturing sector. In contrast, the companies labeled as CDB and RFI lag behind the other categories. Finally, the 'promising' and 'vulnerable' cohorts of manufacturers exhibit opposite characteristics, with former being practice led but with below average attainment in operational performance.

Figure 19: Average Practice and Performance Compared to all data by WC Status

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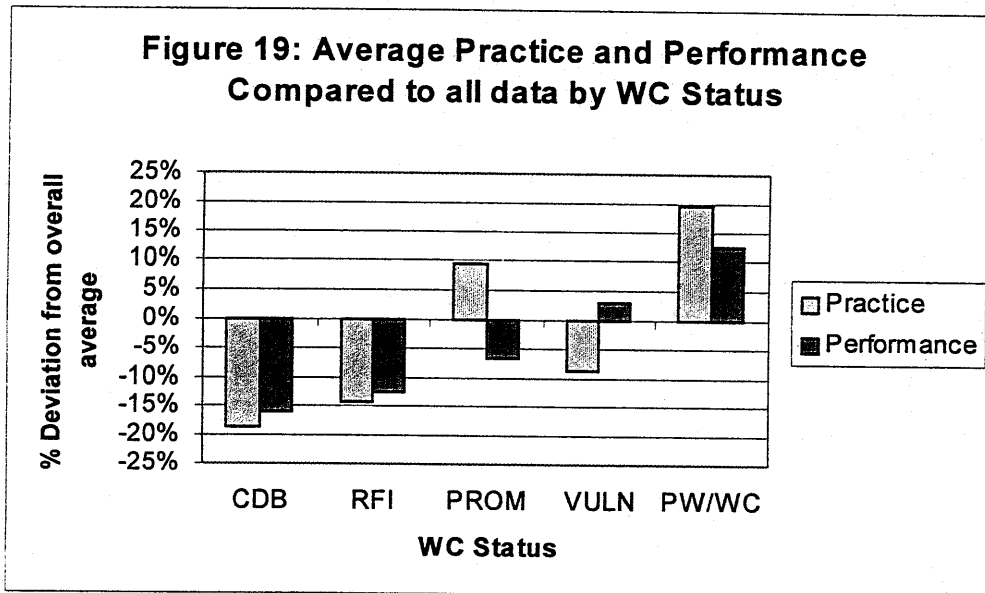
Does the size of a company have any bearing on its overall practice and performance score?

Figure 20: Average Practice and Performance compared to all data by Company Size
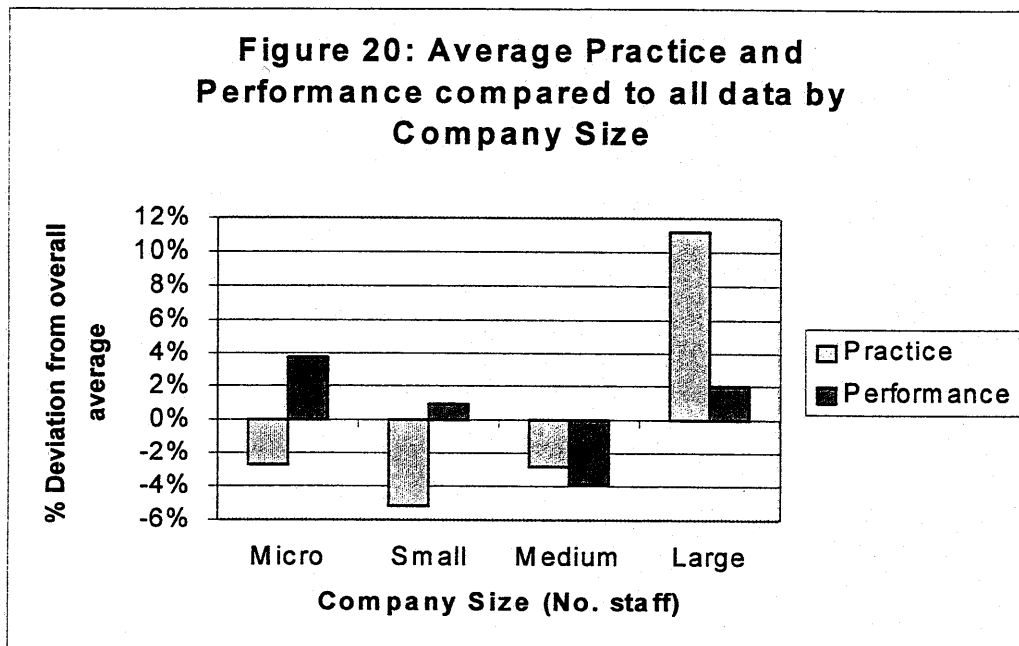
Figure 20 shows that overall practice scores are much higher on average amongst large companies compared to other size bands. However, whilst large companies are on average attaining better performance scores, their advantage is not nearly as pronounced.

Micro and small companies have above average performance scores but below average practice scores. In other words, companies in both size bands exhibit a tendency towards vulnerability currently in their development.

The middle two size bands (i.e. small and medium sized companies) show progressively lower achievement levels than the micros with substantial above average developments when they become large. This indicates a tendency amongst the small and medium sized manufacturers towards being labeled as having 'room for improvement' or 'could do better'.

Do overall practice and performance scores vary across industrial sectors?

A number of patterns can be observed in the manufacturing data (Figure 21). Companies in the Process Industry sector have well above average practice and performance scores compared with every other sector. Typically, companies in this sector are on their way to being 'potential winners'.

Figure 21: Average Practice and Performance compared to all data by Sector
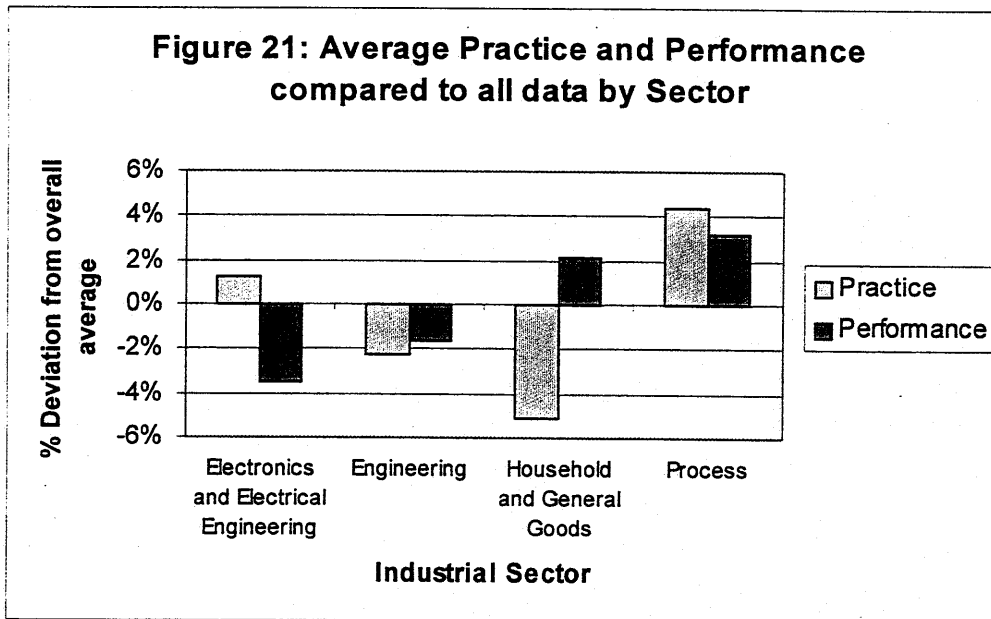
Companies in the Electronics and Electrical Engineering sector exhibit 'promising' characteristics where typically the underlying practices are high relative to the whole manufacturing sector, but the measures of operational performance are still relatively low. In contrast, companies in the Household and General Goods sector exhibit the opposite characteristics, namely higher than average performance levels but supported by considerably lower than average practice scores. Such companies have a tendency towards vulnerability. Engineering companies are typically performing lower than average both in terms of practice and performance.

Does ownership of a company have any bearing on practice adoption and performance attainment levels?

Practice and performance characteristics are polarised with respect to company ownership (Figure 22). Independent companies in the North East manufacturing sector reflect typically 'vulnerable' tendencies since they are performance led and have relatively low levels of underlying practice. In contrast, operating units of large companies show 'promising' characteristics with above average practice levels but below average performance levels.

Figure 22: Average Practice and Performance Compared to all data by Ownership
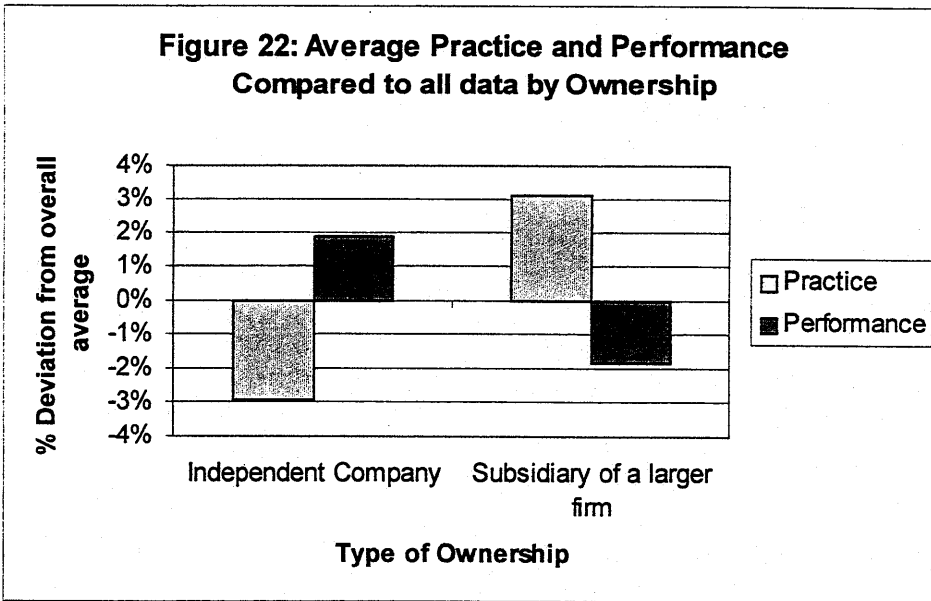
Does ownership location of a company have any bearing on practice adoption and performance attainment levels?

Figure 23: Average Practice and Performance compared to all data by location of ownership
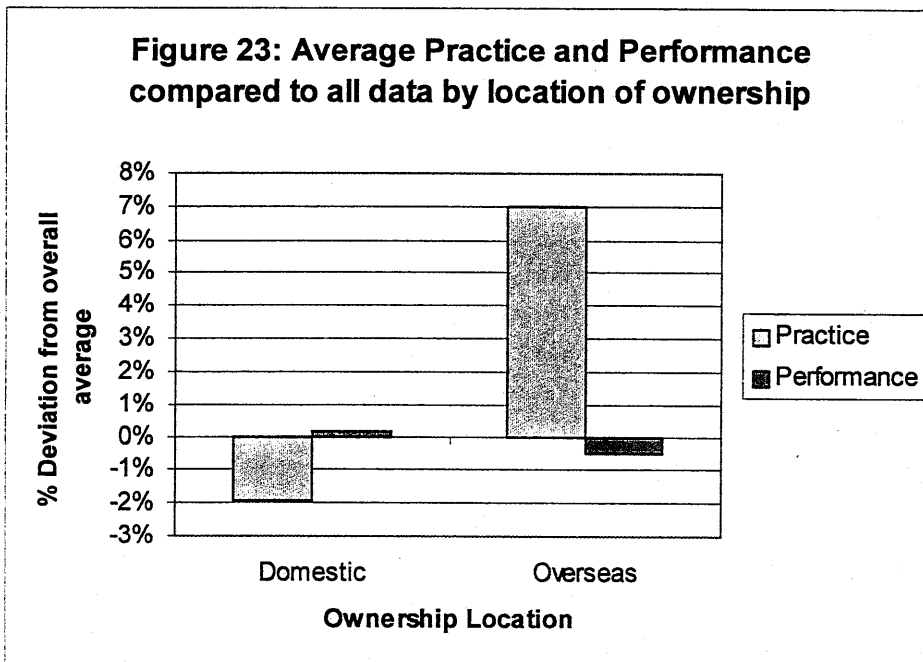
There is a clear demonstration (Figure 23) that while little difference exists between the average level of operational performance between those manufacturing companies who are owned within the UK and those having owners based overseas, clear differences exist in the average level of practice adoption. The companies based overseas are clearly implementing better practices with scores in this area higher than the sample average.

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Section 4:
Further Insights into Manufacturing Practice and Performance

Which practices and performances are more successfully implemented and achieved?

Some key questions arise from the above overall distribution pattern. For example, which of the thirty practices are most or least emphasized by this manufacturing sample? Similarly, with respect to the twenty performance measures, which are achieved most successfully implemented? Also are the practice adoption levels and performance outcomes influenced by company size or industry sector?

For the purpose of this analysis, all measures are grouped by business activity. However, they may not necessarily represent all possible practices or performance measures in that business area. The five chosen headings relate to strategic/core issues in manufacturing, the management of production operations, quality management, employee relations and communications, new product introduction/innovation and manufacturing engineering. Wherever appropriate, practice and/or performance measures are described. Three sets of figures summarise the survey statistics. The first represents average (practice) adoption levels and/or (performance) achievement levels within each business area. Average scores of three and above, represent greater level of adoption for a given practice or higher degrees of success with a given performance measure. The second and third figures relate to differences from the overall average for the various sizes of company and sectors of industry.

Measures related to Strategic/Core Issues in Manufacturing

Figure 24 summarises the average scores for seven practices. The first four relate to strategic issues and the rest to core values in operations management. Most scores are around or below 3 and reflect the scope for further improvement.

Figure 24: Strategic/Core Issues in Manufacturing
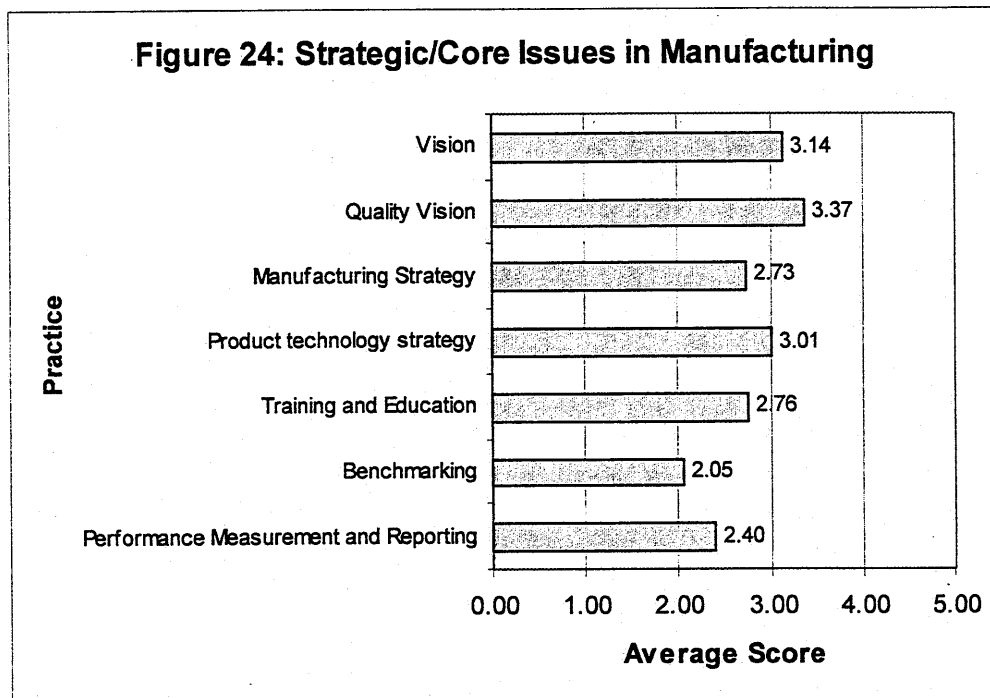
In terms of company *vision*, the average score of 3.14 emphasises good customer service through employee involvement, but falls short of showing leadership in quality and service and an ability to meet varying customer needs at short lead times. With regard to a *quality vision* of zero defects and a 'total quality' mindset there is still a long way to go. The score of 3.37 represents some movement away from inspection and control, to in-process control and quality seen as everyone's job. Less than expected attention is given to formulating a business-led *manufacturing strategy*. The average score of 2.73 presents a picture of a functional strategy for manufacturing, which is framed in outputs and cost targets with short time horizons. In relation to *product technology strategy* the average score of 3.01, reflects a 'project' based approach to technology needs. Ample scope exists for establishing explicit policies for sourcing technologies including in-house research and development and/or licensing through external partnerships.

Three other practices highlight the organisational culture of the manufacturing sample. *Training and development* of employees, normally a critical activity in any quality-driven business, gets less attention than it deserves. The average score of 2.76 reflects at best some skills and development training for all employees. It is still mostly ad-hoc and without the strong emphasis on quality and service.

Performance measurement and its comparison with competitors would be an important practice in any world-class company. However, the average score of 2.4 reflects the use of only cost and output measures but not the full range of balanced scorecard measurements possible. Equally, very little emphasis is given to *benchmarking* against competition and world class standards At best the average score of 2.05 reflects limited use of benchmarks within their own company.

Size is clearly an important factor in the implementation levels as shown in Figure 25. Here percentage deviations from overall average scores are shown for each size category. Large companies clearly lead on all practices, except on vision and quality vision where size appears to provide no significant advantage. The micro company is in exactly the opposite position with well below average adoption levels on all measures, except being *company vision* where it has the highest score for all company sizes. Of particular concern in micros and small companies are the low adoption levels for core practices such as training and education and essential practices such as benchmarking and performance measurement and reporting.

Figure 25: Strategic Practices in Manufacturing by Size

Legend: Vision, Quality Vision, Manuf. Strat, Prod. Tech.Strat., Training & Educ., Benchmarking, Per. Meas.

Figure 26: Strategic Practices in Manufacturing by Sector

Legend: Vision, Quality Vision, Manuf. Strat., Prod. Tech. Strat., Training & Educ., Benchmarking, Perf. Meas.
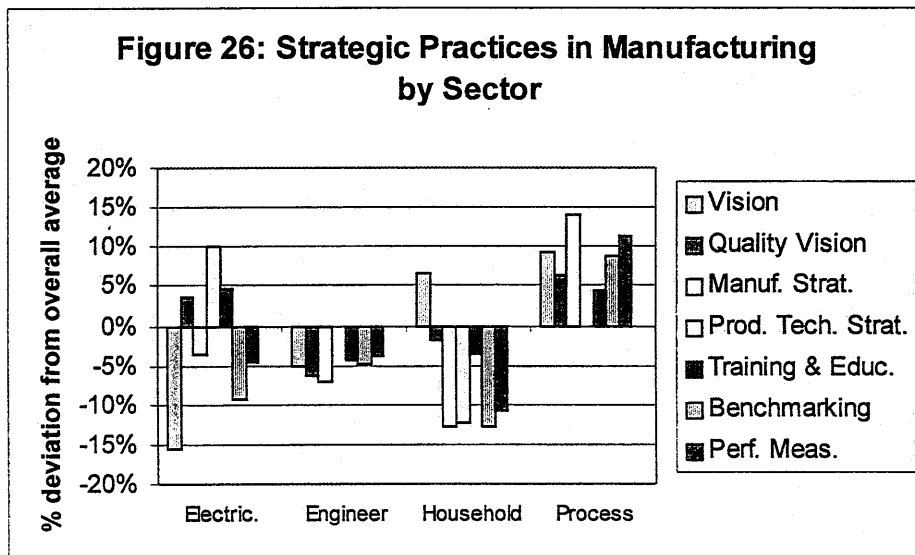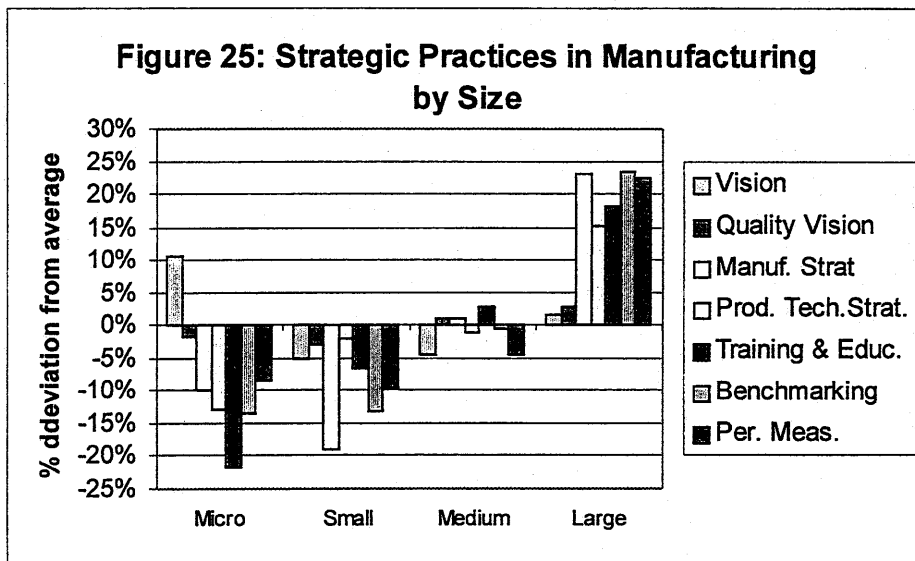
Differences can also be observed between sectors. (See Figure 26). The Process sector has mostly above average levels of adoption across all practices. In contrast, the Household

sector has significantly lower than average scores for most of its practices with the Engineering sector showing lesser deviations but still lower than average scores for all its practices. The Electrical and Electronic sector however, has a mixed set of scores. It has below average scores on benchmarking and performance measurement and reporting, with even greater deviations on company vision. However, it demonstrates above average performance on quality vision, product technology strategy and training and education.

Measures related to Manufacturing Operations

Eleven practice and performance measures were considered. Their average scores are shown in Figures 27 and 28 below and reflect individual strengths and weaknesses. In the context of *order release into manufacturing* the relatively high score of 3.76 shows a significant shift away from weekly scheduling based on orders, towards daily, 'pull' scheduling, even though that is not yet fully established. In terms of factory *equipment layout*, there is still a tendency towards traditional 'functional' layouts coupled with some 'cellular' structures. This results generally in relatively high work in progress, even though some *Kanban* implementation exists. Given the above practices, *batch sizes* are still relatively large, though there is some movement towards smaller and balanced sizes. *Housekeeping* practices are good with an average score of 3.10, but there is still ample scope to achieve clean, orderly workplaces, which have minimum work-in-progress and are self-maintained for 'tour-readiness'. Plant *maintenance* is of some concern. The average score of 2.55 shows that breakdown maintenance is still the dominant practice, though there is some movement towards preventative maintenance and the use of corrective action teams. However this is still a long way from achieving total preventative maintenance, which is performed by operators and synchronised with production.

Figure 27: Practice Issues in Manufacturing

Practice	Average Score
Order release into manufacturing	3.76
Equipment layout	2.76
Kanban	2.67
Batch sizes	3.12
Housekeeping	3.10
Maintenance	2.55

0.00 1.00 2.00 3.00 4.00 5.00

Average Score
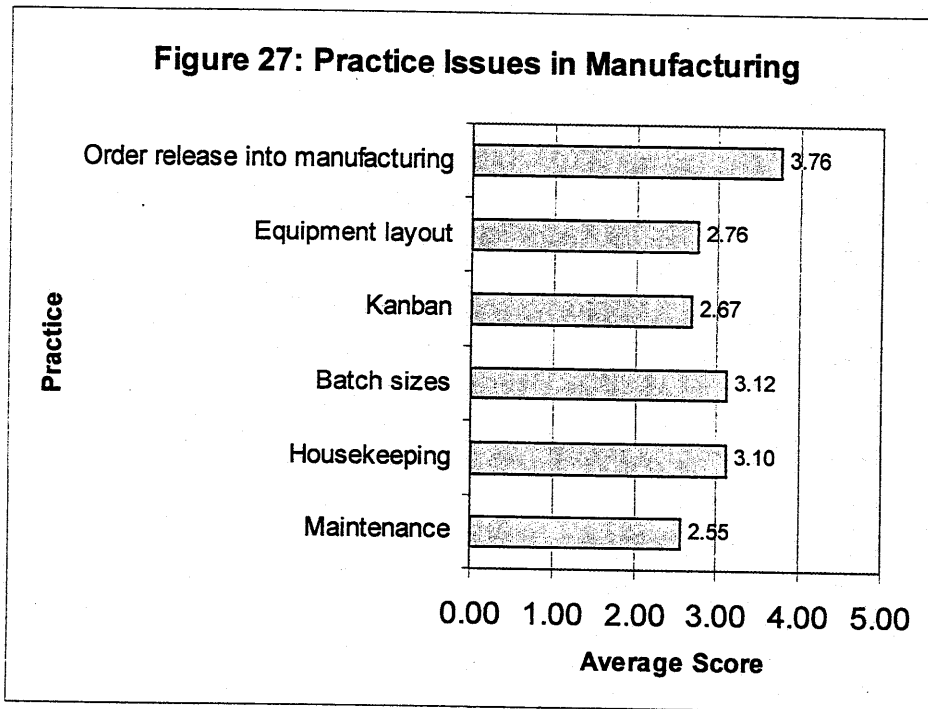
Figure 28: Performance Issues in Manufacturing

Performance	Average Score
Production cycle time	3.30
Equipment change over time	3.60
Priority orders in manufacturing	2.76
Inventory turns	2.95
Age of Capital Investment	3.30

0.00 1.00 2.00 3.00 4.00 5.00

Average Score
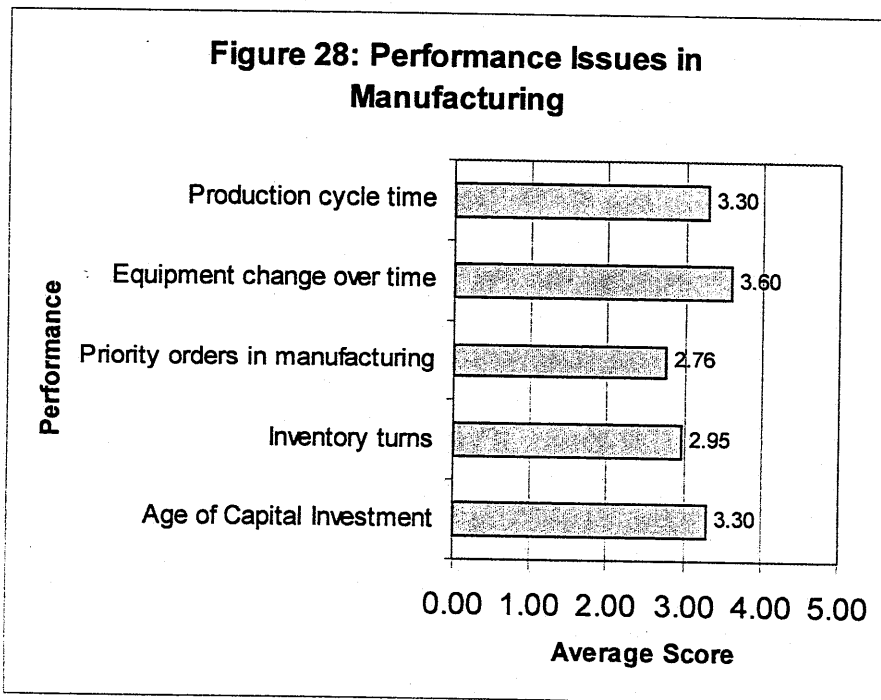
In terms of operational performance, a varied picture emerges as shown in Figure 28 above. Equipment *changeover times* are currently being measured in hours, though they could potentially be in minutes. Similarly, *production cycle times* are between 4 to 5 times the raw process times, compared with best practice of 2 to 4. Also, between 10 and 20% of all orders in manufacturing are *priority orders*. This represents a significant disruption to planned production flow, which in a best practice company is a rarity.

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Inventory turns are also relatively low. They are currently between 5 and 10 turns only per annum, and well below world-class standards of over 20 turns per year. Finally, the average age of most essential *plant and equipment* is between 5 and 10 years, though the target for leading companies is less than 5.

Company size has a bearing on both practice and performance measures as shown in Figure 29. For example, large companies have either average or well above average scores on all practices with particularly strong leads in equipment layout, housekeeping and maintenance. But their performance measures are either just average or below average in the case of production cycle times. In contrast medium sized companies have consistently below average scores for all its practices and performance measures. Small companies are generally better than average on performance measures but the opposite on adopting best practices.

Figure 29: Manufacturing Operations: Practice & Performance
An Analysis by company size
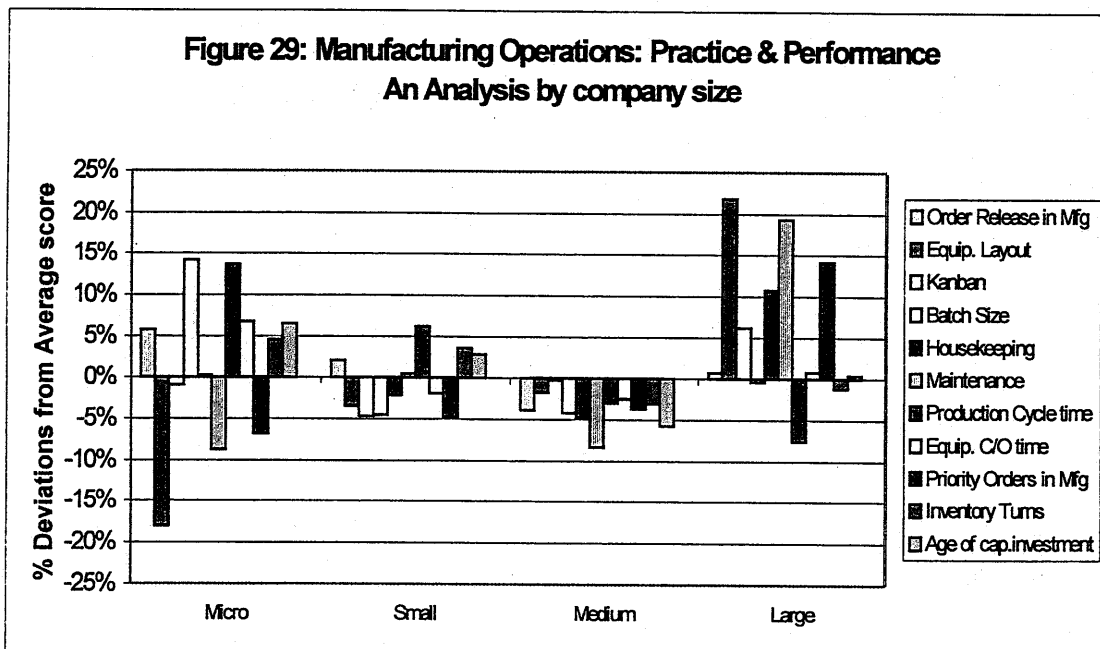
Figure 30: Manufacturing Operations: Practice & Performance An Analysis by Industry Sector
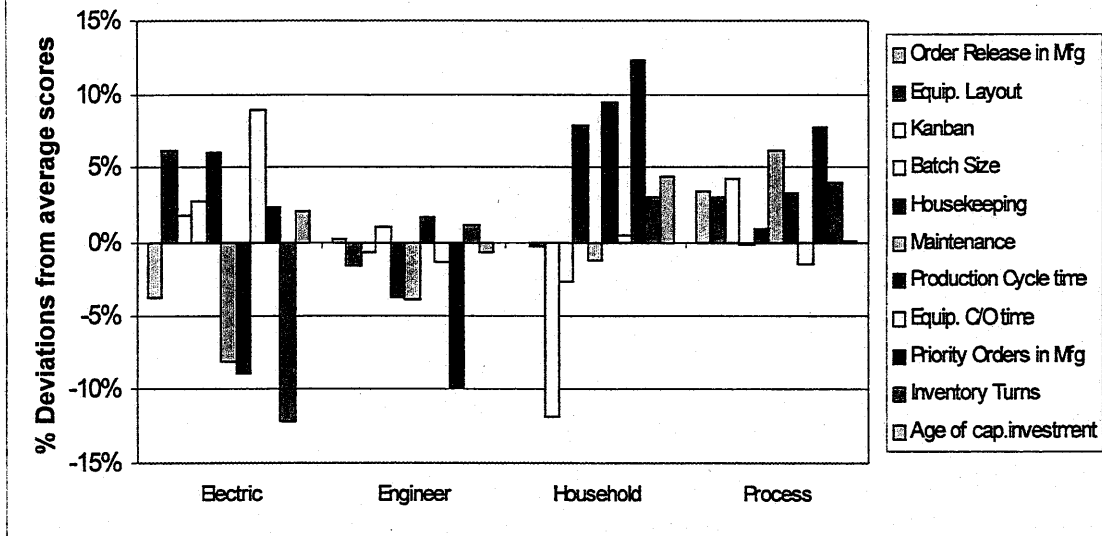
Different patterns are observed in each Industrial sector (See Figure 30.) The Process sector has at least average or slightly above average scores for both its practices and performance measures, though their lead is somewhat limited. The Household sector is stronger on performance measures with higher than average scores for production cycle times, priority orders in manufacturing and inventory turns. The Engineering sector is generally weaker across all practice and performance measures. The Electrical and Electronics sector has a mixed set of outcomes. On performance measures it is below average on production cycle times and inventory turns though better than average on priority orders in manufacturing. Practice-wise it is slightly above average on most practices other than maintenance and order release in manufacturing.

Measure related to Quality

The responses to seven measures are presented in the Figures 31 and 32 below.

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Figure 31: Practice Issues in Quality

Quality processes: 2.90
Suppliers: 3.07

Practice

Average Score: 0.00 1.00 2.00 3.00 4.00 5.00
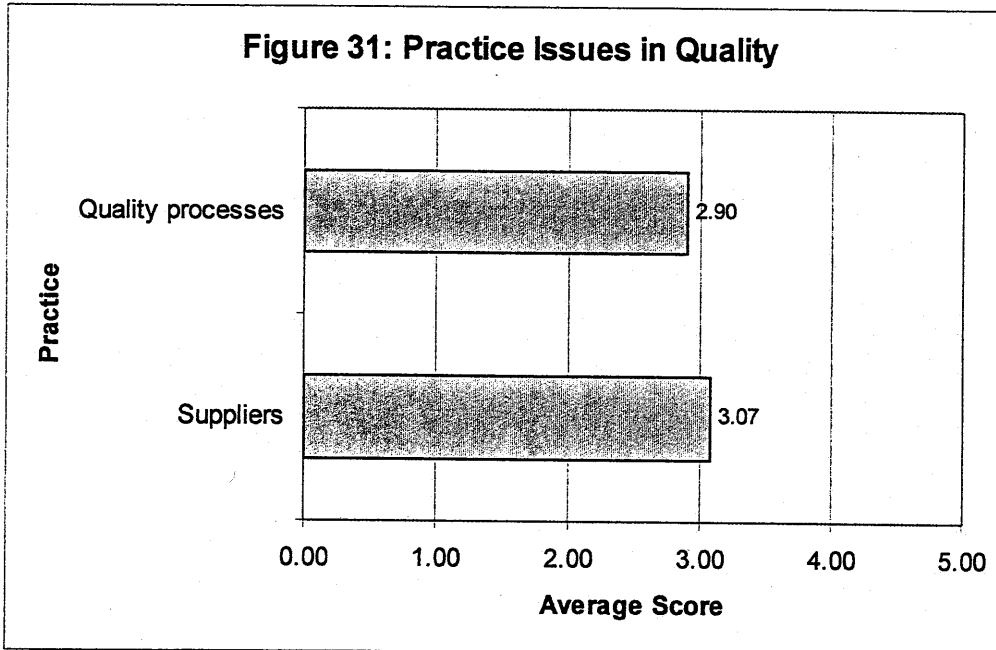
Figure 32: Performance in Quality Issues

Process capability: 2.97
Defects (internal): 2.50
Product reliability in service: 3.39
Customer delivery commitments met: 3.27
Customer satisfaction: 3.04

Performance

Average Score: 0.00 1.00 2.00 3.00 4.00 5.00
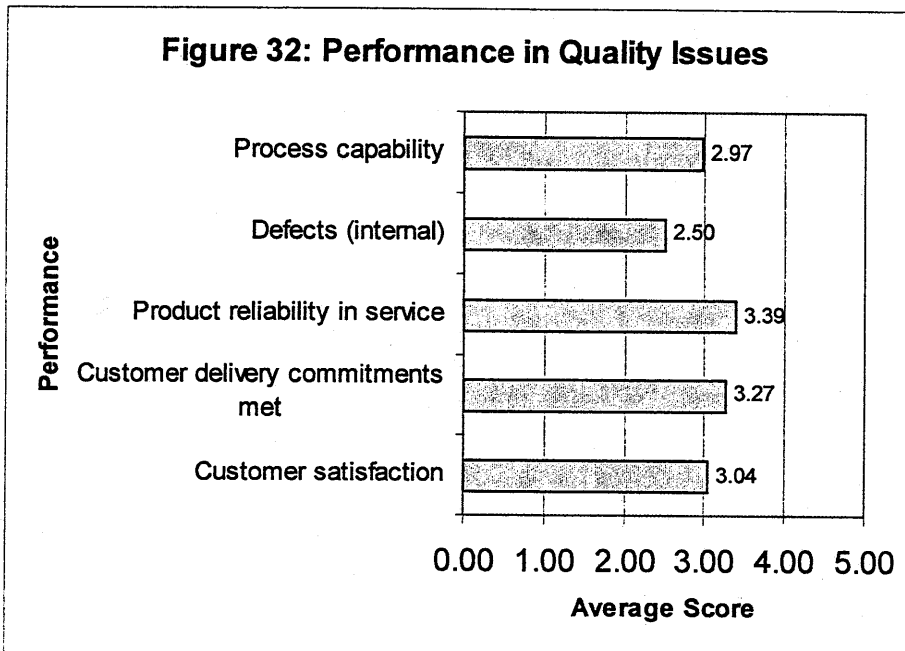
Quality practices generally reflect a company's quality vision, which was presented earlier. The average score for *Quality processes* reflects an emphasis on documentation and accreditation. This is an achievement in itself, but needs to progress to continuous improvement, greater customer involvement and the use of quality frameworks such as EFQM. Similarly *supplier* relationship scores reflect the start of supplier certification and its use in limited circumstances. However, such partnerships could develop further in relation to product and process design and greater emphasis placed on JIT deliveries.

In terms of quality performance, companies are more effective at customer-related than at internal measures. For example, *customer satisfaction* scores reflect few complaints and use of systems for tracking feedback. Even this could improve to having delighted customers whose expectations are often exceeded. *Product reliability in service* represents failure rates between 0.1% and 0.01%, which could reduce to its lower limit. Finally, *customer delivery commitments met* apply to more than 95% of orders in any week, but which is still well below achieving that rate on a daily basis.

However, manufacturers are less successful with their internal performance measures. For example, *Process capability* is only slightly better than product design tolerances and can be raised significantly. *Internal defects*, currently nearer the 0.1% level, need to reach levels of 0.01% achieved by leading companies. Greater attention to both these measures will reduce considerably their cost base and maintain if not improve their external quality performance.

Size shows a cyclic pattern on practices and performance measures. In adopting quality procedures and Business Excellence frameworks, large companies have well above average adoption levels with exactly the opposite results found in micro companies, and the small and medium sized companies experiencing less variations around the average scores (Figure 33). On quality performance measures such as internal defects, customer delivery commitments met and customer satisfaction, the medium and large company has achieved less than average performance levels. In complete contrast and despite lower practice levels, micro and small companies have above average performance levels and in particular the micro company has the best customer satisfaction record.

Figure 33: Quality: Practices & Performance
An Analysis by company size

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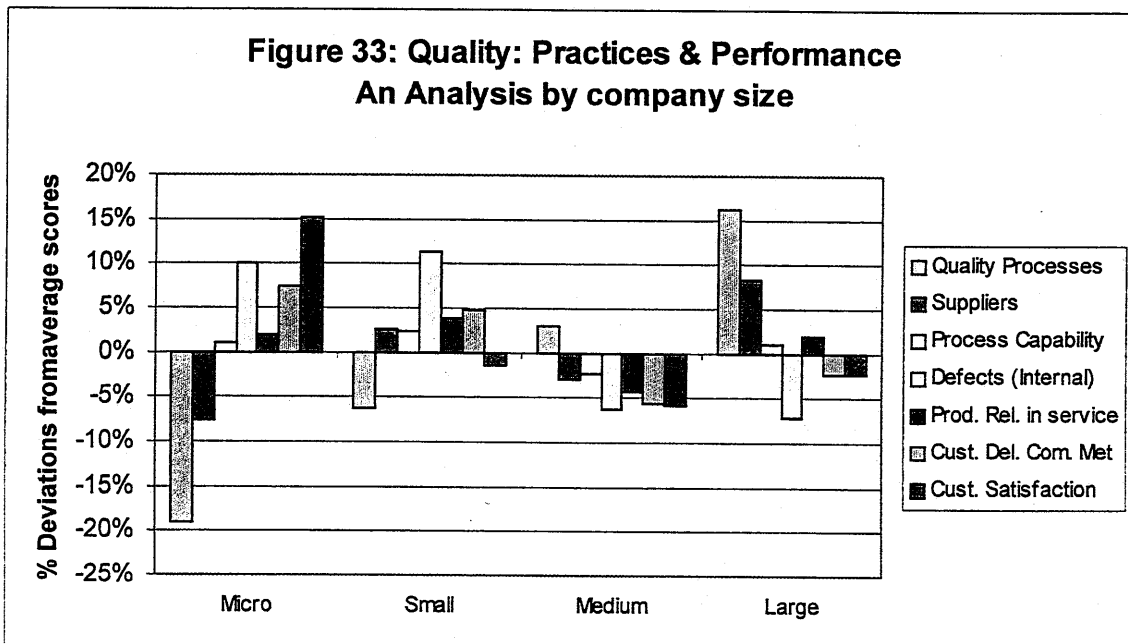
A different pattern is seen within each sector (Figure 34). 'Process' companies have a limited but noticeable advantage on customer performance measures such as delivery commitments met and customer satisfaction. The Household sector has well below average scores on practices especially on adopting formal quality procedures and business excellence frameworks. But it has a particularly strong lead on meeting customer delivery commitments, which is well above the sector average. The Engineering sector continues to demonstrate average levels of achievement across all practices and performance measures except for below average record on meeting its customer delivery requirements.

Figure 34: Quality: Practice & Performance
An analysis by industrial sector
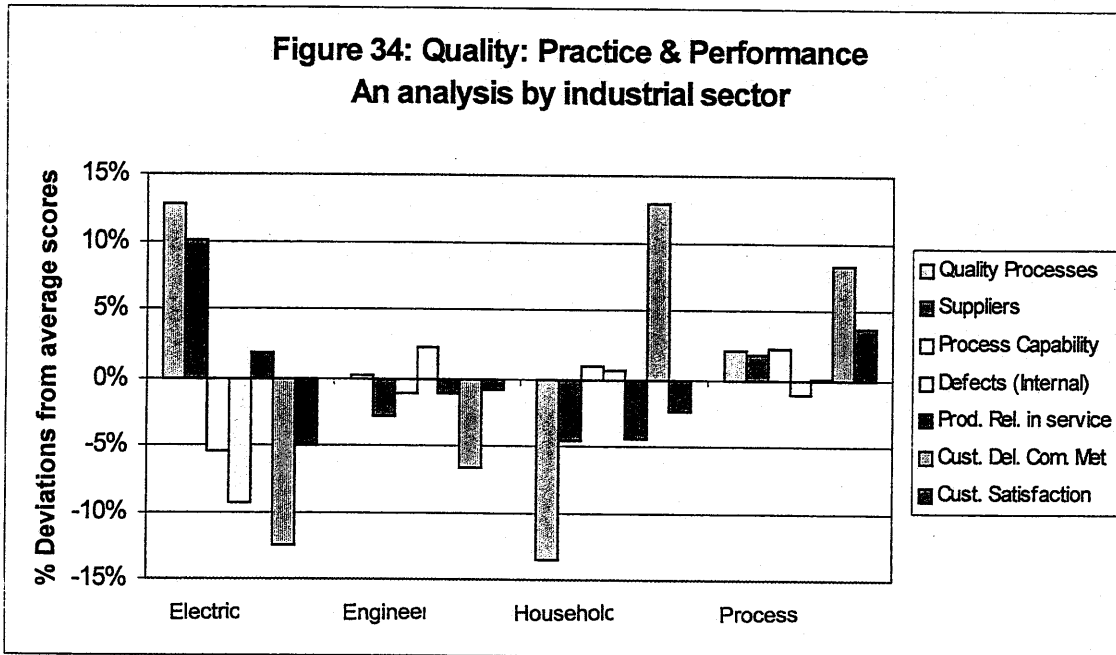
Measures related to Human Resource Issues

The average scores for six measures are shown in Figure 35. They are all either around the value of 3 or below, reflecting reasonable adoption levels but with considerable room for improvement in each case.

Figure 35: Practice Issues in Human Resources

Practice	Average Score
Shared vision, mission and goals	2.78
Employee involvement	2.69
Problem solving	2.96
Customer orientation	3.06
Job flexibility	3.24
Employee morale	2.86
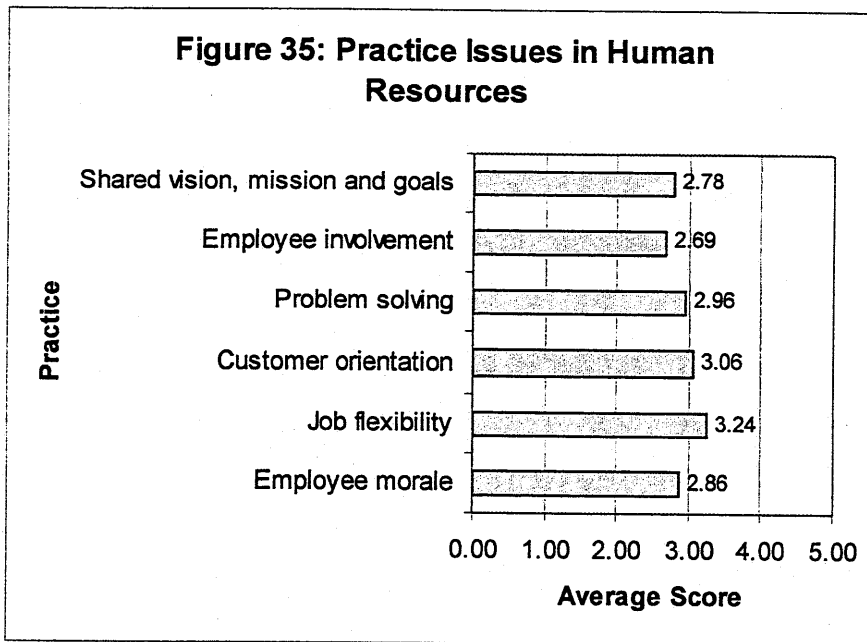
Job flexibility and *customer orientation* are the two most adopted practices, even though the scores are just above three. The former represents a situation where employees can work flexibly on different assignments, but there is a wide variation in their output and skill levels. True flexibility in terms of an educated workforce that has flexible skills, can work in autonomous teams and is empowered to solve problems as they occur, is yet to be achieved. With respect to customer orientation, the score reflects an emphasis on customer service and where their requirements are tracked and disseminated throughout the business. However, more is possible through partnerships and user groups.

However, other Human Resources practices, which contribute to leadership in quality and service receive less attention. For example, *Sharing of vision, mission and goals* currently is restricted to management commitment only. Any employee involvement in published improvement plans and goals is yet to be achieved. Current less fifty percent of all employees are involved in quality teams and suggestion schemes. *Employee involvement* has yet to achieve wider participation including open access to management and empowered individuals throughout the business. *Problem solving skills* are limited to systems and processes for recognising and responding to problems, with little emphasis on people and teamwork. As a result *employee morale* is felt to be generally low and the need to relieve pressure, stress and anxiety fairly high.

**Figure 36: Human Resource Issues: Practice & Performance:
An analysis by company size**

Legend:
- Shared Vision
- Employee Involvement
- Problem Solving
- Cust. Orientation
- Job Flexibility
- Employee Morale
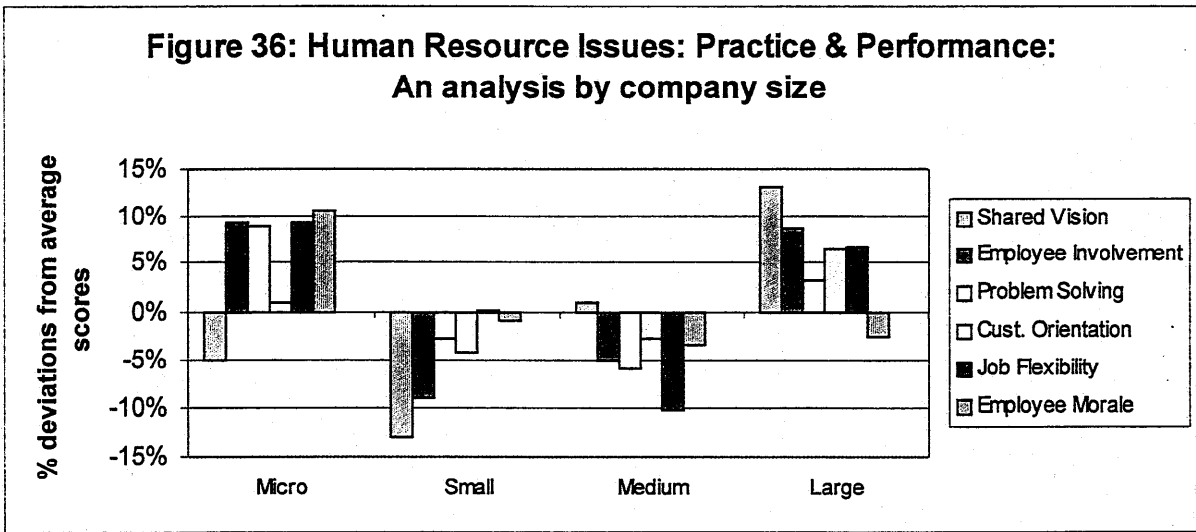
Adoption levels vary considerably between size groups as shown in Figure 36. Both micros and large companies have above average adoption levels on almost all practices whilst small and medium sized companies have below average levels for almost all practices. Significantly, employee morale drops quite noticeably from micros where it is well above average to below average levels for the rest of the sector. On HR practices as a whole it appears that as the company grows there is a period when it seems difficult to raise adoption levels until a particular size level is reached when the record improves considerably. Practice variations between Sector groups are shown in Figure 37. The 'process' sector has above average adoption levels on all practices. The opposite is the case within Engineering companies. The Household sector has mainly above average or average practice adoption levels, the exception being customer orientation. The Electrical and Electronic sector has a clear lead over all others on Job Flexibility but is below average on most other practices. Employee morale in this sector is the lowest across all sectors.

**Figure 37: Human Resource Issues: Practice &
Performance An analysis by industrial sector**

Legend:
- Shared Vision
- Employee Involvement
- Problem Solving
- Cust. Orientation
- Job Flexibility
- Employee Morale
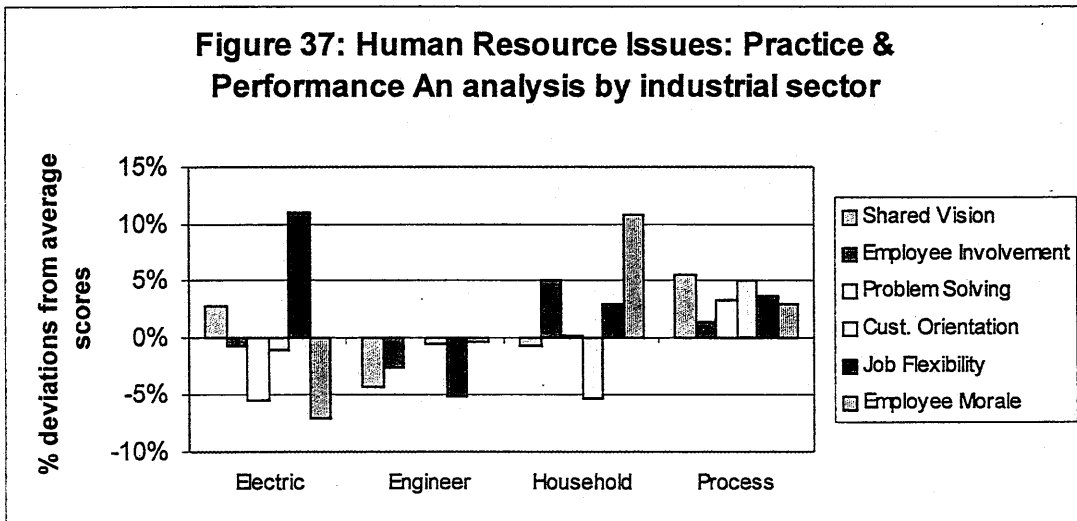
Measures related to Innovation and New Product Introduction

The average scores for ten measures are summarised in Figures 38 and 39 below. In general, practice scores are slightly higher than performance scores, though the former are mainly around the score of three.

Figure 38: Practice Issues in New Product Introduction

Practice	Average Score
Generation of innovative product concepts	3.05
Exploitation of innovation and creativity	2.85
Product life cycle planning	2.35
Product development process	2.95
Design for production and product use	2.90
Monitoring of design	3.27

Figure 39: Performance Issues in New Product Introduction

Performance	Average Score
New products introduced (last two years)	2.98
New product introduction lead time	2.91
Cycle time - concept to production release	2.47
Cycle time - production release to general availability	2.59

In general, innovation and new product introduction appear to be less emphasised across all companies. Although there is a cross-functional approach and some customer/supplier involvement in the *generation of innovative product concepts*, there is less emphasis on the *exploitation of innovation and creativity* and the systematic planning of future products

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(*product life cycle planning*). This lack of best practice is reinforced in the scores of two related performance measures. One relates to *new product(s) introduction in the previous 2 years*. This is restricted mainly to variations of existing products. The other relates to *new product introduction lead-time*, often lags and is rarely better than their competition.

Figure 40: New Product Introduction - Practice & Performance An analysis by company size
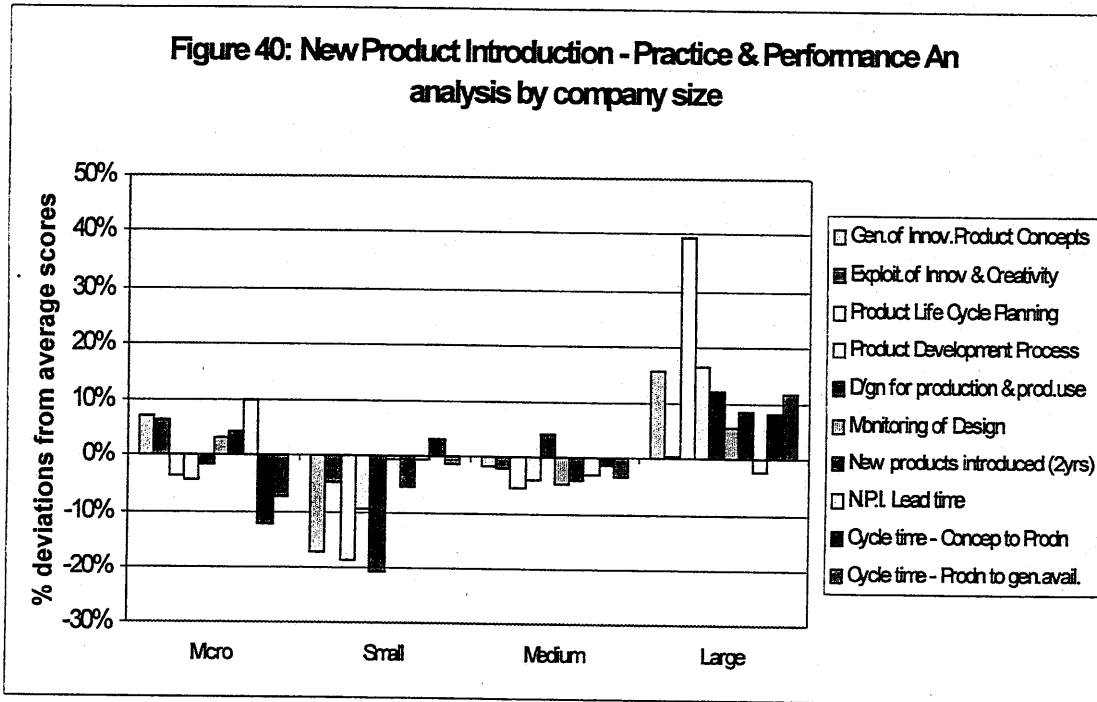
As far as product development is concerned, there is some in-service *monitoring of design* through customer feedback and good links with their marketing and service departments. However, the actual *product development process* in most companies is undocumented and inter-functional roles unclear. Also in developing their *design for production and product use*, the linked product/process strategies are missing. Performance measures in this area also reflect low (practice) adoption levels. For example, *cycle times from concept to production release* and from *production release to general availability* have not been reduced consistently; they are more likely to have remained static or even increased.

Both practice adoption levels and performance outcomes improve substantially with size. (See Figure 40). Large companies in particular have a strong lead on almost all practices and especially on product life cycle planning where its scores are 40% above average levels for the sector. Micros are the exception. Despite their size, they have a better than average adoption levels on most practices and performance levels for the sector. However, it has below average scores for cycle times between design concepts and production/general availability.

Practice and performance outcomes vary considerably by industry. (See Figure 41) The Electrical and Electronic sector has the highest scores in innovation and product life cycle planning. However, its performance achievements are less striking with above average scores only for the number of new products introduced over a two-year period. The

Engineering sector shows slight variations around the average scores on all measures. The Household sector is particularly weak on most of its practices with well below average scores and marginally better than average performance outcomes. Finally the Process sector has better than average scores for both practice and performance measures.

Figure 41: New Product Introduction - Practice & Performance
An analysis by industry sector
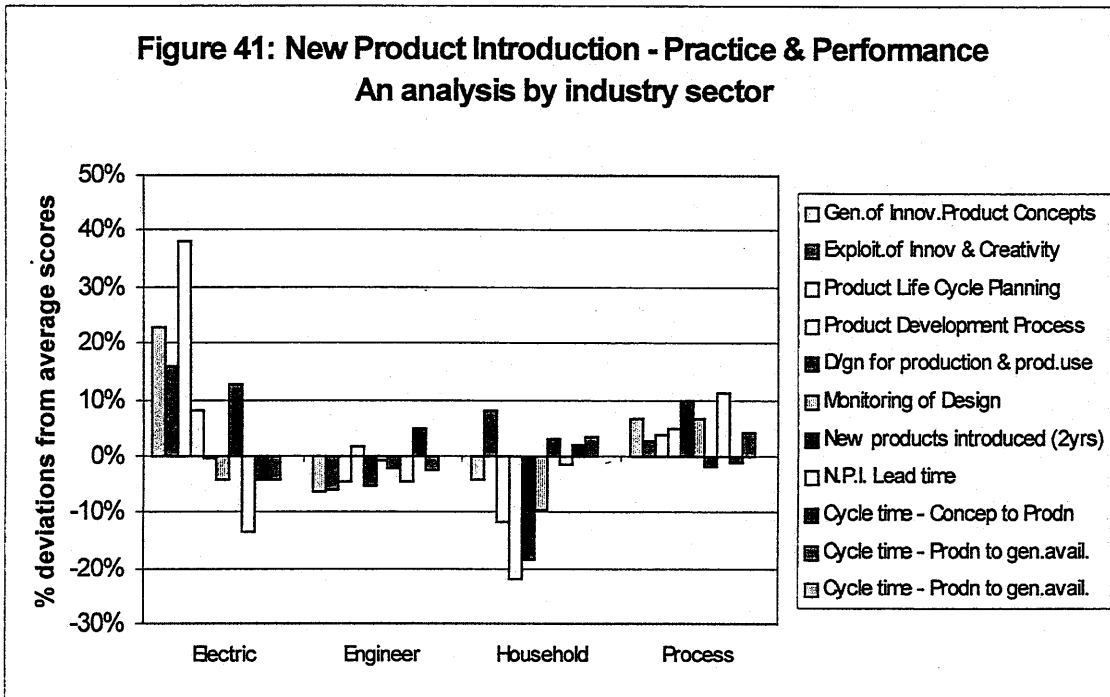
Measures related to Manufacturing Engineering

The practice scores for manufacturing engineering operations are generally fair but could be improved even further (See Figure 42). There is some attempt to adopt concurrent engineering practices (*engineering process overlap*) but a lot more is still possible. Also processes related to *Engineering change and release* of data is relatively slow. More systematic links between functions could be introduced. There is limited use of *engineering application tools* such as CASE, project management tools and the use of multi-skilled design teams. However, despite the above limitations, suppliers and/or customers are involved in engineering design (*design extent – beyond the enterprise*).

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Figure 42: Practice Issues in Manufacturing Engineering

Practice	Average Score
Design extent - beyond the enterprise	3.33
Engineering process overlap	2.75
Engineering change and release process	2.71
Engineering application tools	2.53
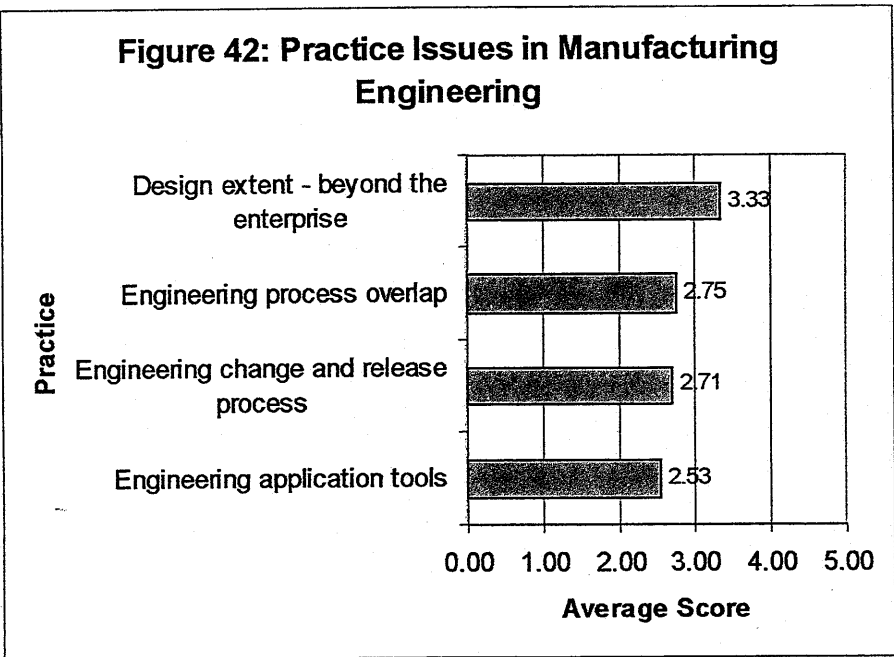
Adoption levels of all practices improve with increase in company size. The exception is in relation to design where extent of involvement with suppliers and customers reduces with size (See Figure 43).

Figure 43: Manufacturing Engineering - Practices Analysis by company size

Categories (Micro, Small, Medium, Large):
- Design Extent - beyond Enterpr.
- Engineering Process Overlap
- Engg. Change & release proces
- Engg. Application Tools
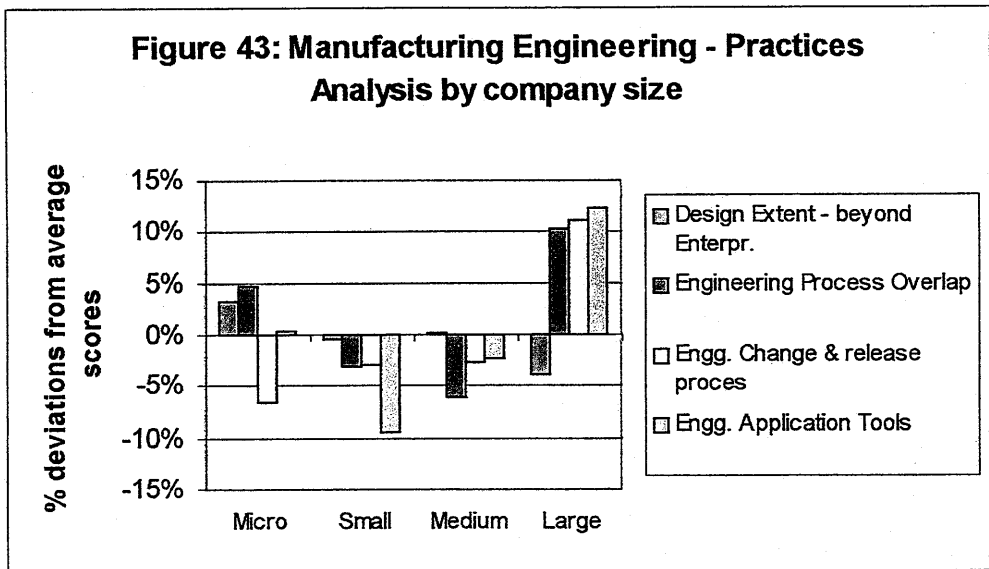
Sector variations on practice and performance outcomes can be seen in Figure 44. The Electrical and Electronic sector generally has well above average scores for most practices whilst the reverse is the case with the Household sector. The Engineering and Process sectors have average scores for most practices but differ substantially on the use of engineering application tools. Here the Process sector has a clear overall lead.

Figure 44: Manufacturing Engineering - Practices Analysis by industry sector

Legend:
- Design Extent - beyond Enterpr.
- Engineering Process Overlap
- Engg. Change & release proces
- Engg. Application Tools

X-axis: Electric, Engineer, Household, Process

Y-axis: % deviations from average scores (15%, 10%, 5%, 0%, -5%, -10%, -15%, -20%)

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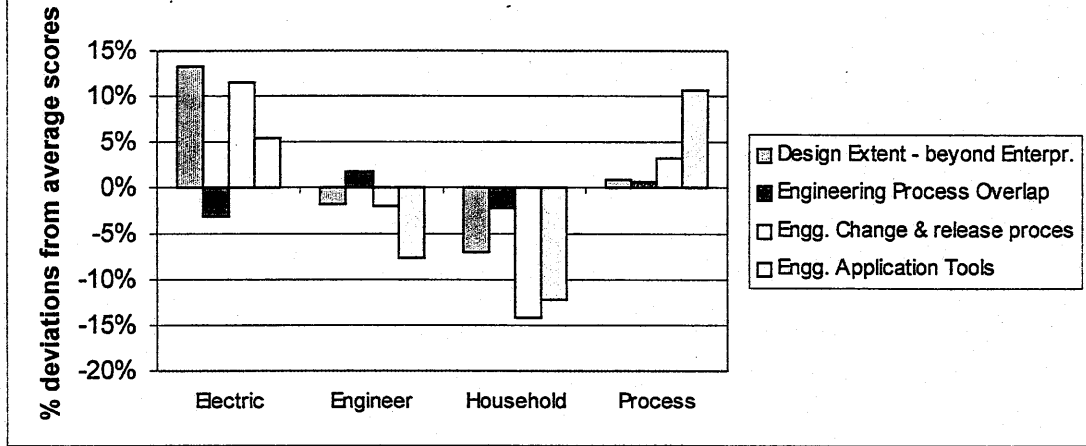
Measures related to Business Performance

Five measures were reviewed and their average scores are shown in Figure 45. In all cases, actual figures were not requested but simply indications of (upward or downward) trends were sought. In general, average scores reflect some increase in *market share* and a reasonably competitive rate of *return of net investment*. Considerable *productivity* gains and improvements are being made but could be more consistent. Whilst manufacturers are generating positive cash flows (as against being neutral or negative), their *product costs,* are typically greater than their competition.

Figure 45: Issues in Business Performance

Performance Measure	Average Score
Market Share	3.65
Cash Flow	3.59
Productivity	3.45
Return on Net Assets	3.21
Product Costs	2.89
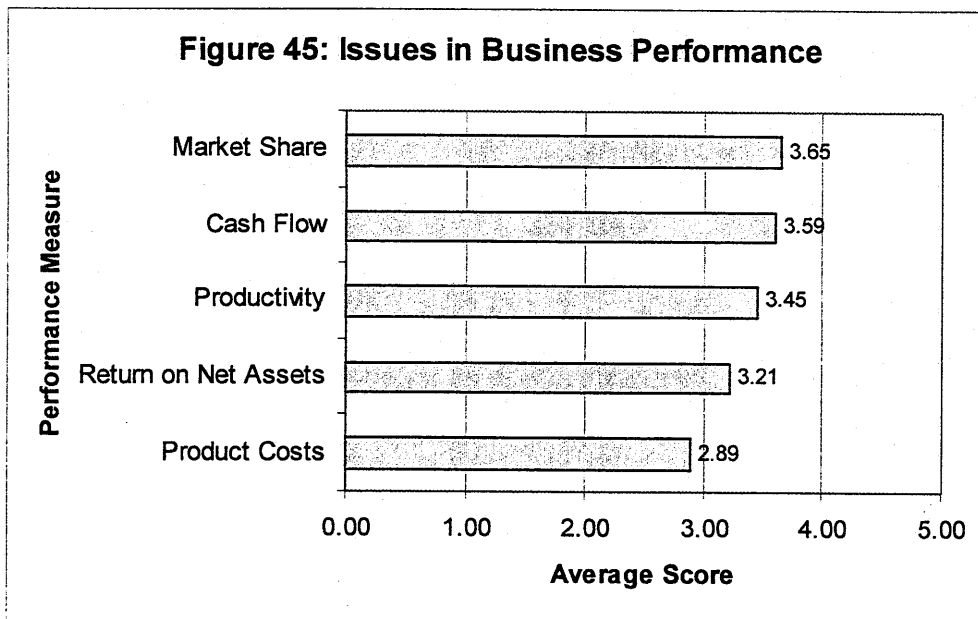
Company size separates the high performers from the low (see Figure 46). Large companies achieve consistent and above average performance on cash flow, productivity and return on assets. Medium companies on the other hand demonstrate below average outcomes for most of its measures. Micros and small companies exhibit identical patterns of adoption levels but different amplifications. In particular, this applies to market Share and Cash Flow.

Figure 46: Business Performance - An analysis by company size
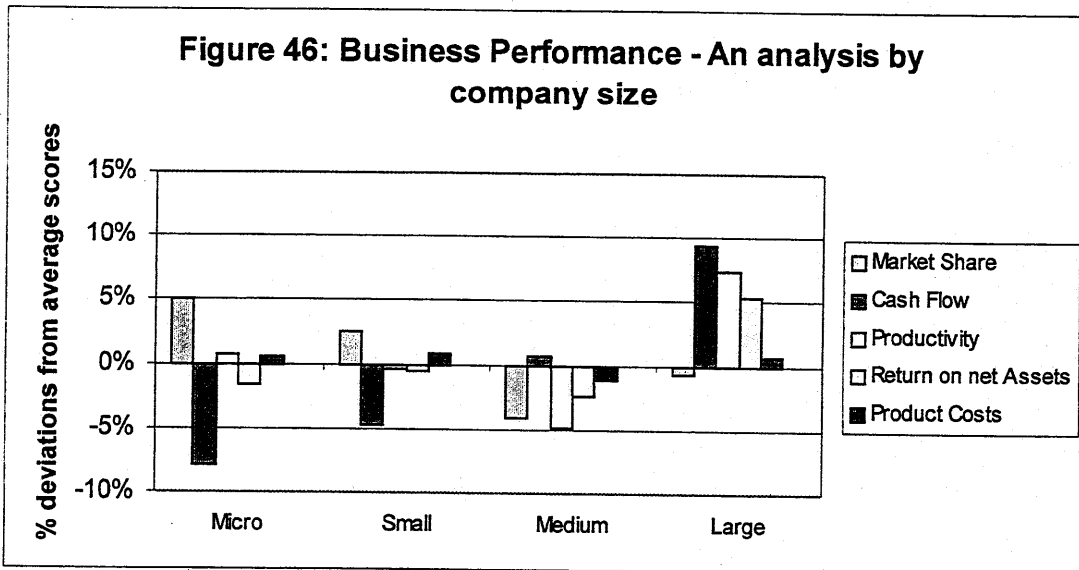
Sector-wise, only the Process sector has above average scores for all its Business performance measures. The remaining three sectors have well below average performance outcomes on all measures other than Market Share for the Household sector (see Figure 47).

Figure 47: Business Performance - An analysis by industry sector
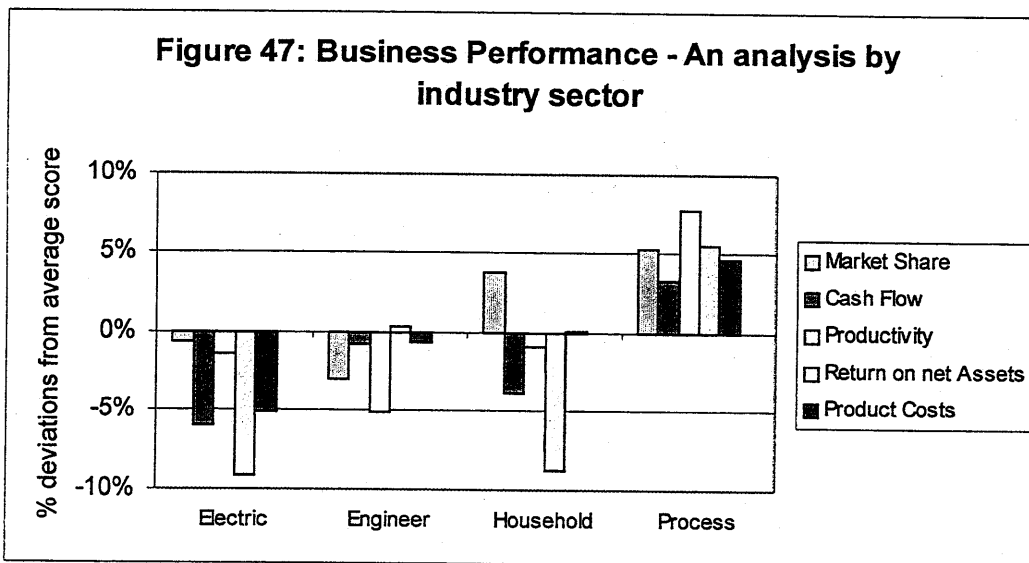
Other Influences on 'practice' levels and 'performance' outcomes

(1) Does the ownership of a company (independent v/s operating unit of a larger company v/s subsidiary of a larger or holding company) have any impact on the results?

Table 1 shows those practices where the subsidiaries are significantly better. They fall into two areas, namely Strategic Issues and Quality and Human Resources.

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Table 1: PRACTICE MEASURES WHERE DIFFERENCES OCCUR BETWEEN TYPES OF OWNERSHIP

Measure	Independents	Subsidiaries
Strategic Issues		
Manufacturing Strategy		•••
Benchmarking		•••
Training and education		•••
Performance measurement and reporting		•
Human Resource Issues		
Shared Vision, mission and goals		••
Quality Issues		
Quality processes		•••

(Note: In Table 1 and onwards • represents significance at the 5% level, ••represents significance at the 1% level and ••• represents significance at the 0.1% level (i.e. highly significant))

Table 2 shows those performance measures where the significant differences exist. They again fall into two areas, namely Manufacturing and Quality.

Table 2: PERFORMANCE MEASURES WHERE DIFFERENCES OCCUR BETWEEN TYPES OF OWNERSHIP

Measure	Independents	Subsidiaries
Manufacturing		
Priority orders in manufacturing		•
Age of capital investment	•••	
Inventory turns	••	
Quality Issues		
Customer delivery commitments met	•	
Customer satisfaction	•••	
Human Resource Issues		
Employee morale	•	

(2) Does ownership of a company (domestic v/s overseas owned) have any impact on the outcomes?

Table 3 shows where differences occur between the two groups. The Overseas owned companies score significantly higher on each and the practices cover all of the business areas, in particular Strategic Issues.

Table 3: PRACTICE MEASURES WHERE DIFFERENCES OCCUR BETWEEN OWNERSHIP ORIGIN

Measure	Domestic	Overseas
Strategic Issues		
Benchmarking		●●●
Manufacturing Strategy		●●
Training and education		●●
Quality vision		●
Product technology strategy		●
Performance measurement and reporting		●
Manufacturing		
Maintenance		●●
Quality Issues		
Quality processes		●●
New Product Introduction/Innovation		
Product-life cycle planning		●
Manufacturing Engineering		
Engineering process overlap		●

In contrast, there are only two performance measures, *Priority orders in manufacturing* and *Cash flow*, for which the companies owned overseas score higher.

(3) To what extent do differences occur in practices and performance between those companies supplying major markets (Japanese companies v/s major retail chains v/s IT industry v/s UK Government departments) and between exporters and non-exporters?

Table 4 clearly shows very few differences in the level of practices adopted between companies who do or don't supply to the Retail, IT Industry or UK Government markets. However, there are a number of differences amongst those who supply to Japanese customers. The companies in this category have more established practices compared to their counterparts who don't have these customers in three main areas; Strategic Issues, Human Resources and Manufacturing Engineering.

Table 4: PRACTICE MEASURES WHERE DIFFERENCES OCCUR BETWEEN CUSTOMER BASE

Measure	Exporters	Japanese	Retail	IT Industry	UK Govt
Strategic Issues					
Manufacturing Strategy	•	•••			
Training and education	•	•			
Product technology strategy	•••	••			
Benchmarking		•••			
Manufacturing					
Order release into manufacturing	• - No				
Housekeeping				•	
Quality Issues					
Quality processes	•••	•••			
Human Resource Issues					
Shared Vision, mission and goals		•••			
Employee involvement		•			
Problem solving	• - No				
New Product Introduction/Innovation					
Product development processes	•	•••			
Product-life cycle planning	•				
Manufacturing Engineering					
Engineering process overlap		••			
Engineering change and release process		••			
Engineering application tools		••			

Finally, those who export have higher levels of practice adoption compared to those manufacturers who don't in two main areas, namely Strategy and New Product Introduction/Innovation. However, for a couple of business practices, those companies who don't export have significantly higher attainment.

Differences in operational performance are shown in Table 5. Whilst very few differences occur between companies who do or don't supply to the IT Industry or UK Government markets, there are a number of differences amongst those who supply to Japanese or Retail customers. With respect to the former, these are concentrated in the area of Business Performance, where those companies with Japanese customers have significantly higher returns on net assets and productivity.

Table 5: PERFORMANCE MEASURES WHERE DIFFERENCES OCCUR BETWEEN CUSTOMER BASE

Measure	Exporters	Japanese	Retail	IT Industry	UK Govt
Manufacturing					
Inventory turns	●● - No				
Quality Issues					
Process capability			● - No		
Customer delivery commitments met	●● - No				
Customer satisfaction				●	
New Product Introduction/Innovation					
New product(s) introduction (last 2 years)	●				
Cycle time – concept to production release			●		
Cycle time – production release to general availability			●●●		
Business Performance					
Cash flow	●●● - No				
Return on net assets		●			
Productivity		●●			

Also companies that do not export have a number of significantly higher performance measures compared to those manufacturers who do. These are in lower stock levels, better customer delivery performance and management of cash flows.

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Section 5: Lessons from our Leading Companies

The previous sections have shown a wide variation in both practices and operational performance. In this section, the attributes of leading and lagging companies will be analysed to see if they shed any light on practice adoption levels and performance achievements. The former group represents the top 20% of the manufacturing sample, as defined by their average performance score, whilst the latter represents the bottom 20%.

Where do the leaders perform better than the laggers?

With respect to all twenty performance measures, leaders scored significantly higher on average compared to laggers, with each difference being statistically significant at the 0.1% level. Table 6 shows the percentage lead achieved on each performance measure grouped by the business area they represent, compared to the average achievement of the whole manufacturing sector.

Table 6: How much better do the leaders score in terms of performance?

Practice Measure	Percentage difference from sample mean
Manufacturing	
Inventory turns	24.5%
Production cycle time	23.9%
Priority orders in manufacturing	19.4%
Age of Capital Investment	13.1%
Equipment change over time	11.1%
Quality and HR	
Defects (internal)	34.5%
Customer delivery commitments met	30.8%
Employee morale	23.4%
Process capability	22.4%
Product reliability in service	20.1%
Customer satisfaction	19.6%
New Product Introduction/Innovation	
Cycle time – production release to general availability	23.6%
Cycle time - concept to production release	19.8%
New product introduction lead time	18.9%
New products introduced (last two years)	18.8%
Business Performance	
Return on net assets	16.8%
Market share	16.6%
Productivity	16.2%
Product costs	14.4%
Cash flow	13.2%

A striking feature was the consistently high lead achieved on all *New Product Introduction* (NPI) measures. These covered measures on new products introduced, lead times for introducing them and consistent reductions in the cycle times between design concepts and the subsequent production release and general availability times. Even though the overall performance figures for the manufacturing sector as a whole were quite low, the leading group had outperformed the average by between 25 to 35% on NPI measures.

The leading group also showed a somewhat variable but relatively high differential in performance on all the quality measures. Particularly impressive were the 40% better performance on *internal defects* and 31% on *customer deliveries commitments met*.

To a lesser extent but still fairly substantial gains were recorded by the leaders in their manufacturing operations performance. In particular, were the significant leads (between 23 and 25%) over the average on inventory turnover and production cycle times.

What practices the leaders have adopted more successfully?

Thirty practice measures were considered which cover five main areas of business; Strategic Issues, Manufacturing, Quality and Human Resource Issues, New Product Introduction/Innovation and Manufacturing Engineering. With respect to all thirty measures, the leaders scored significantly higher on average compared to the laggers, with each difference being significant at the 0.1% level, except for *Design for production and product use* and *Engineering application tools* (both significant at the 1% level). Table 7 shows the relative advantage in higher adoption levels achieved by the leading group in all the business areas considered.

Table 7: How much better do the leaders score in terms of practices?

Practice Measure	Percentage difference from sample mean
Strategic Issues	
Product technology strategy	22.0%
Manufacturing strategy	21.5%
Benchmarking	20.9%
Vision	20.1%
Performance measurement and reporting	19.9%
Quality vision	18.0%
Training and education	16.6%
Manufacturing	
Maintenance	22.8%
Kanban	21.4%
Housekeeping	20.2%
Equipment layout	18.3%
Batch sizes	12.6%
Order release into manufacturing	8.5%
Quality and HR	
Problem solving	26.6%
Suppliers	22.5%
Employee involvement	20.4%
Customer orientation	19.1%
Job flexibility	17.7%
Shared vision, mission and goals	16.6%
Quality processes	10.1%
New Product Introduction/Innovation	
Product life cycle planning	38.9%
Design for production and product use	20.7%
Exploitation of innovation and creativity	19.4%
Monitoring of design	18.8%
Generation of innovative product concepts	18.7%
Product development process	13.1%
Manufacturing Engineering	
Engineering process overlap	29.4%
Engineering change and release process	24.9%
Engineering application tools	21.0%
Design extent - beyond the enterprise	17.9%

The pattern emerging here is one where some practice measures in all business areas are substantially ahead (25% above) of the average adoption levels. In the area of manufacturing operations, these include *equipment layout, maintenance* and use of *Kanbans*. In HR, they cover *problem solving, customer orientation* and *employee involvement*. In strategic issues, they cover *vision, manufacturing strategy, benchmarking* and *performance measurement and reporting*. Finally in the area of new product introduction, they cover *product life cycle planning and product development process*.

To what extent does size impact upon the performance outcomes of leaders/laggers?

Amongst the large and medium sized companies leaders dominate laggers in all aspects of business performance, again with many differences being statistically significant at the 0.1% level. To a lesser extent, the same can also be said for the micro manufacturers. However, the proportion of measures showing significant differences between the leaders and laggers is much smaller for small companies. Manufacturing and New Product Introduction/Innovation are the two areas showing little in the way of significant differences, as indicated in Table 8.

Table 8: PERFORMANCE MEASURES WHERE LEADERS ARE AHEAD BY SIZE BAND

Measure	Micro	Small	Medium	Large
Manufacturing				
Production cycle time			●●●	●●●
Equipment change over time		●	●●	●●●
Priority orders in manufacturing	●		●●●	●●●
Age of capital investment	●●		●●	●
Inventory turns	●●	●	●●●	●●●
Quality and Human Resource Issues				
Process capability	●●●	●	●●●	●●●
Product reliability in service	●●	●	●●●	●●●
Defects (internal)	●	●●●	●●●	●●●
Customer delivery commitments met	●	●●●	●●●	●●●
Customer satisfaction	●●	●●●	●●●	●●●
Employee morale	●●●	●●●	●●●	●●
New Product Introduction/Innovation				
New product introduction lead time	●●●		●●●	●●●
New product(s) introduction (last 2 years)	●●●		●●●	●●
Cycle time - concept to production release	●●		●●●	●●●
Cycle time - production release to general availability	●●	●	●●●	●●
Business Performance				
Market share	●●	●●	●●●	●●●
Cash flow	●●	●●	●●●	●
Return on net assets	●●	●●	●●●	●●
Productivity	●●●	●●●	●●●	●●●
Product costs			●●●	●●●

To what extent does size impact upon the practice levels adopted by leaders laggers?

The extent to which leaders outperform laggers in terms of adopting best business practices is similar to that seen in relation to performance when company size is taken into account. Table 9 shows that leaders dominate laggers in all aspects of business practices, again with many differences being statistically significant at the 0.1% level. To a lesser extent, the same can also be said for the micro manufacturers, although there is less significant difference (in terms of the number of practice measures) with respect to Manufacturing and Quality and Human Resource Issues. However, medium sized companies are the exception; only a relatively small number of practices show significance between the two groups and these measures cover the five business areas considered.

Table 9: PRACTICES WHERE THE LEADERS ARE AHEAD OF THE LAGGERS BY SIZE BAND

Measure	Micro	Small	Medium	Large
Strategic Issues				
Vision	●●●		●●●	
Manufacturing Strategy	●●●		●●●	●●●
Benchmarking			●	●●●
Training and education	●●		●●●	●●●
Quality vision	●●	●	●●●	●●●
Product technology strategy	●●●		●●●	●●
Performance measurement and reporting			●●●	●●
Manufacturing				
Equipment layout	●●	●	●●●	●●●
Kanban	●●	●	●●●	●●●
Batch sizes			●●●	●●●
Order release into manufacturing			●●	●
Maintenance	●		●●●	●●
Housekeeping	●●●	●●	●●●	
Quality and Human Resource Issues				
Shared Vision, mission and goals	●●●		●●●	●●●
Employee involvement	●●●		●●●	●●●
Job flexibility			●●●	
Customer orientation	●	●●	●●●	●
Problem solving	●●●		●●●	●●●
Quality processes			●●	●●●
Suppliers		●	●●●	●●●
New Product Introduction/Innovation				
Exploitation of innovation and creativity	●●●			●
Generation of innovative product concepts	●●		●●	●●
Product-life cycle planning			●●	●●●
Monitoring of design	●●●	●●●	●●●	●
Product development processes	●		●●●	
Design for production and product use				●
Manufacturing Engineering				
Engineering process overlap	●●●	●	●●●	●●●
Design extent - beyond the enterprise	●		●●	●
Engineering change and release process	●●●		●●●	●●
Engineering application tools	●		●	

To what extent does sector impact upon the performance of leaders and laggers?

Table 10 indicates that in two of the four sectors considered, Engineering and Process Industries, the leaders outperform the laggers in all of the business areas considered, with many of the measures showing significance at the 0.1% level. The same is true to a certain extent within the Electrical sector, although there is much less significant difference with respect to Manufacturing. In contrast, whilst the leaders dominate the laggers with regard to all Quality and Human Resource Issues within the Household Goods sector, very few significant differences occur elsewhere.

Table 10: PERFORMANCE MEASURES WHERE LEADERS ARE AHEAD BY SECTOR

Measure	Electrical	Engineering	Household	Process
Manufacturing				
Production cycle time		●●●	●	●●●
Equipment change over time		●		●
Priority orders in manufacturing		●●●		●●
Age of capital investment	●	●●		●●
Inventory turns	●●●	●●●		●●●
Quality and Human Resource Issues				
Process capability		●●●	●●	●●●
Product reliability in service	●	●●●	●●	●●●
Defects (internal)	●	●●●	●●	●●●
Customer delivery commitments met	●●	●●●	●●●	●●●
Customer satisfaction	●●●	●●●	●	●●●
Employee morale	●	●●●	●●	●●●
New Product Introduction/Innovation				
New product introduction lead time	●	●●●		●●●
New product(s) introduction (last 2 years)		●●	●	●●●
Cycle time - concept to production release	●●	●	●●●	●●●
Cycle time - production release to general availability	●●	●●●		●●●
Business Performance				
Market share	●●	●●●		●●●
Cash flow		●●●		
Return on net assets	●●●	●●●		●
Productivity	●●	●●●		●●●
Product costs		●●		●●

To what extent does manufacturing sector impact upon the differences in Practice levels between leaders and laggers?

Table 11 indicates that like the performance measures, leaders dominate laggers in the Engineering and Process Industry sectors in all of the business areas considered, with many of the measures showing statistical significance at the 0.1% level. This is rather less in the Electrical and Household Goods sectors, although in both, the former show their greatest differences with respect to Quality and Human Resource Issues, but only to a limited extent with regard to the other business areas. With respect to the Household Goods sector, there is little difference between the leaders and Laggers in terms of the Strategic Issues.

Table 11: PRACTICES WHERE THE LEADERS ARE AHEAD OF THE LAGGERS BY SECTOR

Measure	Electrical	Engineering	Household	Process
Strategic Issues				
Vision	•	•••		•••
Manufacturing Strategy		••		•••
Benchmarking	•	••		
Training and education		••	•	•••
Quality vision	•••	•••		•••
Product technology strategy		•••		•••
Performance measurement and reporting		••		••
Manufacturing				
Equipment layout	•	•••	••	•••
Kanban		•••	•••	••
Batch sizes		•••		•••
Order release into manufacturing		••		•
Maintenance		•••		•••
Housekeeping	•	••	••	•••
Quality and Human Resource Issues				
Shared Vision, mission and goals		•		•••
Employee involvement	•	••	•	•••
Job flexibility			•	•••
Customer orientation	•••	•••		•••
Problem solving	••	•••	•••	•••
Quality processes	•	•	••	
Suppliers	•••	•••	•	•••
New Product Introduction/Innovation				
Exploitation of innovation and creativity				•••
Generation of innovative product concepts		•		•
Product-life cycle planning		•••		••
Monitoring of design	••	•••	•	•••
Product development processes	••	••	•	•••
Design for production and product use		•		
Manufacturing Engineering				
Engineering process overlap	•	•••	••	•••
Design extent – beyond the enterprise		•		•••
Engineering change and release process	••	•••	•	•••
Engineering application tools		•		•

Does the type of company impact upon the extent to which leaders dominate laggers in terms of performance?

In short, no, as significant differences exist for all performance measures within both the Independent and Subsidiary cohorts of leaders and laggers, with most differences being statistically significant at the 0.1% level.

Does the type of company impact upon the extent to which the leaders dominate the laggers in terms of adopting best practice?

Again, significant differences exist for all practices within both the Independent and Subsidiary cohorts between the leaders and laggers with most differences being statistically significant at the 0.1% level. The only exceptions, which show no significant differences, are with respect to the Subsidiaries in relation *to Design for production and product use* and *Engineering application tools*.

Do the nature of customer's served impact upon the performance of leaders and laggers?

Table 12: PERFORMANCE MEASURES WHERE LEADERS ARE AHEAD BY MARKETS SERVED

Measure	Exporters	Japanese	Retail	UK Govt
Manufacturing				
Production cycle time	●●●	●●●	●●	●●●
Equipment change over time	●●	●●	●	
Priority orders in manufacturing	●●●	●●●	●●●	●●●
Age of capital investment	●●●			●
Inventory turns	●●●	●●●	●●●	●●●
Quality and Human Resource Issues				
Process capability	●●●	●●●	●●●	●●●
Product reliability in service	●●●	●●●	●●●	●●●
Defects (internal)	●●●	●●●	●●●	●●●
Customer delivery commitments met	●●●	●●●	●●●	●●●
Customer satisfaction	●●●	●●●	●●●	●●
Employee morale	●●●	●●●	●●●	●●●
New Product Introduction/Innovation				
New product introduction lead time	●●●	●●●	●●	●●●
New product(s) introduction (last 2 years)	●●●	●●	●●	●●●
Cycle time – concept to production release	●●●	●	●	●●●
Cycle time – production release to general availability	●●●	●●●	●●●	●
Business Performance				
Market share	●●●	●●●	●●●	●●●
Cash flow	●●●	●●	●●●	●
Return on net assets	●●●	●●●	●	●●●
Productivity	●●●	●●●	●●●	●●●
Product costs	●●●	●●●	●●	●●

Table 12 indicates that leaders dominate laggers in all aspects of performance, with all apart from *Equipment change over time* (1% level) being significant at the 0.1% level. To a similar extent, the same is true amongst those who are major suppliers to Japanese companies, the Retail sector and the UK Government.

Do the customer's served, impact upon the practice adoption levels of leaders of laggers?

Table 13 indicates that all measures show significant differences exits between the leaders and laggers amongst those manufacturers who Export, again with many practices showing statistical significance at the 0.1% level. The only measure showing no significance was *Engineering application tools*.

Table 13: PRACTICES WHERE THE LEADERS ARE AHEAD OF THE LAGGERS BY MARKETS SERVED

Measure	Exporters	Japanese	Retail	UK Govt
Strategic Issues				
Vision	●●●	●●●	●	●●●
Manufacturing Strategy	●●●	●●	●	●●●
Benchmarking	●●●	●	●●	●
Training and education	●●●	●●	●●●	●●●
Quality vision	●●●	●●●	●●●	●●●
Product technology strategy	●●●	●●●	●●	●●
Performance measurement and reporting	●●●	●	●●	●
Manufacturing				
Equipment layout	●●●	●●●	●●●	●●
Kanban	●●●	●●●	●●●	●
Batch sizes	●●●	●		●●●
Order release into manufacturing	●●●	●●	●●	●●●
Maintenance	●●●	●●●	●●	●●●
Housekeeping	●●●	●●●	●●●	●●
Quality and Human Resource Issues				
Shared Vision, mission and goals	●●●	●●	●●	●●
Employee involvement	●●●	●●	●●	●
Job flexibility	●●●	●		
Customer orientation	●●●	●●●	●●	●●●
Problem solving	●●●	●●●	●●●	●●●
Quality processes	●●		●	
Suppliers	●●●	●●●	●●	●●
New Product Introduction/Innovation				
Exploitation of innovation and creativity	●●	●		●●
Generation of innovative product concepts	●●			●
Product-life cycle planning	●●●	●●	●	●●
Monitoring of design	●●●	●●	●	●●●
Product development processes	●●●	●●●	●●●	●●●
Design for production and product use	●			●●
Manufacturing Engineering				
Engineering process overlap	●●●	●●●	●●	●●
Design extent – beyond the enterprise	●●●	●●		●●
Engineering change and release process	●●●	●●●	●●●	●●●
Engineering application tools				

The extent of the differences between leaders and laggers amongst those companies supplying to Japanese, Retail or UK Government customers is equally extensive, and as Table 13 indicates, a sizeable number of the differences are significant at the 0.1% level.

To what extent is the performance level of the respondent related to World-Class status, company size and manufacturing sector?

As expected there is significant association between performance level and World-Class status, this being at the 0.1% level. A greater than expected number of PW/WC are leaders, whilst a greater than expected number of RFI and CDB are laggers. Similarly, size is also significantly associated, again at the 0.1% significance level, with a greater than expected number of leaders amongst the medium and large companies and a greater than expected number of laggers found within the small and micro size bands. There was no significant association between performance level and sector.

As suggested earlier, there is a significant difference between the mean score for each of the practice and performance measures between the two groups defined 'performance leaders' and 'performance laggers'. Does a combination of practice measures significantly discriminate between the two groups, and equally is there a combination of performance measures that discriminate significantly in the same way? Such a combination of the two groups of measures is shown below (Table 14). Both groups of measures represent a subset of all measures considered in this analysis. They are potentially useful in that they provide a shortened set of criteria for determining which manufacturing companies are either leading or lagging in terms of operational performance. They indicate which practices when adopted discriminate significantly with respect to overall business performance. Table 14 shows the combination of measures indicates both strategic and operational initiatives.

Table 14: Factors which combine to discriminate between performance leaders and laggers

Business Area	Practice Predictors	Performance Predictors
Strategic Issues	Quality Vision	
Manufacturing	Kanban	Production cycle times
New Product Introduction/Innovation		New products introduced (last two years) Cycle times - production time to availability
Quality and Human Resource Issues	Problem solving	Process capability Product reliability in service Suppliers
Manufacturing Engineering	Engineering process overlap	
Business Performance		Market share Cash flow

Section 6:
Business Growth and Competitiveness of North East Manufacturing

In addition to measuring the performance of, and the extent to which North-East manufacturers were adopting world class practices, the participating companies also reviewed certain growth characteristics with respect to the previous three years of business. Growth was judged from the point of sales turnover, product range, number of customers and profitability. The measurements provided were in terms of the extent to which growth or decline took place. This makes possible analysis of the relationship, if any, between rates of growth and other factors. Growth or decline in numbers of employees and suppliers was also recorded. This is not to suggest of course that 'growth' in all of these measures would necessarily be regarded as a positive indicator.

Do the rates of growth bear any relationship with the world class status, size or industrial sector of the participants?

Figure 48: Growth Characteristics - Comparison by Company Size
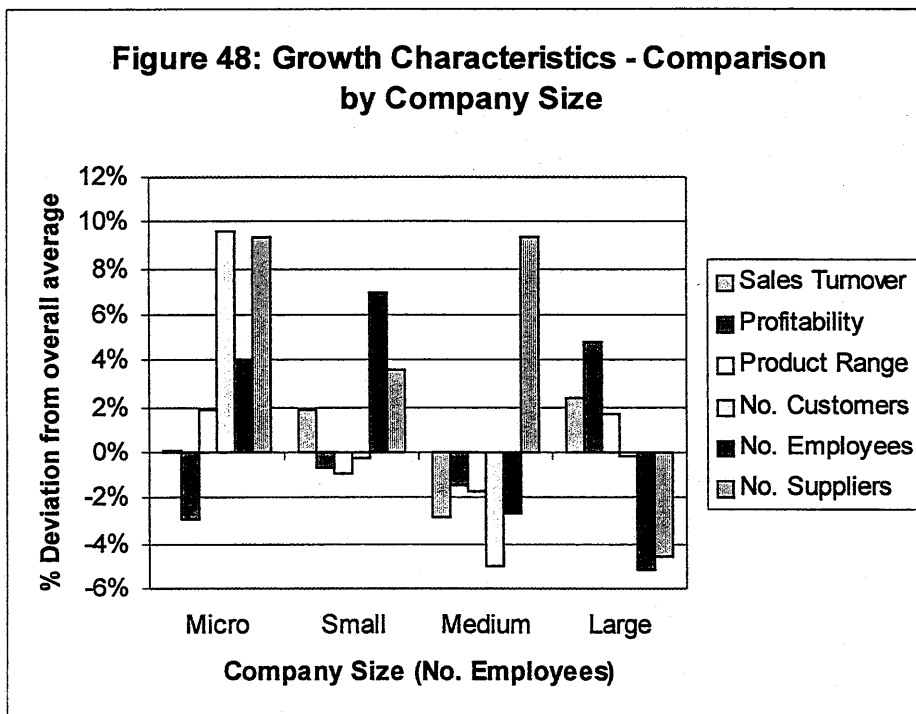
Quite distinct patterns of growth can be seen between different size of companies (Figure 48). Large companies have the ideal profile in terms of above average growth in turnover, profitability, product range and customers but at the same time demonstrate lean manufacturing in terms of below average growth in terms of both numbers of employees and suppliers relative to the whole manufacturing sector. On average, they are showing a decline in the numbers of suppliers.

Micros exhibit varying but above average growth rate on all counts other than profitability. Is that fairly typical of vulnerable companies who are predominantly micro or small?

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Medium sized companies have the slowest growth rates of all. Their average growth rates were well below average relative to the whole manufacturing sector on all counts other than their well above average growth in the number of their suppliers.

**To what extent are the rates of growth associated with industrial sector?**

Again, widely different growth patterns can be seen between industrial sectors (Figure 49). Two of the sectors, Household and General Goods and Process Industries, have performed well above average on most counts whilst the other two, Electronics and Electrical Engineering and Engineering have well below average growth rates on most measures.

Household and General Goods sector demonstrates above average growth rates on all measures considered. The Process Industries sector has seen above average growth rates in sales turnover, profitability and to a slightly less extent growth in customers and suppliers, but is the only sector whose employee growth rates are below average, therefore demonstrating above average productivity rates or efficiency gains.

The Electronics and Electrical Engineering and Engineering sectors demonstrate below average growth rates on almost all measures with the Electronics sector performing rather poorly than all other sectors on profitability.
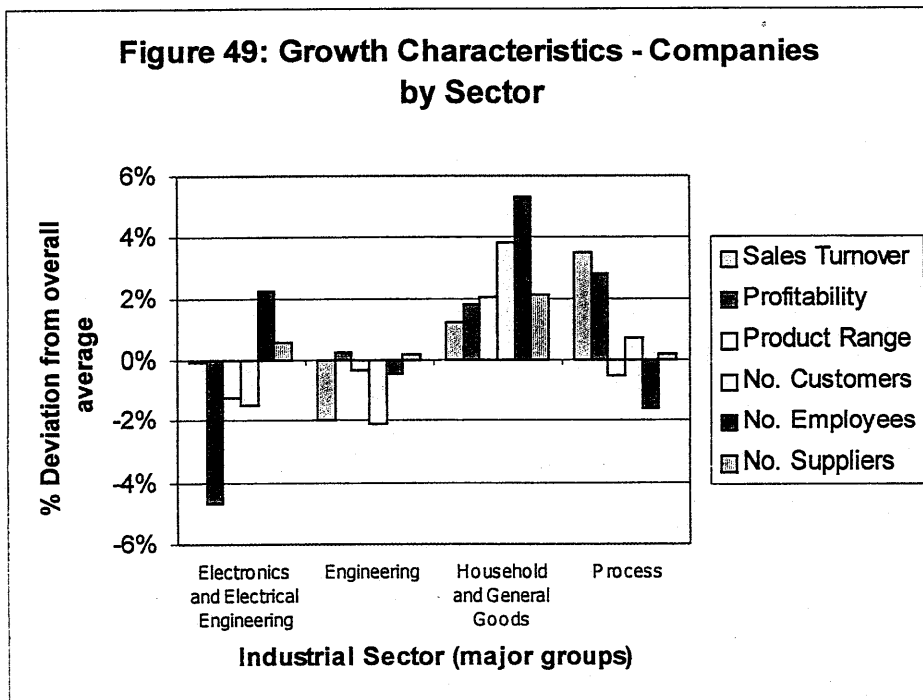
Figure 49: Growth Characteristics - Companies by Sector

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To what extent is World Class Status linked to the growth of the various measures?

Figure 50: Growth Characteristics - Companies by World Class Status
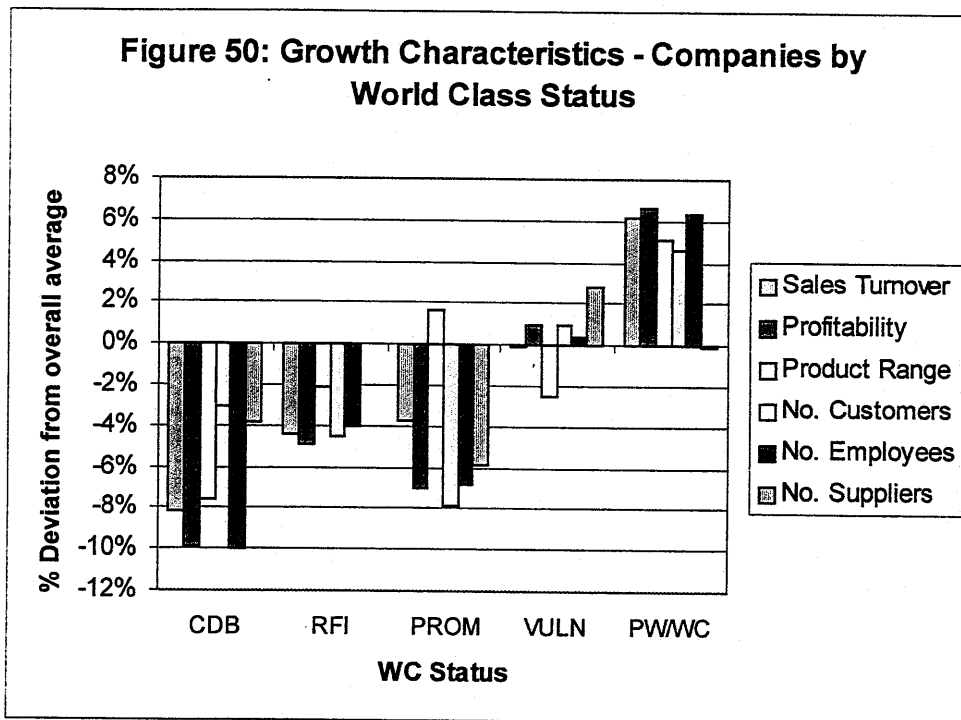
The link between World-Class status and growth can be seen clearly on all counts (Figure 50). The CDB, RFI and even PROM companies exhibit below average growth rates on all measures, the exception being the latter's above average growth, relative to the whole manufacturing sector, in terms of product range. The CDB are declining on average in terms of employee numbers and both the CDB and PROM has seen an average decline in the number of suppliers.

Vulnerable companies appear to perform much better than promising companies with much higher growth rates on almost all measures, although on average, they appear to be going in opposite directions in terms of product range.

PW/WC companies are clearly ahead of all the other categories in terms of well above average growth rates for all measures, although their relative growth in terms of numbers of suppliers is very small indicating a demonstration of leaner manufacturing.

How does the North East manufacturing sector compare with respect to their competitors?

Do the North East manufacturers have any advantage on measures such as product quality, price, lead-times, reliable, on-time delivery and product customisation? Are these advantages related to size, industrial sector or world class status?

Figure 51: Areas of significant advantage over competitors by Company Size

Legend:
- ▣ Product Quality
- ■ Price
- □ Short Lead Times
- □ Reliable, on time delivery
- ■ Product Customisation

Y-axis: % Deviation from overall average
X-axis: Company size (No. employees) — Micro, Small, Medium, Large
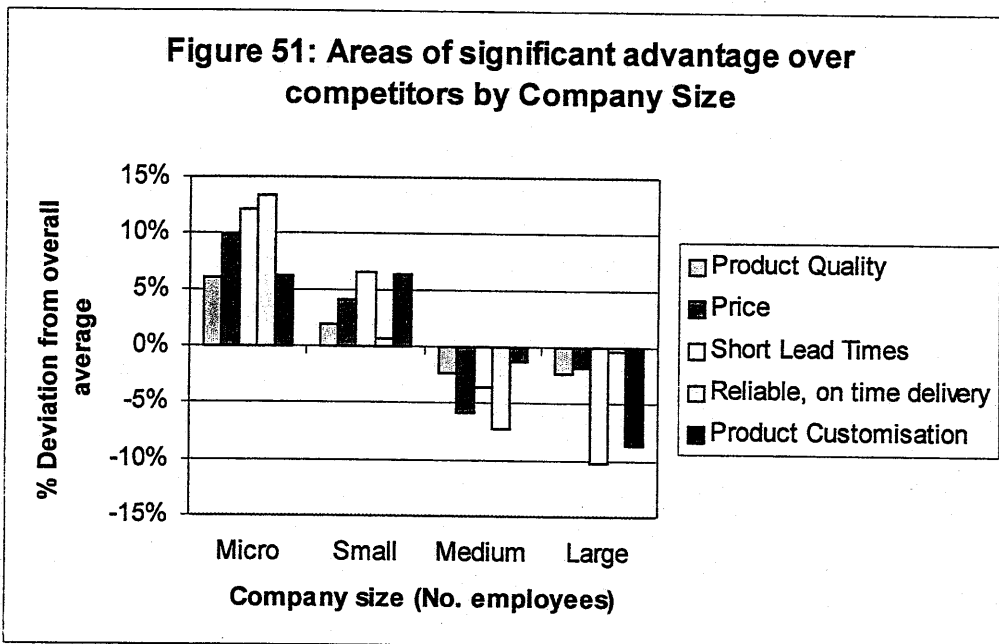
Size appears to polarise perceived competitive advantage as measured by the above five criteria (Figure 51). Micros and small companies (i.e. when considering both size bands together, those employing between 10 and 50 people), have above average levels of perceived competitive advantage on all measures with surprisingly the opposite situation being represented in the medium and large categories of company. Apart from the micros, all other size bands are on average at a disadvantage with respect to price.

To what extent are these advantages related to industrial sector?

The Household and General Goods sector along with the Process industry sector is much more competitive on all measures than the other two categories of industry (Figure 52).

The Electronics industry has much higher perceived competitive advantage than any other sector in manufacturing customised products. However, this sector is well below the overall average on measures such as reliable, on-time delivery, lead times, price and even quality.

The Engineering sector has average levels of perceived competitive advantage as far as price and product customisation are concerned, but are below average on service quality, lead times and reliable on-time delivery.

Apart from the Household Goods sector, all other industrial sectors are on average at a perceived disadvantage with respect to price.

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Figure 52: Areas of Significant advantage over competitors by Sector
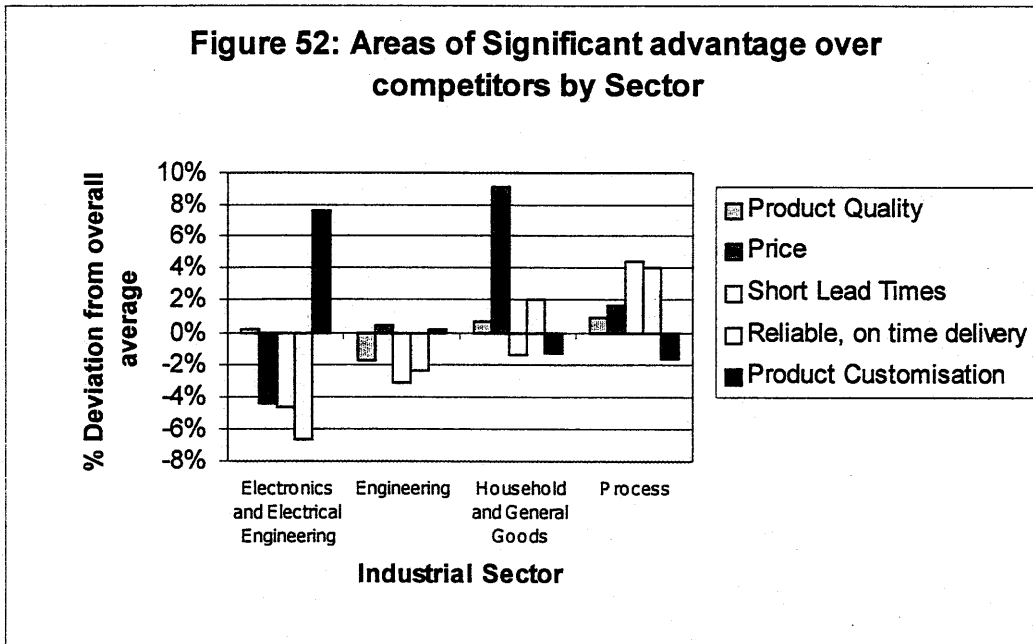
Legend:
- Product Quality
- Price
- Short Lead Times
- Reliable, on time delivery
- Product Customisation

Y-axis: % Deviation from overall average

X-axis (Industrial Sector): Electronics and Electrical Engineering, Engineering, Household and General Goods, Process

To what extent are these advantages related to World Class Status?

The direct link between world-class status and perceived competitive advantage can be clearly seen (Figure 53). PW/WC companies are in the lead, with every measure being above average levels for relative to the whole of the manufacturing sample. In contrast, at the other end of the World Class status scale, CDB have the worst record in terms of every aspect of significant advantage. All apart from PW/WC are on average at a disadvantage with respect to price.

Surprisingly the promising category of companies has below industry-average levels of competitiveness despite their relatively high level of best practice adoption.

Figure 53: Areas of significant Advantage over Competitors - World Class Status
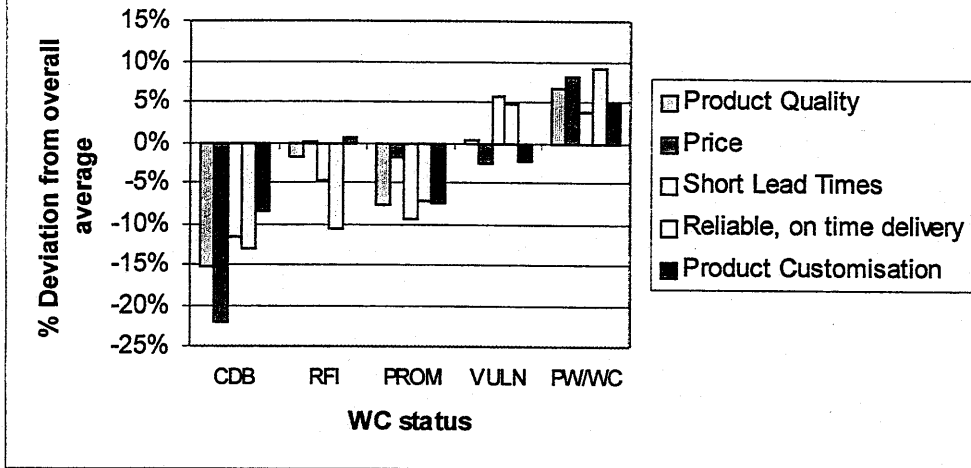
The respondents were also asked, if they personally felt they were able to compete successfully now with the best of their competitors anywhere in the world. An analysis of their responses by size of company, industrial sector and world class status sheds some interesting light on the managers' perceptions. There is no statistical association between either size or sector with their perception of being able to compete successfully now. However, world-class status does have a significant (0.1% level) association with their perceptions. A greater than expected number of vulnerable companies don't know; a greater than expected number of PROM and PW/WC feel that they can compete successfully now and a greater than expected number of CDB and RFI feel that they can compete only partially or not at all.

The extent to which the North East sample were truly 'learning' organisations was also assessed. The participants were assessed to determine whether they considered that change was something they were good at, and in that they saw it as opportunity rather than a necessary evil to cope with. An analysis by size and sector showed no statistical association with this inherent capability to 'learn'. However, world-class status was significantly related to this capability (significant at 0.1% level). In fact a greater than expected number of CDBs and RFIs disagree whilst a greater than expected number of PW/WC agree. Furthermore, statistical association at the same level of significance was also noted with respect to World Class Status when the companies were asked if they were actually good at implementing change. The explanation of this association is exactly the same as that described for the previous question.

What about their future? Would their business environment continue to change significantly and how long would it take to compete with the best competitors in the world were two questions raised with the sample?

Surprisingly there was no statistical association between the likely changes to their business environment and World Class status, Size or Sector. In terms of how long in the future it would take them to compete with the best, no statistical association was observed between the response to this question and Size and Sector. However, it was significant (0.1%) with World Class status. A greater than expected number of VULN don't know; a greater than expected number of RFI say in 5-10 years; a greater than expected number of PROM say in 1-3 years and a greater than expected number of PW/C say 'Today'.

FUTURE ISSUES FOR MANUFACTURING ORGANISATIONS

Over the past two decades, the UK manufacturing sector as whole has had to face enormous changes. The need to become competitive on a global scale and not just in domestic markets, and more recently, in the dot.com era, to provide a responsive, high quality and value but customised service, has accelerated that pace of change. The emerging information, media and communication technologies make this process a never-ending one at least in the foreseeable future.

In turn most sectors have had to respond with more appropriate organisation structures, work processes and management practices to cope with these new market demands. Becoming lean, flexible and capable of meeting fluctuating demands but at the same time maintaining low costs and high quality levels has become the Holy Grail for all organisations operating in a competitive market place. Previous research has shown that companies which adopt best practice across all business processes do invariably demonstrate the best overall operating performance in relation to price, quality, reliable on-time deliveries, short and flexible lead times, and customised product/services. Indeed according to the CBI National Manufacturing Council, if manufacturers secured only the average best practice levels achieved by our leading competitors, the UK could achieve an increase in GDP of around £60bn (CBI Manufacturing Council, 1997).

The nature and extent to which best practice has been adopted by the sector as a whole has been presented in this report and in this final section, the key strengths and weaknesses of its major sub-sectors are summarised. Also highlighted are the challenges facing the sector as a whole and their implications for achieving the attributes of world-class manufacturing organisations.

What are the relative strengths and weaknesses of the key sub-sectors in the North East of England?

The four key sectors analysed throughout this report provide the focus for this comparison. They represent the *'Electronics and Electrical Engineering'* (12% of the sample), *'Engineering'* (37%), *'Household and General Goods'* (10%) and *'Process industries'* (29%).

Table 1 displays the relative position of thirty practice measures within the *'Electronic and Electrical Engineering'* sector. (1 represents the best measure on average and 30 the poorest, within a given sector). The relative strengths and weaknesses within each of three other sectors show substantial similarity especially at the bottom third of the rankings where all their absolute scores are significantly less than three. Relatively poor practice-adoption levels in *performance measurement and reporting, benchmarks* and *maintenance* are strong indicators of this weakness. Irrespective of sector, very few practice scores are significantly greater than 3.5 reflecting in overall terms a considerable scope for further enhancements in implementing better practices across the board. In terms of relative strength, there is very little consistency across all sectors, each sector reflecting their own individual strengths across the whole spectrum of practices in manufacturing.

	Electrical	Engineering	Household & General Goods	Process Industries
•• sig greater than 3.5, • sig greater than 3.0, ∞ sig less than 3.0 (those not annotated have mean scores which are not significantly different to 3)				
Design extent - beyond the enterprise	1 •	2 •	6	5 •
Generation of innovative product concepts	2 •	15	12	7
Order release into manufacturing	3 •	1 ••	1 •	1 ••
Job flexibility	4	6	4	6 •
Quality vision	5 •	4 •	5 •	2 •
Suppliers	6 •	10	11	10
Product technology strategy	7 •	8	19 ∞	16
Exploitation of innovation and creativity	8	19 ∞	7	19
Quality processes	9 •	14	20 ∞	17
Housekeeping	9 •	11	2	10
Product life cycle planning	11	29 ∞	29 ∞	29 ∞
Batch sizes	12	5	8	12
Product development process	13	9	26 ∞	14
Monitoring of design	14	3 •	10	3 •
Engineering change and release process	15	20 ∞	25 ∞	22
Customer orientation	16	7	13	8 •
Equipment layout	17	18 ∞	15	21
Design for production and product use	18	17	23 ∞	9
Training and education	19	23 ∞	18 ∞	20
Shared vision, mission and goals	20	21 ∞	15	18
Problem solving	21	13	9	15
Kanban	22 ∞	22 ∞	24 ∞	24 ∞
Employee involvement	23 ∞	24 ∞	14	26 ∞
Engineering process overlap	24 ∞	16 ∞	17	25 ∞
Engineering application tools	24	27 ∞	27 ∞	23
Vision	26 ∞	11	2	4 •
Manufacturing strategy	27 ∞	25 ∞	22 ∞	13
Maintenance	28 ∞	26 ∞	20 ∞	27 ∞
Performance measurement and reporting	29 ∞	28 ∞	28 ∞	28 ∞
Benchmarking	30 ∞	30 ∞	30 ∞	30 ∞

Table I: Practices ranked in descending order of attainment

Table II displays the relative position of the twenty performance measures within the 'Electronic and Electrical Engineering' sector. They are fairly similar to the relative strengths and weaknesses within each of three other sectors especially to some extent at the top end of the rankings but more consistently at the bottom end. Again it is quite distinctive that only the 'Process industries' sector has the greatest number of performance scores significantly above 3.5, compared to all other sectors. They all happen to be business performance measures related to market share, productivity and cash flow. In terms of relative strengths all sectors have the same 3 performance measures at the top end of their rankings even though their absolute scores are much lower. Consistently weak performance across all sectors relates to new product introduction. In particular they represent long lead times for new product introductions, and for cycle times related to the manufacture and availability of new product designs.

	Electrical	Engineering	Household & General Goods	Process Industries
•• sig greater than 3.5, • sig greater than 3.0, ∞ sig less than 3.0 (those not annotated have mean scores which are not significantly different to 3)				
Equipment change over time	1 ••	1 •	3 •	4 •
Market share	2 •	3 •	1 •	1 ••
Product reliability in service	3 •	4 •	8	7 •
Productivity	4 •	7 •	7 •	2 ••
Age of Capital Investment	5 •	6 •	5 •	9 •
Cash flow	5 •	2 •	5 •	3 ••
New products introduced (last two years)	7 •	13	11	17
Production cycle time	8	5 •	4 •	6 •
Return on net assets	9	8 •	15	8 •
Customer satisfaction	10	10	14	11 •
Customer delivery commitments met	11	9	2 •	5 •
Priority orders in manufacturing	12	20 ∞	10	15
Process capability	13 ∞	12	13	13
Product costs	14 ∞	14 ∞	16	14
Employee morale	15 ∞	15 ∞	9	16
Inventory turns	16 ∞	11	12	12
New product introduction lead time	17 ∞	16 ∞	17	10 •
Cycle time - production release to general availability	18 ∞	19 ∞	18 ∞	18 ∞
Cycle time - concept to production release	19 ∞	18 ∞	20 ∞	20 ∞
Defects (internal)	20 ∞	17 ∞	19 ∞	19 ∞

Table II: Performances ranked in descending order of attainment

What are the major differences between the sectors?

As stated earlier, each sector reflects their own individual strengths across the whole spectrum of practices in manufacturing. The Electrical sector stands out in having established practices for generating innovative product concepts and well established strategy for product technology. They score particularly well in terms of new products introduced. This sector typically forms partnerships with certified suppliers and has a customer emphasis in all processes. However, the Electrical sector is relatively weak compared to the others in terms of Vision and has work to in terms of process capability and inventory turns.

The Engineering sector has no strengths in terms of practice or performance that cannot be found in other sectors. However, they are relatively weak compared to other sectors in terms of priority orders in manufacturing and strategies for innovation.

The companies who manufacture Household and General Goods are relatively strong in terms of delivery commitments, but stand out at having a number of key weaknesses in terms of underlying business practices. They have work do in terms of product technology strategy and quality processes and implementing strategies for product development. In terms of core business activities, their managers have work to in terms of sharing vision and formalising training and education for their staff.

Finally, the Process Industries have advantage in terms of flexible and customer oriented staff. This has led to greater levels of customer satisfaction. They Process

Industries have advantage in terms of Vision and have shorter lead times for the introduction of new products.

What are the sector's strengths and challenges in the context of future World-Class attributes?

Business Area	Strengths	Challenges	Future World-Class Attributes
Strategic/Core Issues in Manufacturing	Vision Quality Vision	Manufacturing Strategy Benchmarks Performance measurement and reporting	The Learning Organisation
Employee Relations & Human Relations	Job Flexibility	Employee Involvement Shared vision, missions and goals Employee morale	Human resource responsiveness 'Teaming' as a core competency
New product introduction	Monitoring of design	Exploitation of innovation and creativity Product life cycle planning Cycle time – concept to production release Cycle time – production release to general availability	The networked organisation Continuous innovation and change management
Quality Management	Product reliability Customer delivery commitments met	Defects (internal) Quality processes	Customer and market Responsiveness
Production and Operations Management	Order release into manufacturing Batch sizes Housekeeping Age of capital investment Production cycle times Equipment change over time	Equipment layout Kanban Maintenance Priority orders in manufacturing	The 'Lean' organisation
Manufacturing Engineering		Engineering process overlap Engineering change and release process Engineering application tools	
Business Performance	Market share Cash flow Return on net assets Productivity	Product costs	Provision of Best Value

Table III: Strengths and Challenges for the Manufacturing Sector

These have been summarised in Table III above in relation to six key business areas, along with their related strengths as well. Each issue highlighted focuses on an aspect of change, which will have a great impact on the relevant business area and raise current levels of organisational excellence. Concentrating on one or a few of the challenges listed and building upon the strengths already achieved, would be a way forward. Within each business area, attention is also drawn to some of the attributes that are now recognised by practitioners and consultants alike, as being critical for sustaining excellence in the future. It is in the context of these desired attributes that the challenges facing the sector are described below.

The Learning organisation:
Even though the sector has demonstrated the importance of establishing leadership and quality values at the highest level, the fundamental need to measure and report on internal performance and to compare that regularly with other similar establishments has yet to be adopted rigorously. Without such information on its own performance and how it compares with other similar institutions, it is hard to imagine where and how future improvements could take place.

Human Resource Responsiveness & 'Teaming' as a core competency:
One of the Sector's main strengths is the flexibility of its staff. However, issue for concern for the Sector centre around the levels of employee involvement and the extent to which managers share vision with their employees. A major concern also are the poor levels of employee morale across the sector.

Customer and Market Responsiveness:
The HR strengths are also reflected in the generally very satisfactory levels of Quality Management. This is shown mainly through product reliability and customer delivery commitments being met. However, this could be enhanced further by the effective use of quality processes such as EFQM or Baldrige, which appear to have a low priority altogether in the Sector. In other words effective but not bureaucratic systems would contribute to greater service levels provided by its staff. The levels of internal defects also require attention.

The Networked Organisation and Continuous Innovation & Change Management:
The Sector also faces several challenges in the area of service design and innovation. There needs to be greater emphasis across the sector in terms of exploiting innovation and creativity and product life cycle planning and attention needs to be given to the cycle times. In the current climate where customers expect high levels of product, which are differentiated and customised for their needs, there is always great pressure on the providers to innovate and improve regularly their product provision. This cultural aspect of innovation and change within the sector is perhaps one of the key issues that has been highlighted by this survey.

The Lean Organisation and Provision of Best Value:
The issues raised here relate to the area of service value and measurement but are also partly a reflection of the challenges faced by the Sector in viewing performance measurement and reporting as a strategic/core issue. In this context, the low priority given to equipment layout, Kanban and maintenance are issues of serious concern. Focussing attention on these issues will not only have a huge impact on reducing product costs, improving return on assets and service levels, but would provide a powerful impetus for sustaining the business excellence culture within the Sector.

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Paper 1

Robson, A., Yarrow, D. (2000) "Getting to the Facts – company benchmarking: issues in data collection and consistency", OR Insight, Volume 13, Issue 1, pp8-17.

Getting to the Facts

- company benchmarking: issues in data collection and consistency

Andrew Robson and David Yarrow

Since 1996 we have been members of a team which has enabled about 750 organisations covering both the manufacturing and service sectors from North East England to benchmark themselves against World Class standards. This project represented co-operation between academic institutions and business support agencies from the region. Its context was as part of a broader, publicly funded regional development project which aimed to enhance the effectiveness of the external support offered to the region's corporate population. For participating organisations, an assessment was made regarding both their practices and performances. A semi-random approach was taken to identifying a representative sample of organisations.

It is not our intention in writing this paper to present the results of the two benchmarking surveys, but to consider various aspects of the questionnaire design and the process of data collection paying particular attention to the issue of data consistency between participating organisations.

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Issues in data collection and response rates

Given that the benchmarking project was launched with a principal aim of profiling the corporate population of the region against accepted World Class standards, it was vital that the data collected was plentiful, representative and accurate.

To ensure data accuracy and consistency, it would have been desirable for a limited number of specialised individuals to make intensive visits to the participating organisations and provide 'hands-on' support in the measurement and analysis of the various operational issues. Clearly, if the benchmarking survey was to be representative, then the number of participating organisations would have to be large. With this requirement, such an intensive level of support and intervention would be prohibitive, in terms of cost and time for the support agencies and the participants.

Conversely, a more time and cost effective approach could involve a postal survey in which the main operational issues could be covered within a shorter, stipulated time in which the onus would be on the participating organisations to provide value judgements on the issues under consideration. Clearly, this approach would have been considerably cheaper, with an extensive target audience both in number and geographic dispersion. However, such postal surveys are not without their problems:

- Rates of response can be very poor.
- Ambiguous questions can be left unanswered or yield incorrect responses.
- The issue of response can be a constraint with regard to the type of questions used.
- Quality assurance for ensuring data consistency between respondents is inevitably less rigorous than the intensive visits.

These two approaches may be regarded as two extremes. For the purposes of the regional study, a 'middle course' was sought, balancing the competing demands of mass participation and data reliability.

Benchmarking methodologies

A number of Diagnostic Benchmarking methodologies were considered by the research team, and one in particular was considered to be a useful starting point. This was called **PROBE** ('PROmoting Business Excellence'), a scheme administered by the Confederation of British Industry. The methodology evolved from the 'Made in Europe' studies and associated research concerning best practice in the service industries, described in several reports (Hanson et al 1994 and

1996; Voss et al 1995, 1997, 1998). PROBE was considered to offer the following advantages:

- it represented an established methodology, designed and extensively used over several years by credible researchers (London Business School and IBM Consulting).
- it provided the opportunity to compare new regional data with substantial national and international databases.
- the research tool was intuitively appealing to the team, being based on well conceived and well written questionnaires applied via a methodology which balanced rigour and depth with cost and resource (both in terms of researcher and participant).

However, the 'terms of reference' of the research commission required mass participation, and it became apparent that the level of resource required and the complexity of the PROBE process meant that a level of simplification and adaptation was required. In doing this, the research team developed a questionnaire-based tool called **PILOT**, in two different versions for the manufacturing and service sectors.

In describing the implementation of PILOT, we will describe the two component parts of the process, the questionnaire itself and the support mechanisms offered to the participating organisations. It is our intention to identify how some of the shortcomings of postal surveys have been addressed in this project. The process undertaken will be evaluated considering three main areas of importance:

- The researchers' perspective
- The participants' perspective
- Data validity and consistency

The PILOT questionnaire

The type of question used extensively on the PILOT questionnaire is the rating scale, where the participating organisation scored particular measures of practice and performance on a scale from 1 to 5, as shown in Figure 1.

Given the desired level of participation and volume of questions, this approach afforded the research team an advantage in that the responses were easy to read and, equally importantly, easy to code for analysis. From the respondent's perspective, a set of rating questions are far less daunting than their open ended equivalents, where there would have been an expectation to deliver detailed, written responses. The approach chosen in general is not without its problems, in particular, many rating scales have attached descriptions such as 'Poor', 'Fair', 'Good' etc. which make objectivity by the respondent and consistency across a potentially large data set practically impossible to ensure.

To overcome this fundamental problem, each question had relevant statements attached to it. These statements reflected the range of possible performance for the attribute under consideration and were based on the work of Voss and Hanson. They reflected a combination of management theory and the experience of the design team. Two examples are shown in Figure 2.

If 'top management visibly promoted and actively participates' in the role of leadership in developing a service culture, the respondent would score '5' for question 1. In contrast, if the respondent's experience was somewhere between 'little attention paid by top management' and 'supported by top management, delegated down', they would score '2'. Each question was supported by a paragraph of

	1	2	3	4	5	Score 1 to 5
Question	Statement 1		Statement 2		Statement 3	3

Figure 1: Rating scale multiple choice question

		1	2	3	4	5	
1	**Role of leadership in developing service culture**	Little attention paid by top management		Supported by top management, delegated down		Top Management visibly promotes and actively participates	
2	**Shared vision , mission and goals**	No shared plan or vision statement		Management share vision; written mission statement		Common vision. Total employee involvement in goal setting	

Figure 2: An example of questions from PILOT

guidance notes, helping the respondent to interpret the three statements and arrive at an appropriate judgement regarding the score.

Once this simplified benchmarking tool had been developed, piloting was undertaken with two groups of company representatives in a 'workshop' setting. The participants were invited to comment upon the questions, the questionnaire as a whole and the benchmarking methodology. Based on this feedback and a review of the 'workshop' results, significant amendments took place to the questionnaire and the process through which participants considered and submitted their responses. In particular, we concluded that participants needed to have the questionnaire sent to them well in advance of the workshop, with encouragement to consult colleagues in the process of compiling a 'first draft' of the responses; and that we should use the opportunity of the workshop to ensure that these responses were 'challenged' by facilitators <u>and</u> by other workshop participants before they were finalised. The questionnaire script was altered by the removal of questions which seemed problematic and the introduction of others which were thought to 'work better' in this setting. However, the wording of questions and accompanying guidance notes were not changed, in order to retain consistency with the earlier 'Made in Europe' and 'Achieving World Class Service' studies. Furthermore, 'live' piloting of the amended tool took place, and this was used to make further refinements.

The participants' workshop

As the 'full' PILOT exercise got underway, participating companies were invited to send one or more individuals to one of a series of free, half-day 'Introduction to benchmarking' workshops. Approximately 75 such workshops were arranged during the two year period at a wide range of venues around the North East, making the opportunity accessible to any willing company. Having booked a workshop place, the participant was sent a PILOT questionnaire and invited to prepare a 'draft' set of responses. The accompanying guidance strongly encouraged the participant to consult several colleagues at this stage in order to gauge a picture of the company which was as accurate and representative as possible. In this way, the research team sought to replicate one of the key features of the PROBE methodologies as far as possible.

By attending the workshop, the participants were offered help to interpret any questions which presented them with difficulties and were 'challenged' by being asked to discuss and justify some of their responses to a gathering of peers from other companies, assisted by a facilitator. For example, a participant would explain their score of '4' for the 'Role of Leadership' (as in Figure 2), describing the leadership style in their company. Others would then do likewise at the workshop, and might question this respondent further, perhaps expressing views on the appropriateness of their

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┌─────────────────────────────────────────────────────────────────────────────────┐
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│              ┌──────────────────────────────────┐                                 │
│              │  A potential pool of companies   │                                 │
│              │  within a support agency's       │                                 │
│              │  regional area, requiring        │                                 │
│              │  assistance.                     │                                 │
│              └──────────────────────────────────┘                                 │
│                              │                                                     │
│                              ▼                                                     │
│          ┌──────────────────────────────────────────────┐                         │
│          │  A small number, ( 5-10 companies), invited   │◄────┐                   │
│          │  to a 1/2 day facilitated workshop where the  │     │                   │
│          │  benchmarking responses from a precompleted   │     │                   │
│          │  questionnaire are discussed and moderated    │     │                   │
│          │  if required. Company diagnostic is provided  │     │                   │
│          │  and explained.                               │     │                   │
│          └──────────────────────────────────────────────┘     │                   │
│                              │                                 │                   │
│                              ▼                                 │                   │
│              ┌──────────────────────────────────┐             │                   │
│              │  Follow - up action then          │             │                   │
│              │  discussed by the company with    │             │                   │
│              │  their support agency including   │             │                   │
│              │  the funding and implementation   │             │                   │
│              │  of the improvement programme.    │             │                   │
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│              │  The benchmarking exercise        │─────────────┘                   │
│              │  repeated annually to monitor     │                                 │
│              │  progress                         │                                 │
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Note:

1. The same benchmark tool (PILOT) is used by all support agencies who each have several facilitators trained and accredited.

2. The support agency is provided with aggregate data after many assessments are completed.

Figure 3: The workshop approach to supporting benchmarking

score. Taking this process further, the participants were then invited to review and finalise all of their responses, and to submit the completed questionnaire for analysis and generation of individual benchmark feedback. The process undertaken in the workshop is presented in Figure 3. Moreover, extensive facilitator training was given to about 60 individuals drawn from the various support Agencies in the North East region. Issues that were addressed by the facilitators included defining benchmarking, how the process worked, and perhaps most importantly the need for honest and realistic responses. It was the hope of the researchers that the process of peer review and 'challenge' between participants would help to ensure data consistency within the workshop groups, and in turn, the facilitators would ensure consistency across groups.

Evaluating the performance of the PILOT project

The researchers' perspective

The success achieved in promoting the concepts of benchmarking and business excellence in the region was indicated by the support and active participation of a varied and extensive range of business support agencies in the North East region, and the extent of the participation from the region's businesses. The response to the benchmarking survey involved participation from about 700 organisations over the two years, thus meeting the target set out at the start of the project and alleviating the potential of poor response often associated with postal surveys. This participation was facilitated by two factors:

- the marketing by the various agencies of the benchmarking process and the associated opportunities.

- the significant lowering of the typical 'barriers' to benchmarking which prevent many companies from taking the first steps. In particular, there was a significant reduction in the investment of time required by the participating organisation and no charge was made, whereas similar benchmarking opportunities would normally cost the participant a substantial fee.

However, there was a trade-off with regard to minimising the time invested and providing a 'free' benchmarking service, in that to some extent, only a relatively superficial diagnosis of the organisations was possible. Nevertheless, PILOT was designed to be an introductory benchmarking tool, and, as such, provided a more than adequate diagnosis for the participating organisations. It should be apparent that any benchmarking exercise which extends beyond the introductory was likely to include intensive observation and will be much more expensive. This was likely to be prohibitive particularly amongst micro and small companies. Nevertheless, as part of this introductory process, encouragement was given to the participants to progress to more sophisticated benchmarking. We have estimated that about 10% of those organisations who participated in PILOT have done this.

A particular success of the partnership approach was that it permitted the business advisers to support the companies in the benchmarking process, and to potentially extend this support by way of identifying business solutions and improvements, and in doing so help better the competitiveness of the region.

The participants' perspective

As described earlier, the participating organisations were encouraged into the benchmarking process by means of certain enticements. One interesting question to ask is typically, 'in what ways did the participating companies benefit?' A follow-up survey of the participants was undertaken by one of the support agencies in the region, its intention being to explore the participants' views of the process with the benefit of hindsight. About one hundred responses were received, giving a fairly representative feedback concerning the PILOT process.

From this survey, 82% of the respondents considered the results generated from their own self-assessment to be fair, with only 2% saying not. Moreover, 62% felt that the diagnostic benchmarking process helped them to prioritise improvement efforts, with 51% of the respondents intending to regularly repeat the benchmarking process. It was also encouraging that 70% of those replying in this follow up survey want opportunities to meet other participating companies with a view to benchmarking with them, which perhaps could be viewed as a positive endorsement of the workshop process, and 53% have recommended benchmarking to other organisations.

More specifically, this follow up survey identified the individual process seen by each participant as 'most in need of improvement', based on a generic business process framework devised for the purposes of the regional project. These are shown in Figure 4.

However, it was also interesting to note the level of financial investment the respondents were prepared to make in benchmarking and/or their willingness to follow through to make use of external support. Specifically, 79% were not encouraged to use banks and accountants more, whilst 55% would not use support organisations more, although 40% replied positively to this question. In terms of making commitments to benchmarking and business improvement, cost was obviously an important factor. The graph in Figure 5 indicates the level of

1. Developing people (64%)
2. Creating improved products and services (48%)
3. Developing new markets (34%)
4. Fulfilling orders (28%)
5. Networking (26%)
6. Creating values and vision (22%)
7. Generating orders (17%)
8. Financing growth (16%)

Figure 4: Process 'most in need of improvement'
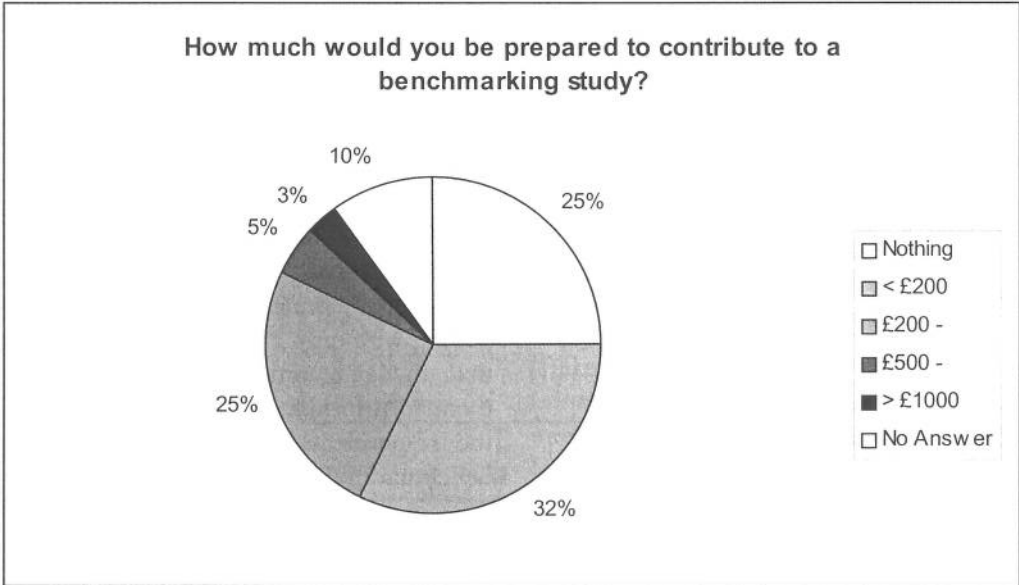
Figure 5: How much would you be prepared to invest in the benchmarking?

financial investment these respondents were prepared to make in the benchmarking process, with 82% being prepared to invest only up to £500. This has since had an impact in that only a relatively small proportion of companies have subsequently undertaken more sophisticated benchmarking of their operations.

Despite the limited positive response to welcoming help from support organisations and the reluctance to pay large amounts of money for a benchmarking service, the responding organisations have subsequently made an encouraging number of unsolicited requests to the regional partnership seeking assistance to meet and learn from others with strengths in specific areas highlighted by the diagnostic process.

Data validity and consistency

Amongst the aims of the benchmarking project was a desire to measure the corporate population of the region against accepted World Class standards in operational practice and performance and, from a regional perspective, identify the main priorities for business support. Moreover, from the point of view of an individual participant, it was important that the benchmarking tool could assist the individual respondent in identifying both their strengths and areas for improvement relative to their business sector. These aims required valid data. On a question by question basis, response within the two surveys was reasonably high. In both benchmarking surveys, the response rates per question were in excess of 90%, hence it seems the presentation of

and type of question has overcome the potential of ambiguity which often causes the questions to be left unanswered.

To get a measure on how confident the research team can be with regard to the validity of the survey data, three separate considerations have been made:

- a review of the issues arising from the workshops.
- testing for significance regarding the method in which the data were collected.
- comparisons with similar benchmarking studies.

Issues arising from the workshops

During the various workshops it was found that, despite encouragement to consult colleagues about responses to the questionnaire, many respondents indicated that the responses submitted represented their own individual view, or that they had only consulted 'one or two' colleagues rather than a larger team. This was particularly true for the smallest companies whose benchmark survey was likely to be predominantly completed by a single respondent compared to organisations with at least 50 staff whose survey was more likely to be completed by a team. For example, the relationship between size and method of completion was significant at the 5% level for the service sector data. A small number of participants responded remotely via the mail without facilitation. This was discouraged, but occurred only in a limited number of cases.

Finally, anecdotal evidence included some striking examples of participants revising their original 'draft' scores following the 'challenge' of having to justify some of them at the workshop. For example, one workshop attendee had awarded the organisation a high score for their approach to 'Problem Solving', and asserted that this was a strength of the company. Later in the same discussion, the group heard an account of the sophisticated and enlightened approaches employed to good effect by one of the region's leading companies, themselves the recipients of several 'Quality' awards. The first respondent subsequently acknowledged that this was what 'best practice' really looked like, and voluntarily revised this score downwards, hence demonstrating how the workshop could help promote consistency between respondents. However, the research team's overall observation was that, in general, the majority of participants were able to support and consequently 'stick to' most of their first draft responses.

Testing for significance regarding the method in which the data was collected

One particular area where it was felt that the data collected may have been subject to bias, and where it was hoped that the workshop process would make a telling impact in ensuring data accuracy, was in the method in which data was collected by the participating companies. Both manufacturing and service surveys considered companies that could be categorised as micro, small, medium and large, and across each the method of data collected could be described as one of the following:

- ALONE - questions completed by single respondent
- MOSTLY ALONE - questions completed by single respondent with help
- TEAM - by multiple respondents

Intuitively, we might have had concerns, say, that single respondents may have been susceptible to being unduly optimistic or pessimistic compared to the range of opinions offered by a team or single respondent with ad-hoc help. To test whether this had an affect on the distribution of responses in the surveys, each of the 63 questions in the manufacturing PILOT survey and the 59 questions in the service PILOT survey were tested by one way analysis of variance to determine whether the mean scores differed significantly with regard to their method of capture. Moreover, each pair of methods from the list above were tested in a pairwise manner. We have commented upon significance at the 5%, 1% and 0.1% levels for the two surveys below.

For the manufacturing survey, there were significant differences at the 5% level with regard to five questions; 'Benchmarking', 'Problem Solving', 'Maintenance', 'Age of Capital Investment' and 'Sustainability'. With regard to pairwise differences, these existed at the 5% level between Alone and Team respondents for the questions relating to 'Age of Capital Investment', 'Housekeeping' and 'Employee Morale', in each case the score being significantly higher for the lone respondent.

In the service sector survey, there were significant differences at the 5% level with regard to three questions; 'Employee Satisfaction', 'Human Resources Strategy', 'Innovativeness' and high significance at the 0.1% level with regard to 'Use of external technical advice'. In each case, significant differences were seen in the pairwise analysis between Team and Alone respondents, at the 5% level for the first three questions and at the 0.1% level for the last question. In each case except for 'Employee Satisfaction', the scores for the Team were significantly higher.

Whilst any differences may be interesting or problematic, given the size and scope of the two surveys, the number of questions displaying significance with regard to the method of completion and corresponding differences between pairs of methods was relatively small, indicating that the method of questionnaire completion had only a limited effect on the data collected.

Comparisons with similar benchmarking studies

The research team were also given an opportunity to compare their manufacturing benchmark data with a similar survey undertaken elsewhere in the UK. Whilst two independent UK regions may not be expected to produce exactly the same distributions of data, the additional comparison and subsequent analysis was quite useful as an indication of the likelihood that the data sample presented a reasonably accurate picture of the North East's corporate population.

The comparison was made with data collected by a benchmarking survey called **Microscope** on behalf of West London TEC. The analysis indicated a difference in distribution of company sizes between the two studies, with PILOT having a larger proportion of participants with more than 50 employees. This was because the Microscope survey was specifically designed with micro and small companies in mind. The Microscope methodology was very similar to PROBE, whereby an external facilitator worked with a small team of company personnel to develop a set of 'consensus' responses to the benchmarking questionnaire. The Microscope questionnaire was very similar to PILOT, except the latter's questionnaire contained a number of additional questions.

To make meaningful comparisons, analysis of the samples within size bands (ie micro versus micro, small versus small etc) was undertaken. This analysis did suggest that some significant differences existed between the two groups, but these represented only a small proportion of the benchmarking questions. In particular, significance occurs at the 1% level between the two groups of micro companies with regard to 'customer orientation', 'quality relating to suppliers' and 'product development cycle times'. The overall conclusion is that within size bands the two surveys provide very similar results.

Conclusions

The data collection process is of fundamental importance to the business manager and OR practitioner, since the (hard) analysis and modelling process is ultimately data driven. The accuracy of the data in the benchmarking process described was of great importance both to the research team and the business support agencies in the North East of England not least because these agencies have been charged with identifying the main priorities for business support generally across the region's corporate population and, as a consequence, were keen to assist individual organisations in identifying both their strengths and areas for improvement. Having plentiful and accurate data permitted the research team to determine how well an individual company and how well the region performed as a whole against a set of accepted world class standards in operational practice and performance.

These goals presented us with a potential dilemma in terms of data collection; ie the data set had to be big enough to be representative of the whole region (at the start of the project, a target of 700 companies was agreed), data had to be consistent between organisations and consistent with accepted benchmark standards, whilst the whole process had to be undertaken as efficiently and as cheaply as possible.

With regard to accepted survey methods, there is an understood trade off in terms of accuracy and cost between intensive observation and interviews versus self-assessment questionnaires. In this paper, we have described a tool which aims to bridge the gap between the two extremes, using the self-assessment process (supported by detailed instructions and

question explanation) as an introductory step, followed by a workshop forum which aims to complement this with the benefits usually afforded by one-to-one contact with the survey respondents. Moreover, we have given an indication throughout the paper of the strengths and shortcomings of both the process and the subsequent data. The data collected has been tested for significance with regard to the method of submission and has been compared with a similar benchmarking exercise elsewhere. These results have suggested that for most aspects the data were reasonably robust. In addition, the participants were reviewed both concurrently at their workshop and post-survey with regard to the usefulness of the whole benchmarking process, and have generally given positive responses. On balance, the research team judge the approach adopted to have been successful and feel that it may have applications elsewhere.

Acknowledgements:

For the interested reader:

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Paper 2

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What can we learn from "leading" service practitioners about business excellence?

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Keywords

Benchmarking, Model, Service industries, Operations, Performance measurement

Abstract

It is reasonable to assume that levels of business excellence will vary considerably amongst a group of organisations; two recent studies of organisations in north east England support this hypothesis. Draws on these benchmarking data. Relates to 28 business excellence practices and 19 operational performance measures covering strategy, human resources, service delivery and quality, service design and innovation, service value and measurement and business performance. Identifies the extent of any significant differences in overall practice and performance attainment levels between service leaders and their counterparts. Also considers combinations of attributes that best discriminate between levels of attainment. Derives a subset of measures that have the potential to provide an insight into a service organisation's level of practice adoption and corresponding performance. Also considers additional characteristics to ascertain what association, if any, they have with the level of practice adoption and operational performance amongst the service organisations. All significant differences are highlighted at the 5 per cent significance level unless otherwise stated.

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Introduction

During the 1980s those service organisations in the UK that were once regarded as public sector and non-profit making have increasingly become market and customer-oriented businesses striving to adopt world-class practices from leading multinationals in the (private) manufacturing sector. High profile changes include the introduction of the market economy in both primary and secondary health care, the market testing of a variety of local authority services during the 1980s followed more recently by "best value" initiatives and the introduction of performance league tables across all tiers of education. These innovations have had an enormous impact upon the service sector as a whole (both public and private) and are all aimed at introducing professional managerial disciplines to both the value and quality of the services being provided.

To what extent has this business excellence culture really permeated the service sector within the UK? How widespread is the use of good practice and what impact has it had on those organisations and their business performance?

Using empirical evidence from a large sample of service organisations, this paper identifies any significant differences in the overall practice and performance attainment levels between service leaders and the rest of that sample. The statistical analysis undertaken also suggests a combination of attributes that best discriminate between the levels of attainment indicated. A subset of measures is derived that has the potential to provide an insight into a service organisation's level of practice adoption and corresponding performance. Additional characteristics such as size (measured by number of employees on site), service sector, markets and type of ownership are also considered to ascertain what association, if any, they have with the level of practice adoption and operational performance amongst the service organisations. All significant differences are highlighted at the 5 per cent significance level unless otherwise stated.

Research methodology

Analytical framework used

The analysis presented relates to 28 measures of practice adoption and 19 measures of

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business performance. These have been categorised into the broad areas of strategy, human resources, service design and innovation, service delivery and quality, service value and measurement and business performance. These groups represent the business areas that have been used in the service management model, applied in the "Service in Britain" studies (Voss and Johnson, 1995). The service management model is shown by Figure 1.

In developing this model, Voss and Johnson (1995) considered a number of recognised models of service practice and performance such as the service value chain, Chartermark and the European/UK Quality Award. They combined these into a model that associates service management practice to service and business performance. Voss and Johnson (1995) consider that leadership drives the service and in turn this leads to a customer/service-oriented culture. These components correspond to the measures referred to as strategy and human resources in this paper. Voss and Johnson (1995) also state that "central to good service is the service concept and design" (represented in this paper by service design and innovation) and "high quality service must be delivered at low cost" (service delivery and quality). They also state that "a well managed service organisation sets demanding standards and ensures that these are met through performance measurement and feedback" and "a focus on productivity and value will result in low costs". These initiatives and outcomes are considered in this paper by measures labelled as service value and measurement and business performance respectively. In this paper the authors have used a tool called PILOT (for details see section below) to obtain measures of practice and performance related to business excellence and have categorised these in terms of the established service management model. The model can potentially highlight those

areas of service management where the Leaders have the greatest advantage and by referring to the work of Voss and Johnson (1995), the findings from the north east survey can be compared with a sample of service organisations located throughout the UK. This survey provides a useful comparison (based on a single region) with the UK wide findings. Closer to home it will be of interest to individual service organisations and business support agencies in the region. It can not only help to answer questions regarding the extent to which the leading organisations are at an advantage, where they can improve further and what activities must be given priority amongst their weaker counterparts.

Measuring instrument used

The authors have had a unique opportunity to record current levels of best practice and performance in nearly 450 service organisations in the north east of England. This was part of a much bigger benchmarking exercise which involved over 750 businesses studied in the late 1990s (Prabhu *et al.*, 2000a; 2000b). The methodology was based on the widely recognised benchmarking metrics used in the "Service in Britain" studies (Voss and Johnson, 1995) and subsequently in the International Service Study (Voss *et al.*, 1997a; 1997b). It is now available in the form of "SERVICE PROBE", marketed by the CBI, London. The University of Northumbria at Newcastle has adapted SERVICE PROBE for the purposes of the North East study, to be applicable to smaller businesses and to be more readily applied to a large sample of organisations from both the public and private sectors. The adapted tool, PILOT, compares an organisation's operational practices and performance with standards regarded as world-class. Data were collected via a self-assessment process using a questionnaire and

Figure 1 The service management model
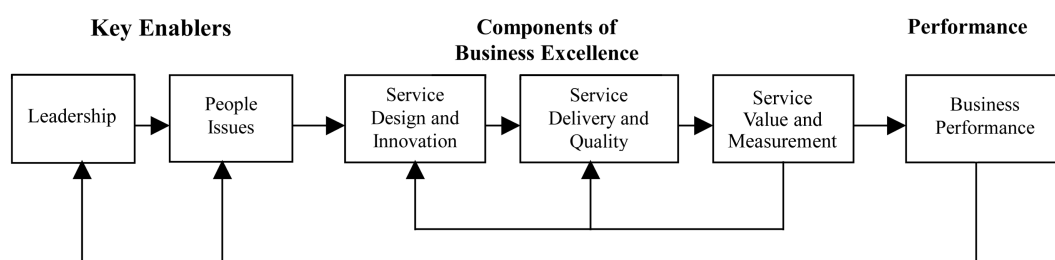
undertaken by a small group of organisational representatives. This was facilitated by the research team and quality assured through benchmarking workshops (see Robson and Yarrow, 2000 for further details).

Categorisation of service organisations and their key characteristics

The practice and performance questions used in the PILOT survey used scores on a scale from 1-5, where 5 represented world class attainment for the particular measure. For an organisation to have achieved world class status, they needed on average an 80 per cent attainment in both business practices and operational performance. The results of the North East service study have been sub-divided into six categories based on average practice and performance scores, as indicated by Figure 2.

In this paper only four broader categories are considered: leaders, laggers, vulnerable and promising. The small proportion of organisations who have achieved world-class (WC) status (based on the definition above) and those described as potential winners (PW), who have achieved relatively high levels of practice and performance, have been combined to represent the service leaders in the sample. In contrast, the two groups, room for improvement (RFI) and could do better (CDB), who average below 60 per cent (i.e. have an average score of under 3 for both practice and performance measures from PILOT) represent the service laggers. Two other groups exist in the sample. The first, vulnerable (VULN) organisations, achieve a high overall level of operational performance without the underlying support of good

practices. The second, promising (PROM) organisations, adopt good to better levels of business practice but have yet to attain corresponding levels of high operational performance.

When considering the properties of the region's leading service organisations, other factors such as ownership, markets served, size and sector have also been considered. In terms of the latter two categories, the participating organisations and their proportions are categorised as micro (up to 20 staff) (36 per cent), small (21-50) (24 per cent), medium (51-200) (22 per cent) and large (more than 200 staff) (18 per cent). Additionally, the organisations considered belong to four broad sectors. These sectors are education and public services (27 per cent), consultancy and professional (27 per cent), industrial services (14 per cent), leisure and retail (11 per cent) and other (22 per cent).

Each of the four cohorts described above has a "typical" attainment for practice and performance. For example, this is represented by an average score of 3.5 for both types of measure for the leaders. Table I gives an indication of these typical levels for each group as well as their other key characteristics, which are described below.

Sector is significantly associated to this categorisation. Public services/education are over represented amongst the promising and laggers, whilst professional/consultancy tend to be found amongst the leaders and vulnerables, and industrial services also tend to be vulnerable.

Size also plays a part in the attainment of the service organisations (1 per cent level). Large organisations are over represented amongst the promising and laggers, whilst medium-sized organisations are found in high proportion amongst the leaders. Micro and small organisations are over represented amongst vulnerables, but a large proportion of micros can also be found amongst the service leaders.

Providers of services overseas are over represented amongst the leaders, but none of the specific locations considered (Western and Eastern Europe, USA and Asia Pacific) show significant association to organisation category. Ownership is associated to world-class attainment, where subsidiaries of larger firms are in high proportion within the promising group. Self-perception of their

Figure 2 Categories of service organisation defined by practice-performance model
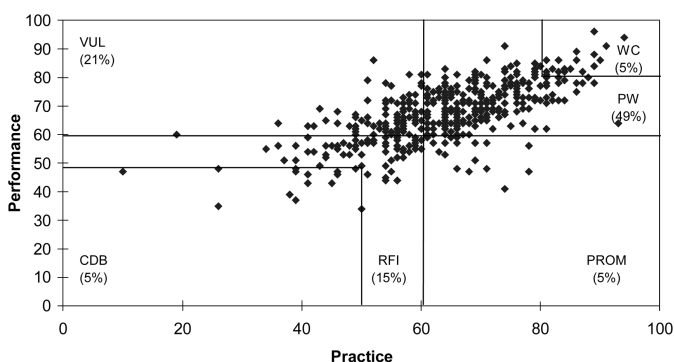
Table I "Typical" characteristics for each category of organisation

	Leaders	Vulnerable	Promising	Laggers
Boundaries of practice/performance scores (%)	>60, >60	<60, >60	>60, <60	<60, <60
Typical score (out of 5) for practice/performance	3.5, 3.5	2.5, 3.5	3.5, 2.5	2.5, 2.5
Size of company (mainly) represented	Micro, Medium	Small	Large	Large
Service sector (mainly) represented	Professional	Professional industrial services	Public services	Public services
Ownership (mainly) represented	Independent	Independent	Subsidiaries	Independent
Provision of services	Overseas			
Competitiveness perception	High	None	Low	None

competitiveness is also related to this categorisation (0.1 per cent level). Promising, vulnerable and lagging organisations tend to believe they can only compete partially at best or not compete at all. However, the time scale for being able to compete shows no significant association with this classification.

Preliminary analysis of the chosen measures indicates that the high practice adoption levels amongst the services does lead to higher overall performance. There is a statistically significant association (0.1 per cent level) between overall practice and performance score, which is consistent with the shape of the points in Figure 2 and consistent with the results from "Service in Britain" (Voss and Johnson, 1995). Equally, there is significant association between the two aggregate measures amongst service leaders and also service laggers. This would suggest that where strong underlying practices exist, there is a resultant high level of operational performance and the converse for low levels of practice adoption.

A number of questions can be considered at this point:

- To what extent are leading organisations superior to the laggers in terms of practice and performance?
- Which areas of the service management model display the greatest differences between these two groups?
- What performance indicators discriminate leaders from promising?
- Are there any areas of practice (as defined by the service management model) where the leaders are significantly better?
- What underlying business practices discriminate between leaders and vulnerable?

- Are there any performance indicators (again related to the service management model) where leaders are significantly better?

Leaders vs laggers

Practices

The service leaders in the north east region have a clear advantage on all 28 practice measures. Each of the five components of the service management model has measures where the differences (in average score) are in excess of 50 per cent, as indicated by Table II.

In terms of key enablers, the lagging organisations are at a clear disadvantage in terms of strategy and human resources, particularly with respect to the former. In terms of absolute attainment, the leaders are particularly strong with leadership's role in the developing service culture and quality values. Staff are customer oriented and have good teamwork initiatives. They listen to the customer and have established systems for responding to problems and failures. The leading organisations have their greatest relative advantage over their weakest counterparts in terms of strategies relating to measurement systems and quality values. HR issues are an area of concern for the laggers. For each measure there is at least a 40 per cent difference in average attainment between them and the service leaders. Emulating the leaders would benefit the laggers given the positive impact a formal human resource strategy can have on raising the levels of competitive advantage (Appleby and Mavin, 2000). In terms of the key components of service management, the greatest disparity between the two groups is in the area of quality and delivery. Practices relating to problem solving, using complaint data and

Table II Relative advantage of the "leading" services

| | | Practice measure | | |
	Leaders	Laggers (%)	Promising (%)	Vulnerable (%)
Strategic issues				
Role of leadership in developing service culture	4.0810	38	14	21
Quality values	3.9637	53	3	33
Skill and job training and education	3.5547	47	−7	50
Competitive positioning	3.6169	39	5	24
Benchmarks	2.6598	76	−11	69
Performance measurement and reporting	3.1700	76	11	67
Human resource issues				
Shared vision, mission and goals	3.4130	44	4	28
Customer orientation	4.0040	58	6	29
Recognition and reward	3.3984	51	17	39
Employee involvement	3.5668	41	5	24
Listening to staff	3.7247	40	4	24
Day to day teamwork	4.0207	45	−1	35
Workforce flexibility	3.7126	40	26	18
Service design and innovation				
Listening to the customer	3.9676	35	2	29
New service design and development process	3.2794	43	−2	23
Role of support functions	3.4208	29	20	18
Management of business processes	3.4262	35	3	23
Current use of information technology	3.4939	35	1	25
Generation of innovative product concepts	2.8250	69	13	36
Service delivery and quality				
Problem solving	3.4758	63	14	46
Quality mindset	3.7298	51	19	39
Quality procedures and framework	3.0121	39	0	35
Real time employee handling of service problems/ failures	3.9109	28	24	13
Use of customer complaint data	3.6976	54	8	45
Service value and measurement				
Elimination of "waste"	3.0576	28	9	22
Clarity of goals	3.7642	33	5	19
Visibility and communication of service standards	3.5830	56	8	35
Customer satisfaction measurement	2.9224	73	2	60
Strategic issues				
Strategy towards corporate social responsibility	3.0517	38	31	18
Human resource issues				
Employee loyalty, relative to industry	4.1510	29	25	5
Employee satisfaction	3.2105	53	38	12
Service design and innovation				
Innovativeness	3.2602	54	16	22
Clarity of service concept	3.6774	58	14	30
Speed of development relative to competition	3.5287	53	37	16
Service meeting customer needs	3.8750	35	18	10
Service delivery and quality				
Reliability	3.9234	30	14	6
Quality performance, relative to industry	3.9798	36	23	8
Staff responsiveness	4.0243	44	21	3
Accessibility	3.8548	12	16	3

(*Continued*)

Table II

	Leaders	Practice measure Laggers (%)	Promising (%)	Vulnerable (%)
Service value and measurement				
Value (quality/price)	3.7368	34	25	12
Customer retention	3.8525	31	38	4
Level of customer satisfaction	3.7258	37	30	8
Business performance				
Market share (of primary services or line of business)	3.8148	36	32	4
Cash flow	3.7676	38	41	4
Overall productivity within organisation	3.5143	29	31	7
Return on net assets	3.3692	26	51	9
Operating costs	3.0814	18	16	0

developing a quality mindset amongst employees show the greatest differences. In addition, the laggers are particularly weak in generating innovative product concepts and are poor in terms of their measurement of customer satisfaction.

While they are at a clear advantage in all aspects of service management, the region's leaders can still improve on a number of their practices. Examples include weak benchmarking practices, poor performance measurement and reporting systems and inadequate customer satisfaction measurement (despite the relative advantages described above). Their scores are significantly lower on average compared to the typical attainment for other initiatives and reflect serious weaknesses. Other areas for concern are practices for generating innovative product concepts, the adoption of formal quality procedures and frameworks, and perhaps more importantly, their practices on employee recognition and rewards.

While the laggers need "across-the-board" improvements, some of their practice adoption levels are significantly lower than the average expected for this group and require the greatest and most immediate attention. Examples cover performance measurement strategies, employee recognition and reward initiatives, product innovation and new service design, empowering staff to solve problems and the use of formal quality procedures.

Performance

Given the advantages demonstrated by the Leaders in terms of practice adoption, their advantage in performance is equally considerable (all measures again showing significance at the 0.1 per cent level). The

Leaders score highly with regard to employee loyalty, across the board in terms of delivery and quality, meeting customer needs and customer retention. The greatest relative advantage the leaders have over the service laggers is in terms of service design and innovation. The leaders are at an advantage in terms of clearer service concepts, their ability to innovate and the speed at which they can develop new services. They also have a clear advantage in terms of their employees' satisfaction. The results suggest that the laggers have focused their attention on performance measures related to service delivery and quality, as well as service value and measurement, given the much smaller differences in attainment.

There is still room for improvement for the leaders. They need to improve their performance on employee satisfaction (significantly lower compared to typical attainment despite their advantage over the laggers), on their record of corporate social responsibility and they need to pay attention to specific business performance indicators, such as return on net assets and operating costs.

Other factors

A number of other factors highlight significant differences between leaders and laggers. Whilst size shows no statistical significance, there are significant sectoral differences. Consultancy/professional organisations are more likely to be amongst the leaders, whilst education and public services are found in large numbers amongst the laggers. The leaders are more likely to offer services overseas (1 per cent level).

In terms of self-perception, significant differences (0.1 per cent level) are observed

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on the extent to which organisations believe they can compete. Leaders believe they can mostly or fully compete, whilst laggers if they know believe they can only partially compete at best. The time scale for competitiveness shows significant differences, where the leaders believe they can compete now, whilst the laggers expect to wait five to ten years before they are competitive.

Leaders vs promising organisations

Practices
Promising organisations are those with strong underlying practices, but whose performance has yet to match the leaders. This is borne out by the practice measures considered in Table III.

An overwhelming majority of practices show no significant difference between the two groups. However, where it does occur, it is concentrated in two specific components of the service management model. These are human resources, where leaders have greater workforce flexibility and display greater levels of staff recognition and reward, and service delivery and quality, where the leaders again have the edge on most practices. This component of service management is the only one from the model where significant differences occur (one measure apart) in respect to practice adoption.

Promising organisations demonstrate particular weaknesses in several practices, with significantly lower adoption levels than expected. These include benchmarking and the adoption of performance measurement and reporting systems, including customer satisfaction measurement. Human resources are another area of concern in terms of shared vision of service and in the recognition and reward of staff achievements. Service delivery and quality as suggested is the area with considerable potential for further improvement over a range of practices.

Performance
Whilst the differences in practice adoption are limited, the Leaders have significant advantage over the Promising organisations for all performance indicators (all at the 0.1 per cent level). Areas for greatest improvement for the Promising group in relation to the service management model are human resources and service value and

measurement and overall business performance. However, apart from the "hard" and established measures of business performance, Promising organisations are closer to leaders in terms of their performance than laggers. This suggests that superior levels of practice adoption may have had some impact upon operational performance, although this impact could be improved considerably, perhaps over time as their practices have an opportunity to mature. Encouragingly, the differences in performance attainment with respect to design and innovation and delivery and quality are relatively close in percentage terms.

Other factors
When comparing leaders and promising alone size proves to be a significant factor. Promising organisations are primarily large, while leaders are predominantly medium-sized. Ownership is also significant (1 per cent level), with independently owned organisations tending to be leaders and subsidiaries tend to be promising, although this factor could well be related to size.

The extent to which organisations believe they can compete is also associated to organisation status. Promising organisations are more likely to believe they can only partially compete. Despite their solid foundations in terms of established business practices, their relatively poor levels of operational performance is the most likely cause for this perception.

Leaders vs vulnerable organisations

Practices
Vulnerable organisations are those who have achieved good levels of operational performance without the support or adoption of solid business practices. For all practices, the leaders have a significant advantage (all at the 0.1 per cent level). Compared with the sector's laggers, vulnerables are performing better on average for each practice, but are closer to the laggers in terms of the average scores than they are to the leaders. This does give an indication of the extent of work to be done across-the-board by vulnerable organisations if they expect to become service leaders. The greatest percentage differences in average scores in relation to the service management model are in core business

Table III Leaders vs promising for practices

Percentage differences between leaders and promising – practices	Sig level	% diff	Leaders	Promising
Strategic issues				
Role of leadership in developing service culture	**	14.3	4.0810	3.5710
Performance measurement and reporting		11.0	3.1700	2.8570
Competitive positioning		5.5	3.6169	3.4290
Quality values		2.8	3.9637	3.8570
Skill and job training and education		−7.0	3.5447	3.8100
Benchmarks		−11.3	2.6598	3.0000
Human resource issues				
Workforce flexibility	***	25.8	3.7126	2.9520
Recognition and reward	**	17.0	3.3984	2.9050
Customer orientation		6.4	4.0040	3.7620
Employee involvement		5.5	3.5668	3.3810
Listening to staff		4.3	3.7247	3.5710
Shared vision, mission and goals		3.9	3.4130	3.2860
Day to day teamwork		−0.7	4.0207	4.0480
Service design and innovation				
Role of support functions	**	20.0	3.4208	2.8500
Generation of innovative product concepts		13.0	2.8250	2.5000
Management of business processes		2.8	3.4262	3.3330
Listening to the customer		1.6	3.9676	3.9050
Current use of information technology		0.5	3.4939	3.4760
New service design and development process		−1.6	3.2794	3.3330
Service delivery and quality				
Real time employee handling of service problems/failures	***	24.4	3.9109	3.1430
Quality mindset	**	18.7	3.7298	3.1430
Problem solving	*	14.0	3.4758	3.0480
Use of customer complaint data		7.8	3.6976	3.4290
Quality procedures and framework		0.4	3.0121	3.0000
Service value and measurement				
Elimination of "waste"		8.8	3.0576	2.8100
Visibility and communication of service standards		7.5	3.5830	3.3330
Clarity of goals		5.4	3.7642	3.5710
Customer satisfaction measurement		2.3	2.9224	2.8570

Notes: *Significant at the 5 per cent level; **Significant at the 1 per cent level; ***Significant at the 0.1 per cent level

strategies (particularly those involving measurement) and in service delivery and quality issues. Indeed, their adoption level in terms of measurement practices is significantly lower than the average level of practice adoption for this group. A similar picture is seen with respect to adopting quality procedures and frameworks and the generation of innovative product concepts.

Performance

In terms of performance, vulnerable organisations have attained good levels but Table IV indicates that relative weaknesses still exist when they are compared with the leaders.

The weaknesses highlighted cover all aspects of the service management model with the exception of business performance. It would appear that work has been done to ensure good results in terms of the established measures of business success, but much less attention has been paid to the supporting parts of the business process. Service design and innovation is a key area for performance improvement followed closely by human resources, and service value and measurement. Poor underlying practices in vulnerable organisations will have had some impact on lower performance levels. This is supported by lower than average performance levels on employee satisfaction, on corporate

Table IV Leaders vs vulnerable for performance

Percentage differences between leaders and vulnerable – performances	Sig level	% diff	Leaders	Promising
Strategic issues				
Strategy towards corporate social responsibility	***	17.7	3.0517	2.5930
Human resource issues				
Employee satisfaction	***	11.8	3.2105	2.8723
Employee loyalty, relative to industry	*	5.5	4.1510	3.9355
Service design and innovation				
Clarity of service concept	***	29.5	3.6774	2.8387
Innovativeness	***	21.9	3.2602	2.6739
Speed of development relative to competition	***	16.4	3.5287	3.0320
Service meeting customer needs	***	9.6	3.8750	3.5368
Service delivery and quality				
Quality performance, relative to industry	***	7.6	3.9798	3.6989
Reliability	**	6.5	3.9234	3.6842
Accessibility		2.9	3.8548	3.7447
Staff responsiveness		2.8	4.0243	3.9140
Service value and measurement				
Value (quality/price)	***	11.9	3.7368	3.3404
Level of customer satisfaction	**	7.6	3.7258	3.4632
Customer retention		3.7	3.8525	3.7158
Business performance				
Return on net assets	*	8.9	3.3692	3.0941
Overall productivity within organisation	*	6.7	3.5143	3.2947
Market share (of primary services or line of business)		4.1	3.8148	3.6632
Cash flow		3.6	3.7676	3.6380
Operating costs		−0.3	3.0814	3.0920

Notes: *Significant at the 5 per cent level; **Significant at the 1 per cent level; ***Significant at the 0.1 per cent level

social responsibility, on innovation and service design and in terms of business measures relating to productivity, return on net assets and operating costs.

The comparison made so far of promising and vulnerable organisations with service leaders highlights one key difference. Both groups have their relative strengths and weaknesses, but the promising organisations are perhaps much closer to service leaders in terms of their practices than the vulnerable are in terms of their performance indicators.

Other factors

The only additional factor that shows a significant difference between leaders and vulnerable organisations is the extent to which they perceive they can compete. Leaders tend to believe they can mostly or fully compete, whilst a significant proportion of vulnerable organisations believe they can only partially compete at best. However, time scale for competitiveness showed no significant difference between the two groups.

Factors that best indicate performance "winners"

Is there a combination of performance measures that best indicate whether an organisation is likely to be a performance "winner"? Each of the 19 performance factors was considered and stepwise discriminant analysis was applied to them. The objective was to determine the significant combination of factors which best discriminated between those organisations that averaged at least 60 per cent for performance and those who can make major improvements in operational performance. The factors identified and the level of accuracy in the discrimination is displayed in Table V.

The discriminating factors provide a useful checklist to predict the status of the organisation. The level of accuracy in terms of predicting performance status is almost 90 per cent and nearly all of the components of the service management model are represented in the discriminating group. The leading performers (i.e. leaders and vulnerable organisations) are performing

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Table V Factors that discriminate for performance attainment

	Discriminating factors	Component of service management model
	Strategy towards corporate social responsibility	Strategic issues
	Employee loyalty, relative to industry	Human resource issues
	Staff responsiveness	Service delivery and quality
	Level of customer satisfaction	Service value and measurement
	Market share	Business performance
	Cash flow	Business performance
	Operating costs	Business performance
	Predicted group membership	
	Laggers/promising (%)	*Leaders/vulnerable (%)*
Laggers/promising	63.5	36.5
Leaders/vulnerable	3.2	96.8
	89.0 correctly classified	

significantly better in terms of the traditional "hard" business measures such as market share, cash flow and operating costs but also from staff related issues such as responsiveness and loyalty. In turn, they are recording significantly higher levels of customer satisfaction. External to their business, they are performing better in terms of social responsibility.

Initiatives that best indicate practice "winners"

Equally, does a combination of business practices best indicate whether an organisation is a winner and hopefully equipped to deal with future developments and market changes? Each of the 28 practices was considered and the objective was to determine the significant combination of factors which best discriminated between those averaging at least 60 per cent in adoption levels with those who do not (i.e. leaders and promising combined versus vulnerable and laggers). The factors identified and the level of accuracy in the discrimination is displayed in Table VI.

The discriminating factors again provide a checklist to predict the status of the organisation in terms of practice adoption. The level of group prediction exceeds 80 per cent and each of the areas of the service management model is included in the discriminating group. In comparison to their weaker counterparts, those exhibiting high practice-adoption levels are performing significantly better in terms of implementing core business strategies, in encouraging employees to become customer oriented and

problem solvers and focusing on eliminating operational "waste".

Discussion

Research findings

This paper presented four types of service organisations based on their practices and performance and other key characteristics. It also presented a detailed analysis of the differences between service leaders and the other three groups, laggers, promising and vulnerable.

Significant differences exist between leaders and laggers in both practice and operational performance. The differences in average scores for each practice and performance measure are significant at the highest level and cover all of the components of the service management model. Clearly, laggers have to make widespread, across-the-board improvements both in business practice and corresponding performance, although an indication has been given in the paper regarding those initiatives and outputs which require the greatest and most immediate attention.

Clear discrimination between leaders and promising exists in terms of operational performance. However, in relation to the service management model, these differences are more pronounced in terms of human resources, service value and measurement and overall business performance. On a positive note, promising organisations have few disadvantages in terms of business practices, although to become leaders, more has to be done in terms of developing strategies in two

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Table VI Factors that discriminate for practice adoption

	Discriminating factors	Component of service management model
	Benchmarking	Strategic issues
	Skill and job training and education	Strategic issues
	Customer orientation	Human resource issues
	Problem solving	Service delivery and quality
	Elimination of "waste"	Service value and measurement
	Predicted group membership	
	Laggers/vulnerable (%)	*Leaders/promising (%)*
Laggers/vulnerable	69.4	30.6
Leaders/promising	8.9	91.1
	82.0 correctly classified	

specific areas of service management, human resources and service quality.

In terms of business practice, the leaders have a recognisable advantage over the vulnerables. These differences are significant at the highest level and cover all aspects of the service management model. In terms of supporting practices, vulnerable organisations are much closer to service laggers than leaders. Although they perform reasonably well, there are specific areas for concern here, particularly in the area of service design and innovation. To a lesser extent, there are also significant differences between the vulnerables and leaders in terms of service delivery, value and measurement and human resources.

All cohorts can improve in terms of the practices they adopt and the performances they attain. Across the sector, significant improvements can be sought in terms of key human resource issues, namely recognition and rewarding of staff and resultant employee satisfaction. Quality procedures can also be improved across the sector and formal measurement systems provide a major challenge for the north east services. There is scope for improvement in terms of innovation amongst the leaders and vulnerable and with respect to delivery and quality for the promising and laggers.

Finally, what can others from the north east services learn from their leading organisations? Table VII summarises their key strengths in terms of practices that they are good at and performance measures where they perform best for the sector as a whole.

In terms of practices, there is a consistent theme of quality and service with employees at the core of service design and delivery and a strong emphasis on meeting customer expectations. In terms of performance, the critical measures of success are again related to meeting customer needs in terms of quality, reliability and accessibility through staff responsiveness and employee loyalty. However, the region's leaders have a lot more to learn themselves in terms of better practices and higher performance levels. In each of the business areas some further improvements are still possible as shown in Table VIII. Service Design and Innovation is one such area as is the whole issue of performance measurement and reporting.

Ideas for further study
Perhaps a limitation of this research is that it relates to one specific region within the UK. It would be interesting to ask whether the findings presented are representative of service organisations further afield. Certainly, the characteristics shown by the region's leaders are consistent with those seen by leading service organisations, both in terms of major strengths and challenges, although the north east services seem relatively weak in terms of implementing measurement systems and being able to design and innovate. The results also have some differences with regard to size being a significant factor and also on organisational perception. Smaller organisations in the PILOT study seem more service oriented and the weaker organisations from the region seem to be more realistic than their counterparts elsewhere in recognising their ability to compete.

In comparison to other studies (Voss and Johnson, 1995; Voss et al., 1997b), the leading service organisations in the north east display a number of similar characteristics. However, this comparison raises the issue of the time lag between the collection of the various data. It would be reasonable to ask whether the services located in the north east

Table VII What can we learn from our leaders?

What practices are they exceptionally good at?	What are their best performance achievements?
Strategic issues	*HR issues*
Establishing quality values	Employee loyalty relative to industry
Leadership in service culture	*Service design and innovation*
HR issues	Service meeting customer needs
Customer orientation	*Service delivery and quality*
Day to day teamwork	Staff responsiveness
Workforce flexibility	Quality performance relative to industry
Listening to staff	Reliability
Service design and innovation	Accessibility
Listening to the customer	*Service value and measurement*
Service delivery and quality	Level of customer satisfaction
Quality mindset	Market share (of primary services or line of business)
Real time employee handling of service problems/failures	
Service value and measurement	
Clarity of goals	

Table VIII What can our service "leaders" learn to do bettter?

What practices are they exceptionally good at?	What are their best performance achievements?
Strategic issues	*Strategic issues*
Benchmarking	Strategy towards corporate responsibility
Performance measurement and reporting	*HR issues*
HR issues	Employee satisfaction
Recognition and reward	*Service design and innovation*
Shared vision, mission and goals	Innovativeness
Service design and innovation	*Business performance*
Generation of innovative product concepts	Return on assets
New service design and development process	Operating costs
Current use of information technology	
Management of business processes	
Role of support functions	
Service delivery and quality	
Quality procedures and framework	
Service value and measurement	
Customer satisfaction measurement	
Elimination of waste	

are performing as well as the rest of the country or merely playing "follow-my-leader". An interesting further study could involve service organisations located throughout the UK. Such a study would permit comparisons to be made by region as well as size and sector.

Additional studies on the participating organisations from PILOT to determine to what extent, if any, practice and performance levels have improved since this benchmarking exercise has taken place will shed further light, given that for many participants PILOT represented their introduction to benchmarking. It may also be useful in future research to concentrate on specific aspects of

service management rather than providing a wider diagnosis. This in-depth analysis could focus on issues such as design and innovation and human resources that have proved problematic for a number of PILOT respondents.

Finally, the authors are currently undertaking similar research with respect to the manufacturing sector in the north east region to identify the key characteristics of its leading manufacturers using benchmarking data from the manufacturing variant of PILOT. Again, turning this into a longitudinal study could be useful in identifying the extent of any improvements in practice adoption and corresponding performance.

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Paper 3

Mitchell, E., Robson, A., Prabhu, V. (2002) "The impact of maintenance practices on operational and business performance", Managerial Auditing Journal, Vol. 17, No. 5, pp234-240.

The impact of maintenance practices on operational and business performance

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Abstract
Maintenance and plant engineering are considered to be important parts of the strategy underlying successful manufacturing. The aim of this paper is to investigate the deployment level of good practice in these areas compared to other manufacturing processes and what impact they have on an organisation's performance. It draws empirical results out of the data provided from a large-scale benchmarking study carried out in a specific region of the UK and tests part of these with case research. The findings are discussed, highlighting any variations between company size, sector and world-class status and the significance of any correlation found between practice and performance.

Introduction

The premise that good maintenance and plant engineering processes are fundamental to success in manufacturing is beyond question (Hanson, 1995; Madu, 2000). Indeed, the logic of total productive maintenance (TPM) is to plan ahead to anticipate and avoid problems and improve performance by eliminating the causes that reduce equipment effectiveness (Nakajima, 1988). The theory is well documented: planned maintenance, autonomous maintenance, preventative engineering, design for manufacture of product and education and training of personnel to support these activities (Tajiri and Gotoh, 1992; Davis, 1995). As organisations strive to achieve world-class performance, much has been written to support the contribution that effective maintenance makes to manufacturing strategies and business performance. Schonberger (1987) declared TPM as being one of the four prime pursuits towards world-class manufacturing (WCM) leading to improvements that the customer cares about. Willmott (1994) suggested that it offers significant "competitive advantage". In addition, support for other operational philosophies, e.g. "lean production" (Womack and Jones, 1996) and "just-in-time" (Ohno, 1998) has been indicated. Sharp and Kutuoguoglu (in Bamber *et al.*, 1999) show that it can significantly contribute to profitability.

To recognise companies' achievements in terms of world-class and business excellence, award models have been developed (Deming Application, Baldrige, European Quality of Excellence *et al.*). The Japan Institute of Plant Maintenance Award encourages deployment of good maintenance practice for TPM. This is the most prestigious prize in the field of maintenance, and Dale (1994) points out that it is one of the most difficult awards to achieve.

During the 1970s, the importance of organisations reviewing their physical assets in terms of investment, costs and performance outcomes led to the concept of "Terotechnology". This is the application of managerial, financial, engineering and other practices to extend the operational life, increase efficiency and monitor the effectiveness in business terms of equipment, buildings and machinery. In the UK, the then Department of Industry set up the Committee for Terotechnology, recognising the importance of the gains to be made by focusing attention on all these functions in all business sectors. Hill (2000) points out that maintenance is the largest aspect of terotechnology and that many activities in the business cycle both affect and are affected by it in terms of operational and business performance.

The benefits of organisations adopting good practice in maintenance, therefore, should be obvious, but what should this encompass? Pure TPM may not be applicable to Western organisational culture. Schaffer (1991) queries whether it is just another activity-centred management theory rather than a result-driven approach, and Labib (1999) proposed that maintenance methodology should be keyed to specific results rather than to widespread objectives. Yarrow *et al.* (1999) indicated that good maintenance practice was "common sense" but questioned whether it is adopted as "common practice".

So, what degree of attention is given to deploying best practice in maintenance and plant engineering processes compared to other processes in manufacturing? Do they impact on operational and business performance? This paper investigates the extent to which good maintenance practices are deployed and the links between these and performance outcomes suggested in the body of theory. Empirical evidence from a major

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benchmarking project carried out in the North East of England during 1997 and 1998, is used to test the relationships between these practices and performance criteria in a relatively large sample of manufacturing organisations. Results for the practice deployment question are further tested in other research on a smaller sample of companies. The findings presented may typify current practice and performance among many manufacturers in this part of the UK. Variation between sectors and sizes of companies will be highlighted and discussed.

Analysis

The methodology used was adapted from the "Made in Europe Studies" (Hanson *et al.*, 1994, 1996; Voss *et al.*, 1998). This allowed companies to benchmark their practices and performance against world-class standards through assisted selfassessment and comparison across a range of (practice and performance) indices. Benchmarking and self-assessment are being used increasingly in this way to establish the extent to which organisations are deploying and achieving world-class, best practice and performance (leaders and laggers) and to identify areas for improvement.

Data were collected from 298 North East of England manufacturers who responded to a series of questions that compared their practices and performance to world-class standards for key aspects of the model developed in the European studies. Each question was allocated a score from 1 to 5, inclusive. Data consistency was ensured through a series of participant workshops, which supported the self-assessment exercise (Robson and Yarrow, 2000). Maximum scores were allocated only where adoption and achievement were on a par with the best. One question related to the level of maintenance practice adoption and is shown in Figure 1. The level to which good practice in maintenance has been deployed, its score compared to other practice indices and its relationship to key performance outcomes have been considered. Significant associations or differences between groups

are indicated at one of three levels, 0.1 per cent, 1 per cent and 5 per cent.

A further set of case studies was carried out on the question of deployment of good maintenance practice. In this, data were collected from a random sample of 23 companies in the region using a benchmarking questionnaire which focused on the maintenance process itself. This examined 71 scales in nine aspects of maintenance practice and performance that allowed comparison on deployment to be made with those from the main exercise. It should be noted that not all of these companies had taken part in the main study and that other elements were being investigated in the second study.

Survey findings and discussion

Adoption of good maintenance practice
A majority of North East manufacturers (52 per cent) have only poor to fair levels, with only 16 per cent adopting strategies which extend beyond preventive maintenance and the deployment of corrective action teams, as indicated by Figure 2. The case studies indicated corresponding figures of 56 per cent and 17 per cent, respectively. Only one organisation in this sample had deployed TPM.

The level of adoption is associated to the company's world-class status with significance at the 0.1 per cent level. The leaders are more likely to have adopted higher levels of practice in this area, while those with a weaker overall profile are more likely to score poorly in this area. Company size (in terms of number of employees) is also a significant factor (0.1 per cent level), with large organisations being more likely to score highly and (interestingly) the medium sized as well as small manufacturers scoring poorly. No significant differences were found to exist between different manufacturing sectors. It was noticed that the extent to which companies are good or poor at adopting best practice in general is exemplified by that for maintenance. This may suggest that, at the TPM concept level, TPM, Total Quality Management (TQM) and business excellence are complimentary or

Figure 1
Maintenance question from PILOT benchmarking study

			1	2	3	4	5	Score
23	**Maintenance**		Crisis maintenance		Preventive maintenance, corrective action teams		Total preventive maintenance, maintenance scheduling synchronised with production, performed by operators	

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even overlapping philosophies which are perceived as more applicable in larger enterprises and that they tend to be adopted in organisations that truly can be described as world-class.

In relation to other manufacturing practices, maintenance is the second worst performer overall, as indicated by Table I. It is interesting to note that this relatively poor level of attainment is repeated sector by sector, for each size band and also within each world-class status category. It is only among the large companies and the leading manufacturers where an average score of 3.0 is attained. Moreover, the average levels of practice adoption in areas such as pull-scheduling, job flexibility, batch sizes and housekeeping are significantly higher at the 0.1 per cent level. To a lesser extent, levels of practice adoption are significantly higher also in terms of design for production and product use (1 per cent) and equipment layout (5 per cent), as indicated by Table II.

Table II shows that the manufacturing sector has vastly superior levels of implementation on most of the key business

Table II

Significant difference in attainment compared to maintenance

Practice	Significance
Order release into manufacturing	***
Job flexibility	***
Batch sizes	***
Housekeeping	***
Design for production and product use	
Equipment layout	**
Manufacturing strategy	*
Kanban	
Product life-cycle planning	**[a]

Notes: *** represents significant differences in mean scores at the 0.1 per cent level; ** at the 1 per cent level; and * at the 5 per cent level. In each case, maintenance levels are significantly lower, except when indicated by [a]

practices compared to their levels of adopting world-class maintenance standards. There is only one area of practice which is significantly weaker in comparison; namely, product life cycle planning.

Apart from the large manufacturers, there is significant association between the relative attainments for each of the practices between the other size bands. The level of maintenance attainment is related significantly to size band, with significance at the 0.1 per cent level. The level of attainment being significantly higher for the large manufacturers compared to each of the other size bands can explain this. Indeed, this is the only size band with an average attainment greater than 3.0, the others being significantly lower in comparison. Table III indicates that the large companies typically have better levels of practice adoption than the other three size bands.

Large manufacturers have levels of maintenance practice, which are significantly weaker in comparison to fewer of their other practices compared to their smaller counterparts in the manufacturing sector, as indicated by Table IV. In relative terms, maintenance adoption is particularly weak among the medium-sized organisations.

Looking at manufacturing sectors, apart from the comparison between the electrical sector and the household and process cohorts, there is significant association between the ranked attainments for each of the other manufacturing groupings. There is no significant difference between the sectors in terms of their maintenance attainment. All industrial sectors are particularly weak in this area, with average scores significantly lower than 3.0, as indicated in Table V.

Figure 2

Levels of practice adoption in maintenance

Distribution of scores for MAINTENANCE practice
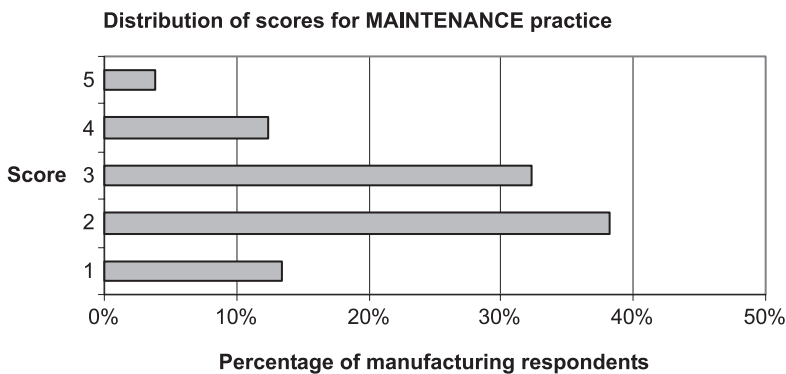
Table I

Relative average attainment for key practices

Practice	Overall mean	Rank
Order release into manufacturing	3.762	1*
Job flexibility	3.240	2*
Batch sizes	3.122	3*
Housekeeping	3.102	4*
Design for production and product use	2.902	5
Equipment layout	2.769	6**
Manufacturing strategy	2.730	7**
Kanban	2.677	8**
Maintenance	2.550	9**
Product life-cycle planning	2.357	10**

Notes: * represents mean scores which are significantly higher than 3.0; ** represents mean scores which are significantly lower than 3.0

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Table III
Relative average attainment for key practices by size band

	Large	Medium	Small	Micro
Order release into manufacturing	1*	1*	1*	1*
Job flexibility	2*	5	2	3*
Batch sizes	8	3	4	2*
Housekeeping	3*	4	3	4
Design for production and product use	7	2	8**	5
Equipment layout	4*	7**	5**	9**
Manufacturing strategy	5*	6**	9**	7**
Kanban	10	8**	7**	6**
Maintenance	9	9**	6**	8**
Product life-cycle planning	6	10**	10**	10**

Notes: * represents mean scores which are significantly higher than 3.0; ** represents mean scores which are significantly lower than 3.0

Table IV
Significant difference in attainment compared to maintenance by size

	Large	Medium	Small	Micro
Order release into manufacturing	***	***	***	***
Job flexibility		**	**	**
Batch sizes		***	*	***
Housekeeping	**	***	**	***
Design for production and product use		*		
Equipment layout	*	**		
Manufacturing strategy	*	**	*	
Kanban		**		
Product life-cycle planning			**[a]	

Notes: *** represents significant differences in mean scores at the 0.1 per cent level; ** at the 1 per cent level; and * at the 5 per cent level. In each case, maintenance levels are significantly lower, except when indicated by [a]

Table V
Relative average attainment for key practices by industrial sector

	Electrical	Engineering	Household	Process
Order release into manufacturing	1*	1*	1*	1*
Job flexibility	2	3	3	2*
Batch sizes	5	2	4	5
Housekeeping	3*	4	2	4
Design for production and product use	7	5	8**	3
Equipment layout	6	6**	5	7
Manufacturing strategy	9**	8**	7**	6
Kanban	8**	7**	9**	8**
Maintenance	10**	9**	6**	9**
Product life-cycle planning	4	10**	10**	10**

Notes: * represents men scores which are significantly higher than 3.0; ** represents mean scores which are significantly lower than 3.0

Relatively, maintenance adoption in each of the four main sectors is particularly weak in comparison to similar initiatives, as indicated by Table VI. These include "Order release into manufacturing", "Batch sizes" and "Housekeeping".

The impact of maintenance practice on performance
The central hypothesis in the European Studies was that the adoption of best practice is strongly correlated to the achievement of high operational performance, which in turn

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Table VI
Significant difference in attainment compared to maintenance by sector

	Electrical	Engineering	Household	Process
Order release into manufacturing	***	***	***	***
Job flexibility		**	*	**
Batch sizes	**	***	*	**
Housekeeping	***	***	***	**
Design for production and product use				
Equipment layout	**	*		
Manufacturing strategy				**
Kanban				
Product life-cycle planning				

Notes: *** represents significant differences in mean scores at the 0.1 per cent level; ** at the 1 per cent level; and * at the 5 per cent level. In each case, maintenance levels are significantly lower, except when indicated by [a]

leads to superior business performance. This has been assessed using a collective index of performance and a number of key individual measures covering both operational and business performance.

In terms of collective index of performance, the manufacturers have been categorised as "leaders", "middle" and "laggers". The "leaders" are those manufacturers in the sample whose average performance score positions them within the top 20 per cent of companies in the survey. In contrast, the "laggers" are the poorest 20 per cent by performance indicator. The relative levels of agreement between the ranks for each of the groups are significant at least at the 1 per cent level.

There is a significant difference between the three groups in terms of their maintenance attainment, with significance at the 0.1 per cent level. The leaders are significantly higher than the middle cohort, who, in turn, score significantly higher on average compared to the laggers. This profile is repeated for all of the practices considered. While maintenance is seen as a weak area of practice adoption across the manufacturing sector, it is interesting to see the high performers are one group who have a reasonably high level of maintenance adoption, as indicated in Table VII with a mean score significantly higher than 3.0. The "across-the-board" respective strengths and weaknesses of the performance leaders and laggers are directly associated to their levels of practice adoption, thus supporting the established belief that if a company adopts best practice, then this will lead to high operational performance.

Table VIII illustrates that as the relative performance position of the manufacturer improves, the relative inferiority of their maintenance strategy (as indicated by other practices being significantly superior)

diminishes. However, the manufacturing sector as a whole has initiatives in "order release", "job flexibility" and "housekeeping", which are consistently closer to world-class standards than their maintenance strategies.

To see if any association between maintenance levels and key performance outcomes may exist, 17 individual measures, where it is reasonable to assume such association, have been considered (eight operational and nine business performance). A number of measures show association with the deployment of maintenance practices, with significance being at the 0.1 per cent level and are listed in Table IX. In each case, the higher the level of practice that is adopted, the higher the level of business or operational performance is achieved.

In addition, significant association is found with:
- Business performance in cash flow, return on net assets, capital investment, market share, customer satisfaction and employee morale (all significant at the 1 per cent level).
- Operational performance in inventory turns, rate of introduction of new products (significant at the 1 per cent level) and production cycle times (significant at the 5 per cent level).

The findings of the main study establish the veracity of both the theory and literature on the proposition that good maintenance practices will have significant impact on performance, although more so on operational outcomes than overall business performance. However, the wider impact should not be underestimated. Cause and effect cannot be claimed from this study and these questions leave room for further research that could include mapping and correlating with the findings of other, larger surveys mentioned.

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Table VII
Relative average attainment for key practices by performance status

	Leaders	Middle	Laggers
Order release into manufacturing	1*	1*	1*
Job flexibility	2*	2*	3
Batch sizes	4*	3*	2**
Housekeeping	3*	4*	4**
Design for production and product use	9	5	5**
Equipment layout	5*	7**	6**
Manufacturing strategy	7*	6**	7**
Kanban	6*	8**	8**
Maintenance	8*	9**	9**
Product life-cycle planning	10	10**	10**

Notes: * represents mean scores which are significantly higher than 3.0; ** represents mean scores which are significantly lower than 3.0

Table VIII
Significant difference in attainment compared to maintenance by performance status

	Leaders	Middle	Laggers
Order release into manufacturing	***	***	***
Job flexibility	**	***	**
Batch sizes		***	***
Housekeeping	**	***	***
Design for production and product use			
Equipment layout		*	*
Manufacturing strategy		*	
Kanban			
Product life-cycle planning			*[a]

Notes: *** represents significant differences in mean scores at the 0.1 per cent level; ** at the 1 per cent level; and * at the 5 per cent level. In each case, maintenance levels are significantly lower, except when indicated by [a]

Table IX
Performance outcomes significantly associated to maintenance adoption

Performance outcome	Area
Productivity growth	Business performance
Production costs	Business performance
Cycle times – concept to production	Business performance
Customer deliveries met	Operational performance
Process capability	Operational performance
Internal defects	Operational performance
Progress chasing	Operational performance
Cycle times – production to availability	Operational performance

The case studies verified the results of the main benchmarking exercise on deployment of good practice which in turn confirmed some of the research literature reviewed.

Conclusions

This paper has outlined the strategic implications for organisations to deal effectively with maintenance and reliability issues and points to definite links between practice and performance in this area. These have been empirically tested with a large sample, where previously they may only have been assumed. It suggests that good maintenance practice (GMP) lends force to other broader practices and strategies that may well synergise to give superior performance and that maintenance tactics do, indeed, form a result-driven approach.

Manufacturing companies in the North East of England appear to treat maintenance in Cinderella fashion and may be losing out on the contribution it can make to manufacturing strategies aiming at superior performance and world-class competitiveness. The case research underlined that there is a bias towards manufacturers in the region adopting a conventional view on maintenance being "preventative" at best adoption level and they look on it merely as a "low level" supporting process.

The main sample indicated a wide contrast in GMP levels between leaders and laggers and the world-class group scores suggest that there is much room for improvement to be made by even the best practitioners. Also, the lagging

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group may need to question how sustainable their businesses may be without more systematic approaches being made to adopting better practices in maintenance strategies. There are particularly important lessons to be learnt from this for small and medium enterprises (SMEs) in the manufacturing sector of the North East region. They make up a large proportion that is benchmarked as "laggers" and whose future business levels may be vulnerable without due attention to such areas for improvement (i.e. losing to those with smarter practice).

Further, SMEs now represent over 90 per cent of the manufacturing sector's population in the North East region and account for around 40 per cent of this sector's economy (and 11 per cent of the region overall). The benchmarking survey may draw attention to the need for improved practices in general in this important sector. There may be serious consequences from the "knock-on" effect right through to the level of the region's competitiveness overall. The research was carried out in one particular region in the UK. We do not know how other regions compare, but if the North East region's apparent standards of maintenance (and other practices) are reflected widely, then this article may prompt the necessary call for action in the manufacturing sector.

The case study on 23 companies emphasised that "broad-brush" benchmarking could provide a means to genuine advances in the transfer of maintenance best practice. This points to another topic for research.

On a wider scale, the research suggests that companies systematically adopting best practices do achieve higher performance and that there are many opportunities for organisations to identify, investigate and adopt good manufacturing practices and achieve performance improvement using benchmarking methodologies. They may also provide useful means of assessing regional strengths and areas for improvement in business performance

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Paper 4

Robson, A., Prabhu, V., Mitchell, E. (2002) "TQM enablers and business sustainability: an empirical study of the service sector in the North East of England", International Journal of Quality and Reliability Management, Vol. 19, No. 5, pp610-632.

TQM enablers and business sustainability

An empirical study of the service sector in the North East of England

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Abstract *The extent to which an organisation is successful can be influenced by a number of its strategies and business initiatives. This success can be measured internally, using traditional measures such as profitability, return on net assets and cash flow. Equally, this success can also be measured in terms of external measures such as growth, the competition and the impact of a changing business environment. This paper attempts to assess the association between the extent to which TQM initiatives have been successfully implemented and the changes in performance measures both internal and external. This has been done by analysing benchmarking data collected from nearly 450 service organisations from the North East of England. The survey results suggest that the TQM enablers have the greatest impact upon operational performance and then business performance, but only limited impact on external measures of sustainability such as business growth, competitive advantage and change management.*

Introduction

In attempting to measure the impact of TQM, the authors provide a regional perspective on the role of TQM within the service sector. In the late 1990s (1996-1998), nearly 450 service organisations from the North East of England participated in a regional "benchmarking" project on best practice, which is described later in this paper. The sample of service organisations consisted of 26 per cent from the professional organisations, 22 per cent from the public services, 16 per cent were industrial services and 12 per cent came from the leisure and retail sector. The remainder of the sample were drawn in similar proportions from the consultancies, transport, finance and banking, law and the utilities. In terms of size, 36 per cent were micro organisations, 24 per cent small, 22 per cent medium sized and 18 per cent large organisations. Two thirds of the sample were independent, owner managed whilst over 90 per cent were domestically owned. A detailed statistical analysis of that study aims to identify the following:

- The main TQM enablers emerging from a wide range of business practices and strategies.

- The impact of these enablers on some measures of organisational performance.
- The impact of these enablers on aspects of business performance.
- The extent to which the TQM enablers support business sustainability, as measured in terms of growth, competitive advantage and the responsiveness to change.

Within the region the industrial and employment elements of the economy have witnessed a change in emphasis from manufacturing to service type organisations. The service sector now represents 75 per cent of the region's businesses and provides more than half of its employment (Northern Development Company, 1999). In this perspective the North East region is almost a microcosm of the UK, where the service sector accounts for 67 per cent of all businesses and 70 per cent of the employment (DTI, 2000).

With this movement towards an increasingly important service sector within the region, useful outcomes of this research will hopefully be an understanding of which internal business practices (TQM enablers) are associated with an organisation's ability to grow and sustain improvement. These findings could be used to map changes to the way in which the various support agencies within the region support its service organisations.

Literature review
There is a generally recognised understanding within business that investment in and attainment of high quality business practices has the potential to lead, eventually, to high quality operational and business performances. The results of research into the UK service sector by Voss and Johnson (1995) and their comparative study between the UK and USA (Voss *et al.*, 1997) confirms this hypothesis. More recently, two benchmarking surveys undertaken in the North East of England (Prabhu *et al.*, 2000a, b) have provided further evidence in support of this. Further afield, Terziovski and Samson (1999) have undertaken work within the manufacturing sector of Australia and New Zealand and have concluded that "a typical manufacturing organisation is more likely to achieve better performance in employee relations, customer satisfaction, operational performance and business performance, with TQM than without TQM". These conclusions are supported by Sun (2000) who found that "TQM criteria such as quality leadership, human resource development, quality information etc. contribute to the improvement of customer satisfaction and business performance". However, Sun (2000) tempered this argument by concluding "none of these TQM enablers can guarantee enhanced business performance. It is these enablers as a whole that contribute collectively to the improvement of performance". Moreover, Rahman (2001) concluded that the presence of ISO 9000 certification had no significant impact upon the levels of TQM implementation and organisational performance. Rahman commented that whilst certain Australian studies – Terziovski and Samson (1999) and Dow *et al.* (1999) – "found a significant relationship between quality management practices

and organisational performance, only a handful of 'soft' quality management practices have a positive relationship with organisational performance".

Within the UK, there is also an acceptance now that as well as enhancing organisational performance, TQM is now seen as a major driver for strengthening business organisations and thus facilitating their efforts to compete in world markets. In terms of the evolution of TQM, Liburd and Zairi (2001) have suggested over the last decade the focus of management has moved from an introspective emphasis that was product oriented, through service and then customer orientation to a market oriented focus.

Most research and literature concentrates on the relationships between TQM and performance. However, Ma (1999), when discussing sustainability, referred to the need for a constellation of competitive advantages being necessary for long-term viability. Appleby and Mitchell (2000), when comparing organisations with good performance but low deployment of good practices with those that had good practices but were not yet achieving high performance, suggested that to be successful in the longer term there are no shortcuts. This research attempts to investigate the additional relationships between TQM and sustainability in a similar way through the "grouping of factors" into a set of key TQM enablers.

The data source – the North-East (of England) benchmarking project

The benchmarking project[1] involved co-operation between about 20 North-East business support organisations including universities, a number of local authorities, training and enterprise councils (TECs) and business links. The project involved evaluating both business practices and operational performance in both the manufacturing and service sectors. The benchmarking sponsors invited these organisations to participate and collectively they combined to form a quota sample of companies from the North-East region. The samples of participants from both sectors were considered to be representative in terms of business activity, organisation size (by number of staff) and geographical distribution within the region.

A diagnostic benchmarking methodology called PROBE ("PROmoting Business Excellence"), which is administered by the Confederation of British Industry was selected as the benchmarking tool. The PROBE tool has supported a number of "made in Europe" studies throughout the late 1990s and has led to published research relating to best practice in both the manufacturing and service sectors (Hanson *et al.*, 1994, 1996, Voss *et al.*, 1997, 1998).

The researchers in the North-East benchmarking study were expected to assess best practices in 700+ manufacturing and service organisations over a three-year period using a single benchmarking instrument. This required adjustments and simplifications to be made to the PROBE methodology and resulted in two simpler benchmarking tools called PILOT, one for manufacturing and one for the service sector. The data collected from PILOT

represented a scaled-down version of the PROBE questions, but used the original scales of practice and performance indicators. Through self-assessment, participants graded their practice and performance responses on a scale from 1 to 5, as illustrated by the sample in Figure 1. For each measure, this scale represented a continuum from the weakest to strongest levels of practice adoption or operational performance. The scales were annotated (by making use of recognised industrial or service standards) to provide participants with indicators to support their self-assessment (i.e. guidance notes).

The PILOT tools also incorporated other indicators of organisational performance, such as growth, competitive advantage and the impact of change. These indicators were measured using a simpler scale, with participants expressing their range of perceptions on a scale from "strongly disagree" and "strongly agree".

Given that data was collected on a self-assessment basis, its consistency and accuracy are critical to the reliability of any inferences drawn from its analysis. To ensure that the responses from each participant provided a realistic picture of their practice implementation and performance outcomes, participants' workshops were used to support the completion of the PILOT tool. In this forum, multiple participants supported by a facilitator justified their assessments, and by consensus, acceptance or change (upwards and downwards) of the various grades took place. Further analysis has also taken place to determine whether the nature of the responses (on an individual organisation basis) and the method of data preparation (individual, limited discussion or mass internal participation) existed. Whilst in a majority of cases, only one person per organisation tended to attend the workshops, the responses provided were typically an even split between those who had administered the benchmarking tool alone, those who had consulted a small number of colleagues and those who had involved a team. The usual role of the attendee was that of a senior/middle manager with job roles in quality or operations management. However, by seeking to engage a team within their organisation, the data collected via the facilitated tool had the potential to represent a consensus of opinion across the organisation's managerial

PART 1: ORGANISATION & CULTURE

		1	2	3	4	5	Score
1.	Vision	Maximise product output, managers dictate direction, cost reduction key goal		Customer service, emphasis on employee involvement, quality & cycle times are key drivers		Leadership in quality & service, production balanced with customer needs, production cycle time less than order lead time	
2.	Shared vision, mission & goals	Insufficient direction, no shared plan or vision statement, employees do not understand goals		Management commitment to shared vision, written mission statement, some employee involvement		Total employee involvement, published improvement plan, individuals and dept.'s have vision matching company's	

Figure 1.
Example of PILOT questions

hierarchy. This consensus considered their current use of business practices, levels of operational performance and opinions regarding trends in growth and competitiveness over a period of time. The latter is arguably a limitation given that it is based on perceived or measured trends rather than actual numbers and the tool is limited in that certain hard measures of business performance typically found in company reports were not considered. However, the survey had a mass response, and this was facilitated to ensure that the responses could be justified by the participants and as best as possible, were consistent between organisations. The data collected were subsequently compared with benchmarking data collected elsewhere in the UK (Robson and Yarrow, 2000) and this helped to confirm a satisfactory level of reliability.

Analysis undertaken

Each service respondent considered 28 practice measures and a full list of them are provided in Prabhu *et al.* (2000b). To provide an initial framework for the analyses of such an extensive range of practices, the authors have considered the service management model adopted in the "Service in Britain" studies (Voss and Johnson, 1995), to provide a structure and a categorisation for the measures under consideration. This model suggests that the practices relate to aspects of leadership, people issues and a service's approach to service delivery and quality, service design and innovation and service value and measurement. Figure 2 shows the service management model.

Using this framework, the designers of PROBE (and indirectly the designers of PILOT) selected a range of practice and performance measures within each area of the service management model to represent the enablers and outcomes for each business process. Analysis has been undertaken in various service-based reports (Prabhu and Robson, 2001; Voss and Johnson, 1995) to measure the extent of the relationship between enabler and outcome. Within the framework chosen, leadership and people issues are considered to be important enablers of service delivery, design, value and measurement, as indicated by Figure 2. For each of the 28 practices, participants allocated a score from 1 to 5 inclusive. Scores below 3 implied poor to fair levels of practice adoption or performance outcomes, and where sizeable levels of improvement were possible. The role of leadership as a key enabler to quality services has been emphasised by Prabhu and Robson (2000). They (Prabhu
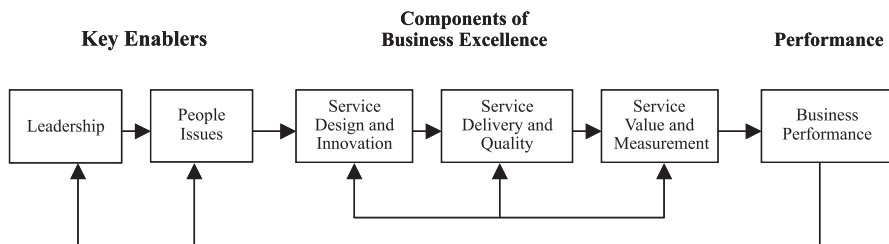
Figure 2.
The service management model

and Robson 2001) also indicated that leading service organisations have key advantages within all of the key components of the service management model.

Selection of independent factors (enablers)
It would be impractical to consider the extent to which each individual practice measure impacts upon both performance and sustainability of an organisation. Moreover, it would also be useful to measure the relevance of the service management model to the service PILOT database. In other words, the authors are asking "does the PILOT data explain/support the key components suggested by the service management model?" and "to what extent can we reduce the number of practice measures without significant loss of data?". To answer these questions, the authors will seek to identify empirically the key total quality (TQ) components within the PILOT data, and by doing so, will assume that the underlying structure of the practice data can be defined in terms of a number of key measures. This data set, that consists of 450 responding organisations from the service sector, can be assumed as representative of the sector within the North-East region. To identify the underlying enablers within the 28 business practices considered, factor analysis was used to identify a group of independent TQM enablers. The factor analysis model was based on principal components analysis (PCA), which was used to identify the number of factors contained within the data. To ensure that the factors were statistically independent of each other (therefore representing independent aspects of total quality), the factors underwent orthogonal rotation (varimax rotation) in order to identify which measures (from the 28 practices) were most strongly correlated (or loaded) to each of the factors.

Table I displays the eight independent factors identified by the factor analysis. These factors combine to explain just over 63 per cent of the variation in the data. The variables that are correlated significantly to each factor have been listed and by considering the group of variables associated with each factor, the authors have allocated a description to each factor. A reasonable question to ask is "are the groups of variables suggested internally consistent?" and as such, "do they combine reasonably to represent an individual theme?". To measure this the Cronbach alpha coefficient was determined for each group of variables (excluding the last factor – competitive positioning, because it is a single measure, and as such, is measuring only one attribute of the organisation).

The alpha coefficients are measured on a scale between 0 and 1, inclusive, and can be interpreted in a similar way to Pearson's correlation coefficient. That is, the closer the coefficient is to 1, the greater the internal consistency within the individual measures. All of the multi-measure factors identified have a coefficient exceeding 0.5, although a number of authors such Bryman and Cramer (1994) suggest that ideally the coefficients should be at least 0.8, whilst Van de ven and Ferry (1979) suggest that the coefficients should ideally be

Component	PILOT measures	% variance	% cumulative variance	Alpha coefficient
Quality and customer service	Customer orientation, recognition and reward, listening to the customer, quality mindset, use of customer complaint data, performance measurement and reporting, customer satisfaction measurement	28.391	28.391	0.8423
Organisational culture	Day to day teamwork, shared vision, mission and goals, skill, job training and education, employee involvement, listening to staff	7.026	35.417	0.7966
Service value and measurement	Problem solving, clarity of goals, visibility and communication of service standards, benchmarking	6.014	41.431	0.6958
Service process management	Role of leadership in developing service culture, role of support functions, management of business processes	5.484	46.915	0.6080
Service process development	Current use of information technology, new service design and development process, generation of innovative product concepts	4.792	51.707	0.5388
Quality systems and practice	Quality values, quality procedures and framework, elimination of "waste"	4.102	55.809	0.5410
Service delivery	Real time handling of service problems/ failures, workforce flexibility	3.839	59.648	0.5880
Competitive positioning	Competitive positioning	3.642	63.290	Not applicable

between 0.7 and 0.9. That said, Rahman (2001) has used a model with alpha coefficients that just exceed 0.6. Additional analysis of the alpha coefficients showed that only one of the factors identified, quality values and practice, would improve its reliability by removing one of the variables from the factor. This was achieved by removing "elimination of waste" from the factor and the alpha coefficient increased in size to 0.6250. This revised factor has been used in the subsequent analysis.

Based on the comments above, the authors believe it reasonable to accept the eight factors with the groupings of variables (including the one amendment described) suggested. In order to measure the extent to which each of these independent factors impacted upon the various indicators of business sustainability, a single variable score based on the group of correlated measures was required for each factor. This individual value was determined using multiple regression analysis, and was provided by SPSS.

Interpretation of the individual factors (enablers). Based on the loading of its group of practices (i.e. significant association of variables), each factor was named as shown in Table I. The extent to which the factor model maps onto the

service management model will be described later in the paper. Manly (1994) suggested that labelling factors needs a "degree of inventiveness and imagination!". The loadings of variables to each factor suggest:

- *Quality and customer service* is a set of seven variables that cover the practices of leadership, quality leadership, market insight and customer orientation. These reflect a culture in which leaders, staff and customers share clear awareness and visibility of the standards of service quality and reliability to be delivered within the organisation's service concept.

- *Organisational culture* comprises a group of five indices that include the way the organisation communicates with, develops, empowers and involves its staff. Together, these may affect how speed of development of products, services and processes and capacity for innovation may support market acuity and organisational responsiveness.

- *Service value and measurement* contains four variables that are practices indicative of managing performance in the delivery of service. The aspects of quality leadership, service standards, value orientation and market acuity are closely linked to these.

- *Service process management* is a construct of three practise variables that qualify how processes are owned, managed, supported and improved and which associate with results in service quality, delivery and value to customers.

- *Service process development* consists of three indices that make business processes more effective and lead to new ways of carrying -out business. Good practice in these areas involves and focuses on customers and leads to improved competitiveness.

- *Quality systems and practise* is constructed with two variables (after the amendment suggested earlier) that cover the quality culture and mindset of the organisation and how it organises itself for this. It relates to process management and the quality and delivery values of the service output.

- *Service delivery* is made up of two practices that are about the degree to which the organisation empowers its people and how they are structured to deliver the service. The results will show in the quality and responsiveness of delivery.

- *Competitive positioning* is a single variable that reflects how the organisation appraises its practises, processes and the performance outcomes it achieves. This may not only indicate how the organisation compares with those providing the same service but should allow it to improve through wider comparison with many other organisations that deploy processes similar in nature.

Performance measures used

The question of interest is to what extent are the various components of total quality associated to business sustainability? To represent the latter, five groups of measures have been considered for the service organisation. They primarily represent the data sources available from the benchmarking study and are:

(1) measures of operational performance;

(2) measures of business performance (cash flow, return on net assets etc.);

(3) growth characteristics of several indicators;

(4) competitive advantage;

(5) impact of change.

The different areas defined to represent business sustainability have been derived from the questions provided by the PROBE benchmarking tool, and subsequently by PILOT. The measures of operational and business performance map on to the components of the service management model, whilst PROBE measured additional characteristics of the organisation covering the areas listed above. Collectively, the measures of sustainability defined by the authors show consistency with the range of success measures considered by Liburd and Zairi (2001):

- *Measures of operational performance* contain 12 variables that demonstrate what its operational practices have achieved in result areas of service quality, customer retention and through altruistic values of employee "nurturing" to invoke the concept of a "cycle of virtue" that impacts on customer results. (For a full list, see row 1, Table II.)

- *Measures of business performance* are those indices of hard finance, efficiency and performance outcomes in the context of competitiveness and customer satisfaction. Consistent positivity here would indicate a degree of confidence in business sustainability. (For a full list, see row 1, Table III.)

- *Growth characteristics* is a set of indices that indicate the way the organisation has built a stable foundation from which to continue forward. (For a full list, see row 1, Table IV.)

- *Competitive advantage* are a set of measures from a balanced range of competitive result areas that indicate distinct gaps between themselves and others. (For a full list, see row 1, Table V.)

- *Impact of change* involves those indices that demonstrate the organisation's agility and preparedness to continue operations successfully into the future. (For a full list, see row 1, Table VI.)

Whilst the measures of operational performance are based on a scale from 1 to 5 inclusive (with attached statements and where a score 5 represents world class attainment), all other groups of measures use a scale from "declining" through "staying the same" to "increasing", as shown by Figure 3.

Service sector Measures of operational performance	Quality and customer service	Organisational culture	Total quality enabler Service value and measurement	Service process management	Service process development	Quality systems and practice	Service delivery	Competitive positioning
People issues								
Employee loyalty, relative to industry		**		*		**	*	
Employee satisfaction		***		***		***	**	
Service delivery and quality								
Reliability	***	*	**	*		***		
Quality performance, relative to industry	**					***	*	
Staff responsiveness	**		***	**		***	**	
Accessibility	*			*		***	**	
Service design and innovation								
Innovativeness	*	***			***	***		
Clarity of service concept	**	**	***	***		***		
Speed of development relative to competition			*	*	*	***	*	***
Service meeting customer needs	***		*	***		***	*	
Service value and measurement								
Customer retention	*					**	**	*
Level of customer satisfaction	***		***	*		***	**	

Notes: *** Represents significant differences in mean scores at the 0.1 per cent level, ** at the 1 per cent level and * at the 5 per cent level

Total quality enabler	Service sector Measures and business performance					
	Value (quality/price)	Market share	Cash flow	Overall productivity	Return on net assets	Operating costs
Quality and customer service	*		*			
Organisational culture	*	***		**	*	*
Service value and measurement						
Service process management		*				
Service process development						
Quality systems and practice	***	*	***	**	**	
Service delivery	*		*			
Competitive positioning	*	*			*	

Notes: *** Represents significant differences in mean scores at the 0.1 per cent level, ** at the 1 per cent level and * at the 5 per cent level

Total quality enabler	Service sector Growth characteristics					
	Sales turnover	Number of employees	Profitability	Service/ product range	Number of customers	Number of suppliers
Quality and customer service						
Organisational culture	*		*	*	***	
Service value and measurement						
Service process management						
Service process development						
Quality systems and practice				**		

Notes: *** Represents significant differences in mean scores at the 0.1 per cent level, ** at the 1 per cent level and * at the 5 per cent level

The central hypothesis of this paper is that one or more of the TQM enablers listed have an impact on each the areas of business sustainability. The authors aim to identify the extent to which this statement is true, and if so, show which of those factors or enablers have the greatest impact. Figure 4 represents diagrammatically the potential relationship between the TQM enablers and measures of performance and sustainability, which bears some similarity to that suggested by Rahman (2001).

Correlation analysis was used to measure the significance of any associations between the TQM enablers and a range of 14 operational performance measures. These measures covered a number of the key components illustrated in the service management model (see Figure 2). The

| | Service sector | | | | |
| | Advantage relative to the competition | | | | |
Total quality enabler	Price	Service quality	Rapid response to customers	Reliability	Service/product customisation
Quality and customer service				**	
Organisational culture	*				
Service value and measurement				*	
Service process management		*	***		*
Service process development					
Quality systems and practice		*	**	***	
Service delivery	*		*		
Competitive positioning					

Notes: ***Represents significant differences in mean scores at the 0.1 per cent level,
**at the 1 per cent level and *at the 5 per cent level

Table V.
Competitive advantage

| | Service sector | | | |
| | Impact of change | | | |
Total quality enabler	Customer has changed significantly	Business environment has changed	Business environment likely to change	We are good at change
Quality and customer service				
Organisational culture	*			**
Service value and measurement				
Service process management				*
Service process development				
Quality systems and practice				**

Notes: ***Represents significant differences in mean scores at the 0.1 per cent level,
**at the 1 per cent level and *at the 5 per cent level

Table VI.
Impact of change

Figure 3.
Example of the
sustainability questions
used within PILOT

extent to which the total quality enablers related to the other measures of
business performance and sustainability was measured using an independent
samples t-test. This analysis has been used to identify whether the adoption of
an individual TQM enabler has been significant amongst those companies
which were growing or at an advantage in terms of the measure of

Total Quality
Enablers

Measures of
Sustainability
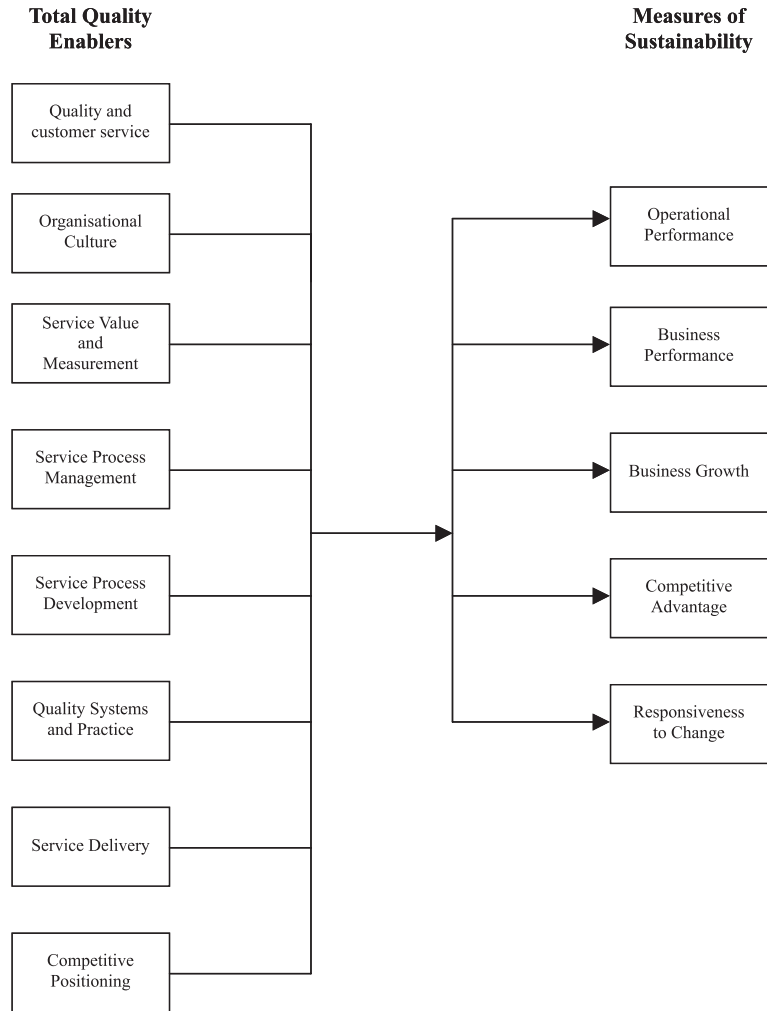
Figure 4.
The conceptual model of
sustainability

sustainability compared with those service organisations which were either staying the same or at a disadvantage (hence the two independent groups). By performing this analysis, the conceptual model presented in Figure 4 can be reviewed and amended appropriately. In all of the subsequent tables, the statistical significance (if any) of the tests has been reported at the 5 per cent, 1 per cent or 0.1 per cent level.

Research findings

On operational performance and TQM enablers

There is plenty of evidence that high TQ adoption is associated with high operational performance. This association can be seen from Table II to be right across the various components of the service management model and each

TQM enabler identified and considered in this paper has a positive association with a number of operational performance measures. Furthermore, it is encouraging to note that evidence exists (and is indicated within Table II) that the high level of practice adoption (as indicated by each of the TQM enablers) is associated with high operational performance within an equivalent area of business excellence, as suggested by the service management model. Examples include the significant impact of the TQM enabler quality and customer service on four quality performance measures; reliability, quality performance – relative to industry – staff responsiveness and accessibility. Equally, the TQM enabler organisational culture has a positive impact upon employee loyalty and employee satisfaction. Initiatives related to service value/measurement are related at the 0.1 per cent level to customer satisfaction levels. The TQM enabler service process management shows significant association at this level with clarity of service concept and service meeting customer needs, whilst service process development shows association at the 0.1 per cent level with innovativeness. A significant association (0.1 per cent level) between the level of competitive positioning and the service's relative speed of development is observed. In practice, where organisations use market information to position and differentiate their services, they consistently beat their competition to the market.

On business performance and TQM enablers

There is reasonably clear evidence that high adoption levels of TQM enablers also associated with high business performance, in particular with respect to value for money, market share and cash flow, as indicated by Table III. However, the level of association is clearly not as high as that with measures of operational performance.

The main TQM enablers that impact upon business performance are organisational culture and quality systems and practice. To a lesser extent, quality and customer service, service delivery and competitive positioning also have a positive impact. Service value and measurement and the two enablers connected with service process (management and development) have little impact upon the wider business performance indicators. This is perhaps unsurprising in terms of the former, which deals principally with practices relating to internal measurement, whilst practices relating to innovation do invariably lag in terms of their positive impacts upon traditional business performance.

On business growth and TQM enablers

The main TQM enabler that has a significant association with the growth of the organisation is organisational culture. Those organisations that are growing in terms of number of employees, profitability, in the range of services/products offered and number of customers tend to have higher adoption levels in this TQM enabler than those in other service organisations which have little change or a decrease with regard to the growth measures listed. The level of adoption in quality systems and practice has an impact

upon the growth of the service/product range, where those service organisations that are increasing their range have a higher level of adoption of quality practices. Surprisingly, none of the TQM enablers identified have shown any impact on sales turnover, whether in terms of growth or decline.

On competitive advantage and TQM enablers
The main TQM enablers that impact upon competitive advantage are quality systems and practice, service process management and service delivery. Organisations with a competitive advantage in terms of service quality, rapid response to customers and service customisation have a higher level of practice adoption with respect to service process management. Interestingly, those companies which have competitive advantage in terms of reliability have significantly higher levels of practice adoption in terms of quality and customer service and service value and measurement.

Impact of change and TQM enablers
The main TQM enabler in providing a significant difference is organisational culture. Those who have changed significantly and those who believe themselves to be good at change tend to have a higher level of practice adoption in this area than those service organisations that have not. The proportions of service organisations whose business environments have changed or are likely to change are 75 per cent and 82 per cent respectively. Perhaps with such a high proportion of the sample being in agreement, it is highly unlikely and understandable that none of the TQM enablers showed a significant difference in adoption between the two groups.

Discussion of the results
TQM enablers and the service management model (Voss and Johnson, 1995)
A number of issues arise from the analysis presented in this paper. The first involves considering how intuitive are the main TQM enablers (factors) identified through factor analysis. Figure 5 indicates how the factors identified through the analysis of the PILOT data map onto the service management model suggested by Voss and Johnson (1995).

The TQM enablers identified using factor analysis on the PILOT database map intuitively onto the theoretical framework provided by the service management model. One notable omission from the results of the factor analysis is an explicit factor grouping in the area of "leadership" or "strategic issues". The closest the model gets is the standalone variable "competitive positioning". The remaining measures that could reasonably have been defined as strategic issues have been separated into the various functional components of the service management process, rather than being defined as a separate, explicit driver of total quality. In contrast, the other key enabler "people issues" and the three components of service management – "service design and innovation", "service delivery and quality" and "service value and measurement" are represented in the model developed by the authors by one or
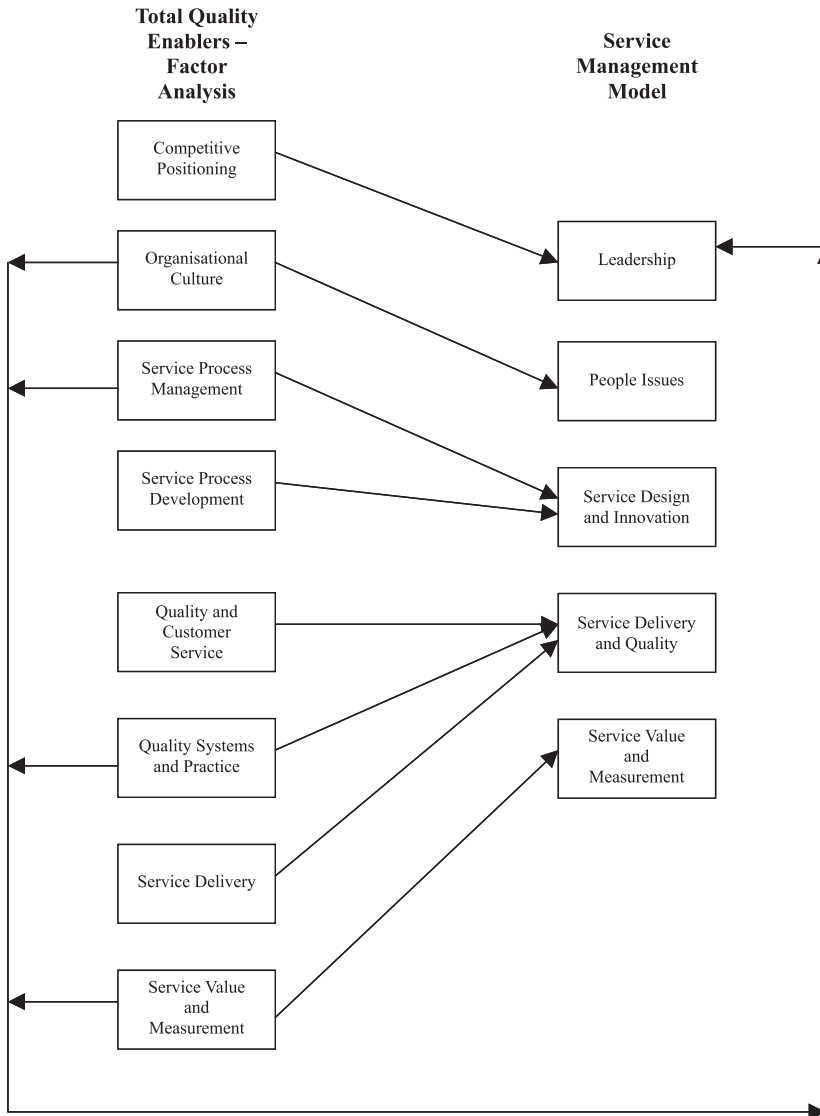
Figure 5.
The relationship
between the factor
analysis and the "service
management model" of
Voss and Johnson

Source: Voss and Johnson (1995)

more of the new groupings of variables. This suggests that the empirical
evidence provided within this paper supports the theoretical framework
suggested by the service management model.

TQM enablers and measures of sustainability
The impact of the total quality enablers (i.e. the factors identified) on business
sustainability falls into two distinct groups. The impact of high practice

adoption on operational performance is significant, and the direct impact of practices in specific areas of the business on corresponding measures of operational performance is clear to see. Clearly the analysis shows that all of the total quality enablers have a positive impact upon operational performance, both in terms of the related performance indicators and other measures under consideration. To a lesser extent, the total quality enablers also have a positive impact upon business performance, in particular practices relating to organisational culture, quality systems and practice and competitive positioning. The lack of impact upon business performance would suggest that practices related to service value and measurement and service process development reflect the relatively low adoption levels in these areas across the sector.

In contrast, the impact of the total quality enablers on other measures of sustainability, namely business growth, competitive advantage and response to change are much less clear cut. Organisational culture is the one TQM enabler that has the biggest positive impact upon company growth, whilst service process management and quality systems and practice have the biggest impact upon the various indicators of competitive advantage.

In overall terms, organisational culture has been shown to be a key TQM enabler that has a wide impact upon performance and business sustainability. This is supported by Appleby and Mavin (2000) who concluded that organisations which have adopted an integrated HR strategy show better practice and performance in terms of a number of operational and business activities, sustainability and innovation included. Moreover, they have pointed to Porter's (1997) view that HR has a strategic role that crosses all activities.

Moreover, quality systems and practice have clear impact upon levels of operational and business performance, and this TQM enabler has also been shown to provide a positive effect in terms of an organisation's competitive advantage. Figure 6 provides a revised conceptual model to show the empirical relationships between TQM enablers and measures of business sustainability.

By identifying empirically a group of key TQM enablers from a service sector survey and identifying their association with groups of performance and sustainability measures, further research may be useful to determine their suitability to other sectors and locations.

TQM enablers (combined) and sustainability
In this paper the authors have looked at the association between TQM enablers and various measures of internal and external business performance. However, the ability to be sustainable is arguably not supported by the development of those individual TQM enablers in isolation from one another. In other words, if an organisation had a highly developed "quality and customer service" but had made little investment say in other TQM enablers such as "organisational culture" or "competitive positioning", to what extent can they be sustainable? In associated research, Prabhu and Robson (2001) have demonstrated that a service organisation's world-class status (defined in terms of overall practice and performance attainment) is significantly associated with the measures of
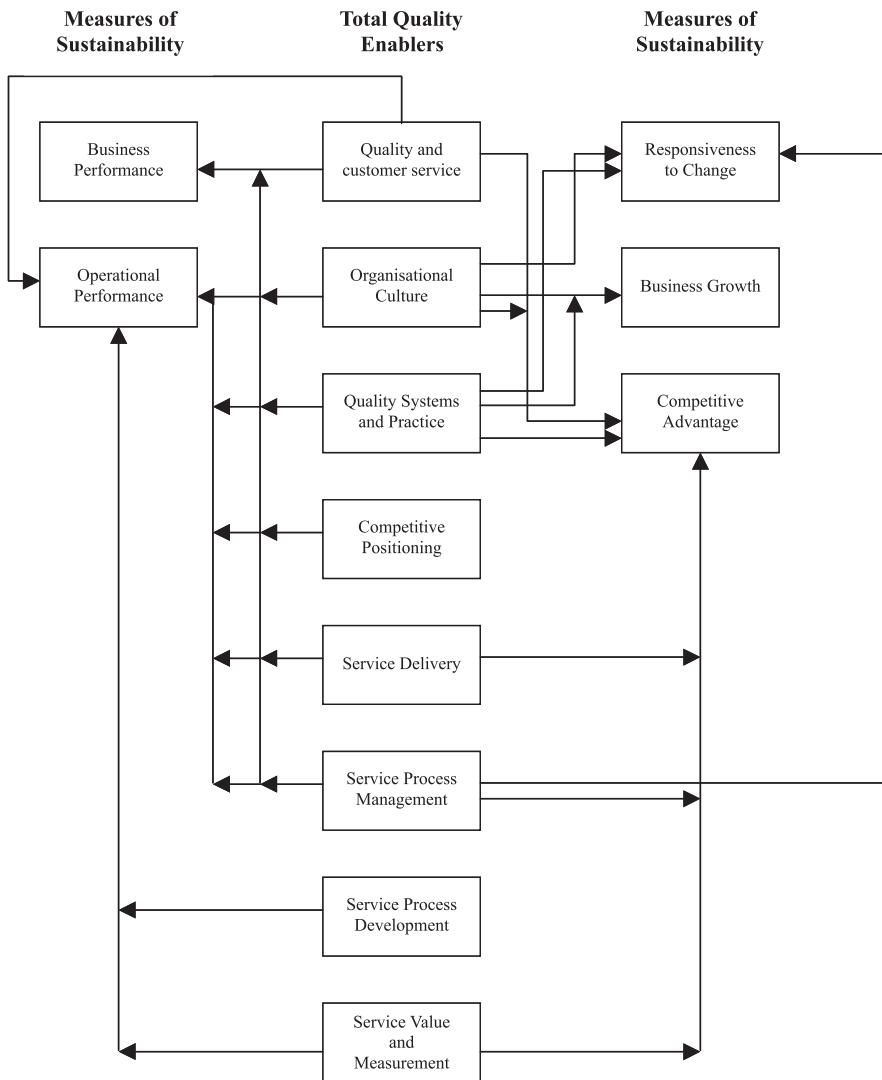
Figure 6.
The empirical model of
sustainability

sustainability discussed within this paper. As the authors have not analysed
the combined impact of all the TQM enablers within this paper on
sustainability, results of this earlier (Prabhu and Robson, 2001) analysis can be
used to demonstrate how internal attainment can be associated with external
performance.

Within this research (Prabhu and Robson, 2001), a clear association between
world-class status and growth amongst the service organisations has been
presented. Those categorised as "could do better" and "room for improvement"
(both of these groups have low average practice and performance levels) and

those described as "promising" (high average practice adoption, but low levels of operational performance) display growth rates that are below the sector average for each of the measures considered, as shown by Figure 7.

An exception involves the "could do betters" which exhibit a greater than average growth in supplier numbers. These three groups of service organisations have shown decreasing profitability, with the latter two also decreasing their number of employees. Vulnerable organisations (low levels of practice adoption, but high levels of operational performance) have growth rates that are at least as good as the sector average. Finally, the "potential winner/world-class" organisations (high levels of practice adoption and operational performance) display a clear advantage in terms of growth. Moreover, their relative growth compared to the service sector in terms of numbers of suppliers is only average, suggesting a movement towards leaner servicing.

There is also a clear association between world-class status and perceived competitive advantage. Again, the "potential winner/world-class" organisations lead on all measures of competitiveness, whilst the "could do better" and "room for improvement" services have recorded the worst relative levels of advantage for each measure considered. In absolute terms, these organisations are uncompetitive in terms of price. Despite their good record of best practice adoption, the "promising" services have below sector-average levels of competitiveness. Figure 8 indicates this association.

In terms of competitiveness perception, association with world-class status is significant at the 0.1 per cent level. The services that have "room for improvement" either do not know when they can compete or believe they can at best only partially compete. "Promising" services feel they can only compete partially, whilst the "potential winner/world-class" organisations typically believe they can compete successfully now. In terms of the time scale for competitiveness, association exists between perception and world-class status
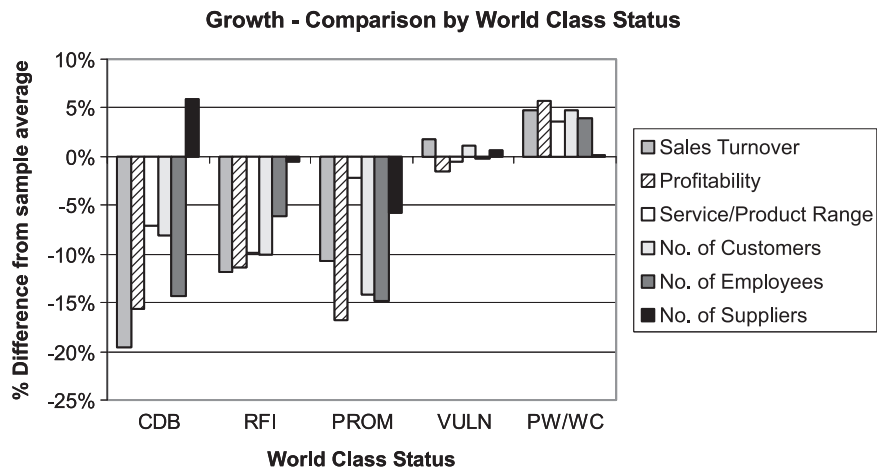
Figure 7.
Service growth by world-class status

Areas of advantage by World Class Status
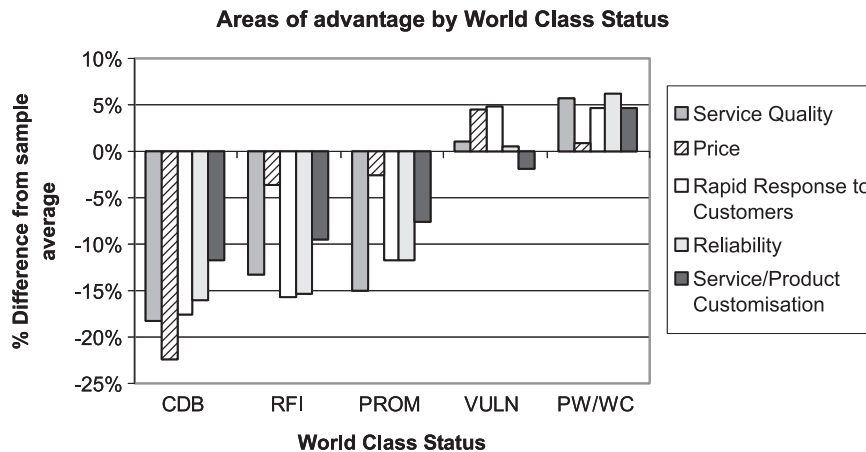
Figure 8.
Service advantage by
world-class status

(5 per cent level). "Potential winner/world-class" organisations believe that they can currently compete with the best or will be able to do so in the next three years, whilst the weaker services believe that they will only become competitive (if at all) in the next five to ten years.

This research supports literature from previous findings in competitiveness and sustainability that suggest that all round excellence is needed to enable high, sustainable performance in key operational and overall business performance.

Implications of the research results

This paper has presented the results of a statistical analysis undertaken on a large data set of service sector companies, representing 450 organisations in the North East of England. Each establishment had recently provided data on their adoption levels of some 28 different best management practices normally associated with world-class and TQM organisations, along with several indicators of business sustainability. These included 12 operational performance measures, six business performance measures, six growth characteristics, five measures of competitive advantage and four measures on the impact of change. The aim of the paper was to identify the main TQM enablers emerging from this empirical study and to gauge their impact on business sustainability.

A factor analysis of the various management practices adopted by the North East sample identified eight categories of factors or TQM enablers, which cumulatively accounted for 63 per cent of the total variance. However, practitioners in the North East service sector appear to have concentrated their TQM efforts in four specific areas for achieving greater impact on performance and sustainability. The first and most significant enabler, which the authors have called quality and customer service, represents the adoption of practices for achieving a total quality mindset and a strong customer focus amongst all employees in the design and implementation of their service standards, and accounts for 28 per cent of the total variance. The second factor, organisational

culture, relates to the establishment of practices for creating a supportive culture, enabling employees to deliver their best, and accounts for another 7 per cent of the total variance. Service value and measurement is the third factor, which represents practices that continuously measure and improve service value, and accounts for another 6 per cent of the total variance. The fourth important factor is quality systems and practice. It represents the adoption of formal quality procedures and TQM frameworks. Even though it accounts for only 4 per cent of the total variance, it is associated significantly with a range of business sustainability measures. In all, greatest attention appears to be paid by North East service providers to both "soft" enablers, namely customer orientation and a focus on employee needs, as well as the "hard" enablers of TQM such as implementing formal quality procedures/TQM frameworks and the measurement/improvement of service value.

The association between individual TQM enablers (especially the above four) and measures of "operational performance" is not only widespread but also highly significant given the size of the sample frame. It is also independent of the specific sector or size of the organisation concerned. As an indicator of the scale of this association, the analysis shows that 50 per cent of the TQM enablers identified are each associated significantly with 75 per cent or more of operational performance measures. In this context, the North East experience does appear to confirm the results of other studies reported in the literature review.

However, the extent of association between individual TQM enablers and business performance measures is limited to a smaller number of factors and measures, but nevertheless equally significant. For example two of the above-named enablers, organisational culture and quality systems and practice, have strong associations with over 80 per cent of the business performance measures. The same two enablers are also associated significantly with other business sustainability measures such as business growth, competitive advantage and impact of change. Finally, as again confirmed by the literature review, the combined impact of all TQM enablers, as measured in the North East sample through indices of world-class status, is associated highly significantly with sustainability measures such as business growth and competitive advantage.

Given the growing importance of the service sector not just in the North East but the rest of the UK, this analysis provides clear signposts for those organisations aspiring to become world-class by identifying those management practices that are strongly associated with the attainment of high operational and business performance. Also, in a region such as the North East of England, where considerable attention is focussed by business support and government agencies and on raising regional competitiveness, this analysis will assist in targeting limited resources on future interventions and development programmes in those areas that have shown to be linked with improved business performance and sustainability.

Finally, the analysis in this paper has been limited by the original data source, which provided business sustainability measures primarily through a

facilitated self-assessment process. The work could be enhanced to using independent measures of business sustainability as reported in company annual reports and any associations thus established would strengthen the argument even further.

Note

1. The Competitiveness Project (Ref. 196/90/11) was a Regional Challenge project (1996-1998), 50 per cent funded through the European Commission's European Regional Development Fund.

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Paper 5

Robson, A., Mitchell, E. (2007) "CSR performance: driven by TQM implementation, size, sector?", International Journal of Quality and Reliability Management, Vol. 24, No. 7, pp722-737.

CSR performance: driven by TQM implementation, size, sector?

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Abstract

Purpose – The purpose of this paper is to consider organisational performance relating to "sustainability and inclusion" and to assess four related indicators across the manufacturing and service sectors both in absolute performance terms and by level of TQM implementation and organisational size.

Design/methodology/approach – The paper is based on two empirical studies (manufacturing and service) undertaken in North Eastern England, involving the application of a self-assessed benchmarking tool. Data were collected from 128 manufacturers and 428 service organisations where performance measures relating to "sustainability and inclusion" were considered.

Findings – The findings presented in this paper indicate the level of performance in "sustainability and inclusion", together with the impact of size, world-class status and specific individual and aggregated TQM enablers for both sectors. Both manufacturing and service have some way to go in terms of their performance, whilst organisational size and world-class appear to influence attainment, as do certain individual and aggregated measures of business practice and internal performance.

Research limitations/implications – The paper shows that further research may involve revisiting the participating organisations to identify the extent of any improvement in their performance relating to "sustainability and inclusion".

Practical implications – The results in this paper indicate the extent of the room for improvement within both manufacturing and service, but indicate how a greater level of TQM maturity and subsequent internal performance puts an individual organisation in a better position to a certain extent to do this.

Originality/value – The findings in the paper are based on benchmarking data, where the implementation of certain TQM practices and measures of internal business performance have been measured alongside a limited number of measures relating to CSR performance across manufacturing and service as part of a wider regional study. Providing these data together has allowed the exploration of the association between the two sets of measures.

Keywords Total quality management, Benchmarking, England

Paper type Research paper

Background to the study

The findings presented in this paper make use of benchmarking data collected as part of two major studies that involved around 300 manufacturing companies and 450 service organisations located in the North East of England respectively (Prabhu *et al.*, 2000a, b) using a tool called PILOT. PILOT represents a simplified version of the PROBE methodology that underpinned the range of "made in Europe" studies published in the late 1990s which considered best practice relating to both manufacturing and service (Hanson *et al.*, 1994, 1996, Voss *et al.*, 1997, 1998). The results that support this work refer to four specific performance measures from both North East of England studies that consider the participating organisations'

self-assessment of their performance relating to "sustainability and inclusion". These four indicators are:

(1) Strategy towards corporate social responsibility.

(2) Involvement in the local community.

(3) Emissions and hazards.

(4) Sustainability.

Whilst these measures are perhaps not extensive in the range of issues covered relating to corporate and social responsibility, they measure organisational performance relative to their location and community, thus considering performance criteria similar to those identified within the EFQM model in its section defined as "society and results" (EFQM, 1999). The data provided by these two studies and considered here provide an opportunity to measure the extent to which the level of TQM adoption and/or the levels of operational performance assessed using a range of individual and aggregate measures, have impacted on the corresponding levels of external business performance relating to factors defined within PILOT as "sustainability and inclusion", which can be used as a measure of how the region's organisations are performing with respect to Corporate Social Responsibility (CSR).

Literature review

Total Quality Management (TQM) has grown from being a strict, systematic, statistical methodology to an all-embracing philosophy of conceptual Business Excellence. The theory that underpins TQM is well documented and supported by considerable empirical evidence. Since the 1950s, practitioners and researchers have been describing the positive relationship between an organisation's depth of deployment of TQM and the results achieved in terms of operational and financial performance. Deming (1982) and Schonberger (1986) pointed out the benefits of TQM in improving operational measures while Feigenbaum (1956, 1983) and Goldratt and Cox (1984) added the external key issues of competitive positioning, customer satisfaction and financial outcomes to the equation.

Throughout the 1990s, various descriptive literature and underpinning empirical evidence emerged that identified the key features of world-class organisations (based on their levels of adoption of TQM) and significant relationships between these and the levels of competitive results achieved and sustained by them. Smith (1995) suggested that successful companies maintained their competitive advantage through holistic management of best practice. Large-scale studies (Womack *et al.*, 1990; Womak and Jones, 1996; Hanson *et al.*, 1994; Voss and Hanson, 1993; Voss *et al.*, 1997; DTI, 1995, 1997; CBI, 1997) have categorised organisations based on the results achieved from the TQM practices that they have adopted. Hanson *et al.* (1994) proposed the hypothesis that "the adoption of best practice will lead to improved performance" and developed a conceptual world-class model that links TQM practices with operational and key business performance. Voss *et al.* (1996, 1997, 1998) tested the relationship between TQM and performance outcomes and showed that it appears to be generally valid across functions, sectors and sizes of organisations. These studies have also indicated that there is significant difference between leading (world-class) and lagging organisations attributed to depth of deployment of TQM.

The most recent empirical research into the relationship between TQM deployment and company performance has continued to support strong correlation between TQM and results. The series of studies by Hendricks and Singhal (1996, 1997, 2000, 2001) and the combined European and British Quality Foundations' joint study by the Centre of Quality Excellence at the University of Leicester (2005) have indicated that "the effective implementation of the principles of Business Excellence do make good economic sense".

Alongside the TQM philosophy, a number of organisations have developed frameworks for organisational excellence based on the principle that the enabling practice criteria relates to results achieved in operational and overall business performance. The Deming Framework, established in Japan in 1951, led to the more recent development of the two most prominent international frameworks that have become the highest known form of benchmarking methodology for TQM practices and achievement of results in modern business management. The Malcolm Baldrige National Quality Award Framework, created in 1987, is now used to assess companies for world-class levels of practice and performance results (NIST, 2002), whilst the European Foundation for Quality Management's Excellence Model was developed in 1988 and is used by organisations to benchmark and improve their practices and competitive positioning. These TQM frameworks have been continuously developed and now include altruistic issues such as: corporate social responsibility and environmental responsibility as core values and concepts (Baldrige) or as a fundamental concept (EFQM).

These issues are assessed as results criteria under the context of "stakeholders and society" and are driven from the models' enabling TQM drivers in common with other operating and key performance criteria. Within the European Quality Award, there is a section looking at "Impact on society", which considers two aspects of this process, a community's perception at how the organisation meets its expectations and how the organisation impacts upon the society in which it is located (EFQM, 1999). This impact on society is measured from the perspective of performance, not the role of any explicit or implicit enablers that support this process.

Given that the development of the various quality and excellence frameworks has resulted in the inclusion of measures relating to corporate and social responsibility alongside their more traditional measures relating to organisational practice and performance, consideration of the extent to which TQM adoption, as measured through practices implemented and results achieved, is associated with levels of social and environmental attainment external to the organisations can be measured. In the "Made in Europe 2" study, Hanson et al. (1996) identified the manufacturing leaders (based on the top 10 percent by score from implementing the EQA model) had a an average performance score relating "impact on society" comparable with their average performance scores for people satisfaction and customer satisfaction and marginally better than that relating to business results. However, these authors identified that the bottom 10 per cent of manufacturers had a comparatively lower mean performance score relating to "impact on society", this having the joint lowest score of any of the enabler or result component measured through implementation of the model.

Moreover, Hillman and Keim (2001) have tested the relationship between shareholder value, stakeholder management and social issue participation and found evidence that, while stakeholder management may lead to improved shareholder value,

social issue participation is negatively associated with shareholder value. These findings are interesting in that they challenge the core values and concepts of the Baldrige framework and the fundamental concept that forms one of the nine criteria of the EFQM model. Furthermore, a number of studies, including Moore (2001), identified the positive association between organisational size and the social/environmental performance, size being a factor which, alongside TQM implementation, may be a potential driver of CSR performance, whilst Cottrill (1990) identified differences in social performance between organisational sectors. Shareholder value and financial performance will not be considered here, the other organisational characteristics will be assessed within the study presented.

Using empirical analysis based on the North East England regional studies, which have adopted a particular benchmarking tool, the paper wishes to identify the following:

- The level of performance in absolute terms relating to a number of measures connected to sustainability and inclusion.
- The extent to which level of performance relating to sustainability and inclusion is driven by TQM adoption and/or corresponding internal business performance.
- The particular aspects of TQM adoption that places organisations in a better position to perform regarding their sustainability and inclusion. These aspects of TQM may relate to an organisation's leadership and culture, the extent of its implementation of quality frameworks, its implementation of measurement systems or its internal levels of performance achieved.
- The extent to which the ability to exhibit a certain level of sustainability and inclusion is dependent upon organisational size.
- The extent to which differences exist between the manufacturing and service sector, as broad indicators of economic sector, with regard to the above.

Method of research and empirical analysis

The benchmarking data considered in this paper involved organisational self-assessment, with facilitator support and guidance and data analysis provided from external agencies (Robson and Yarrow, 2000), where 128 manufacturing companies and 428 service providers employed the benchmarking metric that included these additional measures. The data used scales from 1 to 5, and make use of recognisable manufacturing or service standards, representing for each variable a range of practice implementation or performance realised from the poorest levels to world-class, consistent across the various measurements included within the benchmarking tool employed.

In the analysis to be presented in the next part of the paper, an acceptable level of performance is assumed to be a benchmark score of 3, i.e. the median point on the scales adopted (values significantly lower or higher than represent poor or good respective performance). A range of parametric tests have been undertaken to determine significant differences from this mean score of 3, together with tests for differences between groups. Statistically significant differences have been reported at the 5, 1 or 0.1 percent levels of significance. Equally, correlation analysis has been used to determine the level of significant association between various individual internal measures of practice or performance and the four measures of "sustainability and

inclusion". Additionally, these internal practices or performance measures have been aggregated to provide broad indicators of TQM implementation and internal attainments, which have subsequently been tested for any significance in association with the four external performance measures, in each case, significance has been recorded at the levels indicated previously.

Differences in performance by specific sub-group (defined by TQM adoption/internal performance levels and size by number of employees) have been measured separately for manufacturing and service relating to the measures of "sustainability and inclusion". These include differences in terms of world-class status (defined by the benchmarking scores relating to business practices and business and operational performance measures) and organisational size (defined by number of employees on site). In terms of the former, four groups have been identified – Potential Winners (high practice, high performance), Promising (high practice, low performance), Vulnerable (low practice, high performance) and Room for Improvement (low practice, low performance), with the low/high cut-off index being an aggregate index of 60 percent in each case. The organisational size bands have been defined as micro (20 or fewer staff), small (21-50), medium (51-200) and large (more than 250 staff on site).

Whilst the primary aim of the two regional studies was not to focus on CSR attainment across the two sectors, by including these four measures relating to "sustainability and inclusion" within the benchmarking metric, opportunity was given to the researchers and participating organisations to assess the extent in absolute terms of CSR performance, alongside the impact of an organisation's size and the extent to which they have implemented good organisational practices and/or realised high level of internal organisational performance have influenced this external attainment.

Findings from the benchmarking survey

The findings presented here will consider the manufacturing sector, the service sector and a comparison between the two groups of organisations.

Manufacturing

Overview

The percentage of manufacturers scoring highly (i.e. 4 or 5) for each of the measures ranges between 13 and 28 percent, with the percentages scoring poorly (i.e. 1 or 2) is more typical for each measure, being between 35 and 45 percent, as suggested within Table I, with all four indicators having a mean score below 3 and apart from emissions and hazards (no significant difference) and strategy towards corporate social responsibility (5 percent level), these differences being statistically significant at the 0.1 percent level. There is consistency of performance between these measures, with significant positive association existing between each pair of variables, all at the 0.1 percent level of significance. Moreover, scores for each of the four performance measures are significantly inferior to the overall internal business performance for the sector, as seen in Table I.

Manufacturing respondents Variable	Value (1-2 = "poor", 3 – "OK", 4-5 = "good")				Significance from mean score of 3	Significant difference from overall internal performance
	1-2 (%)	3 (%)	4-5 (%)	Mean		
Strategy towards corporate social responsibility	38	34	28	2.764	(*)	(***)
Involvement in the local community	45	36	20	2.528	(***)	(***)
Emissions and hazards	38	34	28	2.843		(**)
Sustainability	43	44	13	2.484	(***)	(***)

Notes: * Significant at 5 percent level; ** 1 percent level; *** 0.1 percent level, () lower than

Table I. Profile of manufacturing PILOT scores

Impact of world-class status
World-class status shows significant differences for each of the four performance indicators relating to "sustainability and inclusion", as indicated within Table II. For each of the measures, manufacturers defined as PW/WC have averaged at least an acceptable level of external performance, with two measures displaying a mean significantly greater than 3 (both 5 percent level). The Promising manufacturers have shown an adequate level of performance across the measures albeit based on a small number of organisations, whilst the vulnerables and those with room for improvement have scored significantly lower across the piece in statistical terms. Moreover, no significant difference exists across any of the measures between the PW/WC and promising manufacturers implying those with high levels of TQM implementation (irrespective of internal performance) are more likely to perform relatively well in terms of external CSR. The level of performance recorded for the four measures is typically inferior in statistically significant terms compared with typical levels of internal business performance and this is especially case for the winning and vulnerable manufacturers, with both groups having achieved high levels of internal performance.

	PW/WC	Promising	Vulnerable	RFI/CDB
Strategy towards corporate social responsibility	*		(***)	(**)
Involvement in local community			(**)	(***)
Emissions and hazards	*		(**)	(*)
Sustainability			(***)	(***)
Significant difference from overall internal performance				
Strategy towards corporate social responsibility	(*)		(***)	
Involvement in local community	(***)		(***)	(**)
Emissions and hazards			(***)	
Sustainability	(***)		(***)	(**)

Notes: * Significant at 5 percent level; ** 1 percent level; *** 0.1 percent level, () lower than

Table II. Differences in manufacturing mean scores from 3.0 by WC status and with internal performance

Impact of individual TQM enablers, internal performance and aggregated measures
Table III gives an indication of the impact of specific, individual TQM enablers and individual internal performance measures on the level of CSR attainment across the manufacturing sector. These cover the areas of Organisation and Culture, Quality Practices and Organisational Results.

From an organisation and culture perspective, there is a clear association between vision, strategy implementation and staff development and levels of external performance, whilst the level of quality practice implementation is also significantly associated. The profile relating to internal performance is less clear-cut, apart from associations involving performance relating to productivity and performance measurement and reporting.

	Strategy towards corporate social responsibility	Involvement in local community	Emissions and hazards	Sustainability
Organisation and culture				
Vision	**	**	**	**
Shared vision	***	***	***	*
Manufacturing strategy	***	***	***	***
Employee involvement	**	*	**	**
Job flexibility		**		
Benchmarking	***	**	***	***
Human resource strategy	***	**	***	**
Skills assessments	***	***	***	**
Personal development needs	***	**	**	*
Training and education	***	***	***	**
Customer orientation	**	**	*	**
Problem solving	*	**		
Quality practices				
Quality vision	***	*	***	***
Quality processes	***	**	***	***
Suppliers	**	***	**	*
Organisational results				
Customer satisfaction				*
Market share				
Employee morale	*			*
Inventory turns				*
Cash flow		*	*	**
Return on net assets				
Productivity	***	***	***	**
Product costs	*	**	**	**
Performance measurement and reporting	***	***	***	***

Notes: * Significant at 5 percent level; ** 1 percent level; *** 0.1 percent level

Table III.
Association between manufacturing PILOT questions and measures of CSR

Taking a holistic view on the impact of TQM implementation through aggregating the indicators into the broad areas listed above, the association between these aggregated indices and levels of performance are shown in Table IV.

The aggregated scores representing each of the three areas shows moderately strong, but highly significant association with CSR performance, with the index relating to organisation and culture showing marginally the strongest association. This would suggest both practice implementation and internal performance have a positive association with external CSR performance, although the earlier results relating to world-class status would also suggest the marginally greater impact of enablers rather than internal attainment.

Impact of size band
Organisational size clearly plays a part in explaining differences in performance across these measures, with all four measures showing significant differences across manufacturing as indicated in Table V. Medium and large organisations have attained

	Strategy towards corporate social responsibility	Involvement in local community	Emissions and hazards	Sustainability
Aggregated indices				
Organisation and culture	0.502	0.444	0.421	0.388
Quality practices	0.416	0.351	0.408	0.419
Organisational results	0.309	0.327	0.369	0.399
Aggregated indices				
Organisation and culture	***	***	***	***
Quality practices	***	***	***	***
Organisational results	***	***	***	***

Notes: * Significant at 5 percent level; ** 1 percent level; *** 0.1 percent level

Table IV.
Associations between manufacturing PILOT indices and measures of CSR

	Micro	Small	Medium	Large
Strategy towards corporate social responsibility	(*)	(**)		
Involvement in local community	(***)	(**)		
Emissions and hazards	(*)	(***)		
Sustainability	(**)	(***)		
Significant difference from overall internal performance				
Strategy towards corporate social responsibility	(**)	(***)		
Involvement in local community	(***)	(**)	(*)	
Emissions and hazards	(**)	(***)		
Sustainability	(***)	(***)		(*)

Notes: * Significant at 5 percent level; ** 1 percent level; *** 0.1 percent level; () lower than

Table V.
Differences in manufacturing mean scores from 3.0 by size band and with internal performance

an acceptable level of performance across the measures, whilst the performance for their micro and small counterparts is significantly lower.

The extent of the significant difference between performance internal to the organisation and that relating to "sustainability and inclusion" becomes more apparent the smaller the manufacturer is, with limited significant differences for the medium and larger organisations.

Service

Overview

The service sector has a comparable profile to its manufacturing counterpart, with each performance measure relating to "sustainability and inclusion" having a mean score below 3, significant at the 0.1 percent level, as indicated within Table VI. The percentage of service organisations scoring highly for each of the measures ranges between 14 and 25 percent, with the percentage scoring poorly is again more typical, being between 29 and 45 percent across the four performance measures. Like the manufacturing sector, significant positive association exists between each pair of variables, all at the 0.1 percent level of significance, suggesting a similar consistency of performance level across the service sector. For each of the four measures, the level of CSR performance is significantly lower than that recorded for the overall levels of internal business performance, each at the 0.1 percent level of significance.

Impact of world-class status

World-class status highlights significant differences for each of the four performance indicators relating to "sustainability and inclusion", as indicated within Table VII. Unlike the manufacturing sector, even the services defined as PW/WC or Promising have averaged poorly with regard to certain of these measures, whilst as earlier, the vulnerables and those with room for improvement have scored significantly lower than 3 on average for each measure. Apart from Strategy towards Corporate Social Responsibility where the PW/WC score higher (1 percent level), no significant difference exists across any of the measures between the PW/WC and Promising manufacturers, suggesting again that services with high levels of TQM implementation (irrespective of internal performance) are more likely to perform relatively well in terms of external CSR than their counterparts with poorer levels of

Service respondents Variable	Value (1-2 = "poor", 3 – "OK", 4-5 = "good")				Significance from mean score of 3	Significant difference from overall internal performance
	1-2 (%)	3 (%)	4-5 (%)	Mean		
Strategy towards corporate social responsibility	39	35	25	2.763	(***)	(***)
Involvement in the local community	42	38	20	2.601	(***)	(***)
Emissions and hazards	43	35	22	2.655	(***)	(***)
Sustainability	55	31	14	2.265	(***)	(***)

Notes: * Significant at 5 percent level; ** 1 percent level; *** 0.1 percent level; () lower than

Table VI.
Profile of service PILOT scores

	PW/WC	Promising	Vulnerable	RFI/CDB
Strategy towards corporate social responsibility		(**)	(**)	(***)
Involvement in local community	(**)		(**)	
Emissions and hazards			(***)	(**)
Sustainability	(***)		(***)	(***)
Significant difference from overall internal performance				
Strategy towards corporate social responsibility	(***)	(*)	(***)	(***)
Involvement in local community	(***)		(***)	
Emissions and hazards	(***)	(*)	(***)	(*)
Sustainability	(***)		(***)	(**)

Notes: * Significant at 5 percent level; ** 1 percent level; *** 0.1 percent level; () lower than

Table VII.
Differences in service mean scores from 3.0 by WC status and with internal performance

practice implementation. Like the manufacturing sector, the level of performance recorded for the four measures is typically inferior in statistically significant terms compared with typical levels of internal business performance and again, this is especially case for the winning and vulnerable service providers, who by definition have performed well with regard to the latter.

Impact of individual TQM enablers, internal performance and aggregated measures
Table VIII gives an indication of the impact of individual TQM enablers and internal performance indicators on the level of CSR attainment across the sector, covering Organisation and Culture, Service Quality and Delivery, Measurement of Service and Organisational Results.

Organisational practices relating to skill and job training and education, employee involvement and listening to staff appear to have the most significant levels of association with CSR performance, as do a range of practices relating to service delivery and measurement. Apart from performance relating to Strategy towards Corporate Social Responsibility, the association between internal performance and CSR performance is non-significant, suggesting again that this external attainment is enabler rather results driven from within the service organisations.

Table IX gives an indication of the association between external performance and the aggregated indices, based on the broad drivers listed above.

Clearly the most significant drivers are practices relating to organisation and culture and service measurement, which are weak to moderately strong but highly significant in association.

Impact of size band
Organisational size again explains significant differences in performance across these measures, with all four measures showing significant differences across the service sector as indicated in Table X. Medium and large organisations have attained an acceptable level of performance across the measures, whilst the performance for their micro and small counterparts is significantly lower, giving a profile which is consistent with that displayed by the manufacturers. Similar to manufacturing, the extent of the significant difference between performance internal to the organisation and that relating to "sustainability and inclusion" becomes more apparent the smaller the

	Strategy towards corporate social responsibility	Involvement in local community	Emissions and hazards	Sustainability
Organisation and culture				
Leadership in developing service culture	*			
Shared vision and goals	***		*	
Customer orientation		*	**	
Quality values			**	
Recognition	*			
Skill and job training and education	***	**	**	***
Employee involvement	***			**
Listening to staff	**		*	**
Teamwork penetration	**			*
Service quality and delivery				
Problem-solving culture	***		**	**
Quality mindset	***		**	
Quality procedures and framework	**		**	*
Employee handling of service problem/failures	**			
Use of customer complaint data	**		**	
Workforce flexibility	**		*	
Measurement of service				
Non-value-adding activities	***	*	**	***
Vision of service quality	**		*	**
Visibility of service standards	***		***	***
Benchmarks	***		**	***
Performance measurement and reporting	***	*	***	***
Customer satisfaction measurement	***	*	**	**
Organisational results				
Value (quality/price)	***			
Customer retention	*			
Level of customer satisfaction	**			
Market share (of primary service/line of business)				
Cash flow	*			
Overall productivity	**			
Return on net assets	*			
Production costs	**		*	

Notes: * Significant at 5 percent level; ** 1 percent level; *** 0.1 percent level

	Strategy towards corporate social responsibility	Involvement in local community	Emissions and hazards	Sustainability
Aggregated indices				
Organisation and culture	0.200	0.106	0.273	0.250
Service quality and delivery	0.232	− 0.011	0.276	0.249
Measurement of service	0.340	0.174	0.414	0.450
Organisational results	0.211	− 0.033	0.139	0.048
Aggregated indices				
Organisation and culture	***	***	***	***
Service quality and delivery			*	
Measurement of service	***	***	***	***
Organisational results	**		***	

Notes: * Significant at 5 percent level; ** 1 percent level; *** 0.1 percent level

Table IX.
Associations between service PILOT indices and measures of CSR

	Micro	Small	Medium	Large
Strategy towards corporate social responsibility	(**)	(***)		
Involvement in local community	(**)	(***)		
Emissions and hazards		(***)		
Sustainability	(***)	(***)	(*)	
Significant difference from overall internal performance				
Strategy towards corporate social responsibility	(***)	(***)	(***)	
Involvement in local community	(***)	(***)	(*)	
Emissions and hazards	(***)	(***)	(*)	
Sustainability	(***)	(***)	(**)	

Notes: * Significant at 5 percent level; ** 1 percent level; *** 0.1 percent level; () lower than

Table X.
Differences in service mean scores from 3.0 by size band and with internal performance

manufacturer is, with limited significant differences only for the larger services, the rest for medium sized organisations and smaller having a significantly inferior level of attainment relative to their internal performance.

Comparisons between manufacturing and service sectors

In comparison, neither sector leads overall with respect to any of these performance measures, where no significant difference exists in the mean performance for any of the four indicators between service and manufacturing.

If equivalent sub-groups of manufacturers and service organisations are compared (i.e. PW/WC from each sector, micro vs. micro, etc.), only limited differences exist in terms of mean levels of performance.

In terms of World Class status, promising manufacturers perform better than their service counterparts with regard to Strategy towards Corporate Social Responsibility (1 percent level) and manufacturing leads amongst the PW/WC organisations in terms of Sustainability (5 percent level), whilst amongst those showing room for improvement, the service sector leads in terms of involvement in the local community (5 percent level).

Regarding organisational size, amongst micro organisations, service leads manufacturing in terms of involvement in the local community (1 percent level), whilst large manufacturers lead service in terms of emissions and hazards (5 percent level).

Implication of the results

In absolute terms, both manufacturing and service sectors within the North East of England (relative to established world-class standards) are performing typically only poorly to adequately with respect to external CSR performance, with neither sector dominating in terms of performance. Moreover, compared with the UK measures relating to EFQM implementation (Hanson *et al.*, 1996), the better organisations in terms of world-class status for the region are relatively under performing, as are the regions weaker organisations when comparison is made between the results presented in this paper and the UK attainment recorded in the 1996 study cited above. Apart from the larger organisations both in manufacturing and service, performance relating to "sustainability and inclusion" typically lags behind that relating to internal business performance and this is the case overall for each sector and also by world-class status group and organisational size, the large manufacturers and service providers apart. This suggests from the measures used in the benchmarking study, the most typical level of attainment across the region sees both its manufacturing and service organisations failing to view regional social responsibility as an appropriate objective, with no policies relating to involvement in the local community, whilst policies relating to emissions and hazards and sustainability do not extend beyond compliance with legal requirements. In short, organisations within both sectors have prioritised internal business performance over that relating to stakeholders in their closest environment.

This North East of England study does highlight the existence of a number of key associations, where an organisation's maturity in terms of implementing TQM practices and associated values and influences (be it in manufacturing and service), and the realisation of a corresponding high level of internal organisational performance, has led to a relatively positive performance in terms of external indicators relating to "sustainability and inclusion". To a marginally greater extent, this is enabler rather than performance driven. The analysis indicates linkage to policy setting (shared vision, quality vision) and implementation through operational and human resource strategies being deployed in levels of practice relating to organisation and culture and quality concept, significant at individual enabler and recognisably stronger at an aggregated level of implementation.

Perhaps even more clear-cut in both sectors is the association with organisational size, where the medium and large organisations are much more likely to attain at least an adequate level of performance relating to CSR, both in manufacturing and service.

In terms of implication for organisations, this would suggest a limited, but significant impact of TQM implementation on external CSR performance. Combining

these findings, this would suggest that within the region's manufacturing and service sectors, the winning organisations (in terms of TQM embedding and achieving organisational performance benefits) and those with larger numbers of employees on site are getting to the point of introducing *ad hoc* measures relating to regional social responsibility, encouraging local voluntary involvement amongst their employees and are seeking to extend performance relating to emissions and hazards and sustainability beyond legal minimums, although without fully embedding this within their relevant formal systems and processes. However, from an overall regional perspective this level of attainment from both the manufacturing and service sectors appears to be relatively low compared to that observed nationally.

We conclude that this region's organisations are becoming aware of the effect of the CSR practice and performance relationship. They appear to be at an awakening stage of CSR, mainly involving the ethical principles of avoiding harm or damage to their most immediate external stakeholders and working to legislative and regulatory requirements for economic, financial, health, safety and environmental issues.

Using the results provided by this study, we cannot conclude categorically that the region's CSR performance is driven by TQM, although the relevant levels of engagement in activities relating to the former are greater amongst those manufacturers and service providers who have higher levels of TQM adoption and who have attained better levels of internal business performance. However, approaches to CSR may be emerging in a similar way to that in which quality approaches developed towards the concept of Business Excellence. It may be following an evolutionary pattern similar to that in which "quality awareness" developed to TQM and Business Excellence. In maturing through phases from the "awakening" described above to total stakeholder nurturing and philanthropy, CSR may, in the future, establish its own place in the overall Business Excellence framework.

One limitation of the study is the data is now at least five years old; so one question arises regarding the extent, if any, to which the region's organisations have moved on in terms of their external performance. If opportunities arose, it would be useful to gauge the extent of enhancement in performance relating to CSR across both sectors as part of a longitudinal study, where manufacturing and service participants considered within this study could repeat the self-assessment to measure the extent to which their external performance as measured by these CSR-related indices has changed and moved to levels that extend beyond the *ad-hoc* or simple compliance to legal requirement.

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Paper 6

Appleby, A., Robson, A., Owen, J. (2003) "Learning for learning providers", Education and Training, Vol. 45, No. 5, pp253-266.

Learning for learning providers

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Abstract

Presents the findings from a study of 48 Colleges of Further Education (FE) who have participated in a diagnostic benchmarking exercise using the learning probe methodology. Learning probe has been developed from the established service probe tool (developed originally by London Business School and IBM Consulting) to support colleges of FE in their pursuit of excellence. Examines five main areas of business practice and performance consisting of business leadership; service processes; people; performance management and business results. Goes on to highlight the key strengths of the FE sector and their main areas for improvement (as defined by the sample of participating colleges). Although there are a number of practice and performance areas that need attention in particular practices relating to service processes, the sample also identifies that a number of colleges demonstrate strengths in these same areas. These issues are discussed and compared with experiences and anecdotal evidence collated from working with the FE sector over a number of years. Additionally, a comparison is made with a separate, regional benchmarking exercise that considered a number of educational organisations. Using the findings, the paper suggests a way forward for colleges to use the information which has grown out of this research. It is intended that the database will continue to grow as an information resource as learning probe becomes more widely adopted within the FE sector.

Further education: background to the study

The post-16 learning sector has experienced considerable change in recent times. College managers have had to develop a new range of skills while taking on considerable new responsibilities since incorporation has taken place. There has been a sizeable increase in the number of people taking part in further education (FE) and the level of service expectations. Employers are demanding better worker skills and higher levels of academic qualifications. A recent study by ERSC Research centre on skills, knowledge and organisational performance (SKOPE), based at the universities of Oxford and Warwick, identifies a consistent pattern of increasing worker skills (Felstead *et al.*, 2002). They identify growing complexity in jobs and increased proportion of degree-level jobs, rising from 10 per cent in 1986, to 17 per cent in 2001. In particular, they point out the rising importance and, hence, increased educational demand for computer skills, communication skills, planning skills and management coaching skills. Their research also confirms positive wage premiums associated with increased skills and academic qualifications, another driver for the continued changes in the FE sector. The FE sector has expanded and now also includes work-based learning providers (as well as traditional colleges), funded through the Learning and Skills Council (LSC) (20001a, b). Additionally, the Government has continued to focus on encouraging quality improvement in the learning sector. The ongoing emphasis on meeting customer and stakeholder needs in education and training, together with increased expectations, means that learning providers have to continuously improve their levels of service provision.

The Further Education Funding Council (FEFC) initially introduced self-assessment as a requirement into the further education sector in England in September 1994 (FEFC, 1993). Self-assessment is now a part of the colleges' management, enforced by the FEFC requirement that colleges provide self-assessment reports (SARs) that are subsequently used during college inspections. Colleges also have to report on and set targets for some key output performance indicators, such as national benchmarks pertaining to student retention and achievement. The LSC

has continued this policy within the newly-enlarged sector and has produced a number of supporting publications. These include *Self Assessment and Development Plans*, which was published in March 2001. This publication states, "Rigorous self-assessment and good development planning should be an integral part of an organisation's management". *A Guide for Providers on Self-assessment and Development Planning*, published by the LSC in October 2001, which states that: "Self-assessment should be a systematic process in which providers collect and analyse evidence in order to make judgements about their performance in relation to agreed goals. The main purpose of self-assessment is 'self-improvement'". Self-assessment reporting and target setting have been useful methods of measuring quality within colleges. While the results from these methods are comparable, the methods do not help to detail processes in a way that would allow colleges to readily identify and compare good practice in a systematic and measurable way. By 1999, when the Raising Quality and Achievement (RQA) programme was set up, as part of the Learning and Skills Development Agency (LSDA), the sector had become used to working with metric benchmarks, but had not used diagnostic or process benchmarking to any significant degree. To further enhance the use of benchmarking within the sector it was decided to either develop a learning sector diagnostic benchmarking tool or to adapt one that was already successful in other sectors.

Development of learning probe

Learning PROBE is a diagnostic benchmarking tool that has been developed through a partnership between LSDA and the Centre for Business Excellence (CfBE), at Newcastle Business School, Northumbria University. The development work builds on the original work of London Business School and IBM Consulting (Hanson *et al.*, 1994; Voss *et al.*, 1997). Learning PROBE is a modified version of Service PROBE, in which the language has been changed to reflect the college context.

The original Service PROBE (PROmoting Business Excellence) diagnostic tool evolved from a number of international studies, including "Made in Europe" and "Achieving World Class Service" studies and is managed by the CBI in the UK. The CfBE manages PROBE in north eastern England, operating in partnership with, and on behalf of, the CBI. The Service PROBE model is based on the premise that: Excellent leadership creates an environment in which the organisation's people contribute to their full potential, deploying effective and efficient service processes and managing performance in order to ensure the achievement of optimal results (Service Probe). The central hypothesis of PROBE is that better business practices lead to superior operational and business performance. The same links can be found in the EFQM excellence framework, where excellence in the "enablers" leads to superior "results". The overall aims of the EFQM framework is based on the premise that: Excellent results with respect to performance, customers, people, and society are achieved through leadership driving policy and strategy, people, partnerships and resources and processes (EFQM).

PROBE measures practice and performance in five broad areas, leadership, people, processes, performance management and results. Figure 1 shows how this compares with the EFQM excellence framework.

Discussions between project team members (CfBE and LSDA) and representatives from various Colleges of Further Education led to a number of revisions of Service PROBE. These revisions were primarily changes in the language used in various questions and the supporting guidance notes. The project team believes that the underlying measures of Service PROBE remain intact, which means that the original scales and indices developed from a series of international studies have been preserved. This is an important point, as it allows each new diagnostic assessment to be compared with other service organisations in

Figure 1 Relationship between PROBE and EFQM excellence model
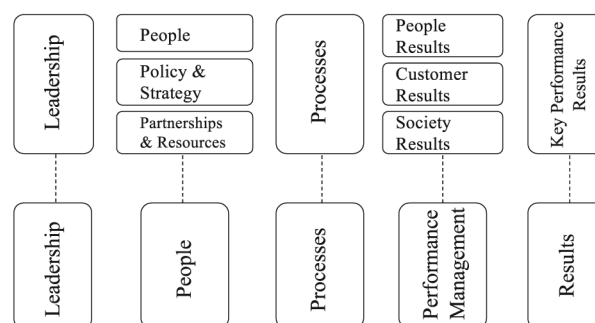
the existing Service PROBE database. This comparison against international samples of service organisations provides rich sources of "best practice" that can be drawn on by any college that is undertaking a gap analysis to set targets for future improvement activities. It also provides valuable information about sectoral differences and gives strong indication of where to find exemplar organisations as potential process benchmarking partners. The Learning PROBE diagnostic process is designed to help colleges gain a better awareness of the principles of excellence and to provide a context in which it can work for them. The diagnostic process allows college teams to share experiences in practices and performance, carefully questioning the way they deliver their services. It brings leaders and their teams together to gain better understanding of key processes. It asks them to consider how well processes work towards delivering effective education and how these processes are reviewed and improved. There is potential for the team to gain new insights into internal and external customer-supplier interfaces.

> '... The range of scores is fully discussed and key issues of debate are recorded until the team reaches consensus on each score. This facilitation usually lasts about four hours, arguably providing a unique opportunity for staff members to discuss many issues, which perhaps would not ordinarily be possible. Key issues are ... subsequently included in the final written feedback report...'

They can consider and question the measures they use and carefully examine whether they understand how their outcomes result in satisfied stakeholders.

Learning PROBE is promoted to the further education sector by LSDA through the benchmarking and information strand of the RQA programme. Funding has been obtained to continue offering the tool to colleges and, from this year, to work-based learning providers. A database of good practice identified from Learning PROBE reports has now been set up. RQA will use the database to identify potential benchmarking partners for any college/learning provider that wants to improve areas of weakness identified through Learning PROBE. Additional

information on the programme can be obtained from Jane Owen, at LSDA (jowen@lsda.org.uk). Colleges should be encouraged to use both the initial findings of this research and this valuable information source and network within their sector as well as learning through process benchmarking.

Diagnostic workshop methodology

The methodology used during diagnostic workshops differs only slightly to that used in the original Service PROBE process. The Learning PROBE process starts with a team of between eight and ten staff selected from various departments and different management and staff levels within the participating college, including a team leader who acts as PROBE co-ordinator. The team is chosen to be representative of the organisation. The team is briefed by the PROBE co-ordinator who explains the aims of the process and clarifies how they should complete the questionnaire. The team is asked to seek out views of other colleagues within their own area of work. After the briefing, each team member returns to their department and completes the questionnaire. About a week or so later, the team again meets with a trained PROBE facilitator from the LSDA or CfBE. The range of scores is fully discussed and key issues of debate are recorded until the team reaches consensus on each score. This facilitation usually lasts about four hours, arguably providing a unique opportunity for staff members to discuss many issues, which perhaps would not ordinarily be possible. Key issues are noted by the workshop facilitator and subsequently included in the final written feedback report. At the end of the workshop, the facilitator completes an initial analysis of the results and verbally presents the key findings and benchmarking comparisons with other organisations from the PROBE database. The facilitator then follows up with a full written feedback report. The written report contains a full assessment of the college's "strengths" and "areas for improvement", comparing their practices and performances with the international database of service organisations (the Service PROBE database). Also, various indices are given that compare the college in detail with other colleges and public sector organisations. The recommended next stage

is that the team meets again to discuss the findings of the written feedback report, to agree improvement priorities and begin planning for action. This meeting usually takes place with an LSDA advisor or CfBE facilitator present. Typically, this meeting will lead to further examination of processes identified as "areas for improvement". Some immediate improvements may be possible through internal improvement team activities or by introducing new systems. Other improvements may need more study/analysis and a possible way forward may be to begin process benchmarking. This requires in-depth mapping and measurement of processes and identification of other service organisations (not just colleges) that are willing to share best practices.

Data sources and measures

This study was based on data collected from 48 colleges of FE within the UK, who participated in the Learning PROBE study. A total of 89 organisational characteristics (66 business practices and 23 operational or business performance measures) were measured by Learning PROBE using a continuum scale from "1" to "5", with the latter representing world-class levels of implementation or attainment. To simplify discussion of the results, an average score above "3" per attribute is described as a "good" level of implementation or outcome (equivalently, an index above 60 for a group of measures), while "very good" levels are represented by scores of "4" and above or indices of 80+. The 89 measures are classified into four areas of practice: business leadership, service processes, people and one broad area of results, performance management. Overall mean scores have been determined for each of the five areas, as well as the constituent scales. Correlation has been used to measure the levels of association between the different aspects of practice implementation and also between the constituent aspects of practice with performance. Percentage frequency distributions have been provided for each of the five areas to display the extent of the variation in practice implementation and results achieved, and to identify the key areas where the college sector can prioritise its improvements.

One key issue centres on the extent to which the sample of 48 participating colleges is representative of the FE college sector as a whole. This sample was typically self-selecting and, as a consequence, it can be argued that these colleges are likely to be more quality focussed than perhaps a random sample of colleges. The participants also tend to be colleges that take up any offers of support in order to improve their business practices. This potentially provides a set of benchmarking results that imply a better picture of the college sector as a whole, although the relative strengths and shortcomings indicated from the study may be representative of the wider picture.

Overview of results

From this study, 48 per cent and 67 per cent of colleges have attained overall practice and performance indices of 60+, respectively, indicating the strong association between these two indices ($r = 0.825$, $p = 0.000$). Using the definitions provided by Hanson *et al.* (1994), we can categorise each of the colleges according to the overall levels of practice and performance achieved (Figure 2). Combined practice and performance indicates that 46 per cent of the colleges can be categorised as "potential winners" (where both practice and performance has an index of at least 60). However, 21 per cent of colleges within the sample can be classed as vulnerable (good performance that is not supported by good levels of practice). In contrast, only one college can be classed as "promising" where practice levels are not yet matched by performance. Finally, almost

Figure 2 Overall levels of practice
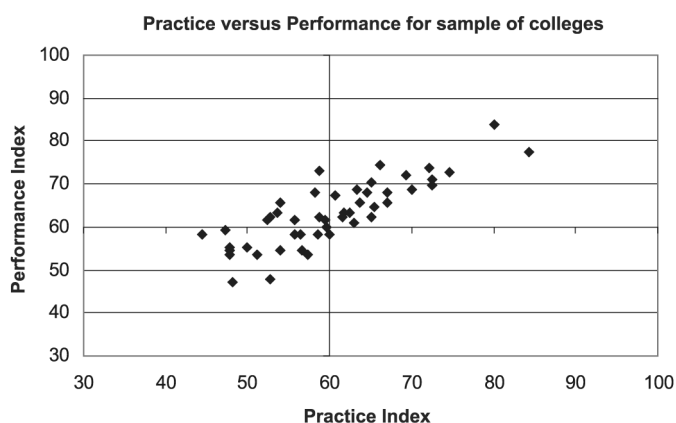
one-third (31 per cent) of the colleges have not yet achieved good levels of either practice or performance and have been labelled as having "room for improvement".

Table I suggests that the strongest practices relate to people, with the mean index across the sector being clearly in excess of 60. Reasonably good profiles for practice implementation are also seen with respect to business leadership and performance management; again, the sample has a mean index in excess of 60. In contrast, the area perhaps requiring the greatest attention is service process, with a mean index of only 56.3 and half of the sample scoring below 60. That said, each of the other aspects of Learning Probe displays at least 30 per cent of the colleges scoring below 60 and, as a consequence, any immediate work on business practices will not be exclusively focussed on service process.

The distribution and mean indices above suggest that the colleges in the sample are results driven, with a clear majority experiencing good levels of overall performance. The belief that good practices potentially lead to high performance is supported by the PROBE results. Associations between the results index and each of the four practice indices are strong and statistically significant, with correlation coefficients ranging from 0.705 to 0.884 (each significant at the 0.1 per cent level), as indicated by Table II. Levels of association between the areas of practice are also significant (each at the 0.1 per cent level). Implementation of practices relating to business leadership shows strong correlation with each of the other practices; service processes ($r = 0.884$), people ($r = 0.837$) and performance management ($r = 0.856$), suggesting that levels of practice

Table II Association between groups of measures

	Service processes	People	Performance management	Results
Business leadership	0.884*	0.837*	0.856*	0.809*
Service processes		0.705*	0.817*	0.777*
People			0.744*	0.743*
Performance management				0.749*

Note: *Represents significance at the 0.1% level
All other correlations are statistically insignificant

implementation seem consistent (either weak or strong) across the areas described by Learning PROBE for most colleges. Figure 3 indicates, pictorially, the levels of association between each practice area and the associated levels of operational and business results.

Business leadership

In terms of practices relating to organisational leadership, relationship marketing is strong, with only 4 per cent scoring poorly in respect to relationship building or customer relations, and 94 per cent of colleges having good levels of implementation, indicated by good relationships with many customers and the development of individual customer solutions. More than one in three colleges score very well in terms of relationship marketing, as indicated in Table III. A lower level of implementation of quality leadership practices exists, with 33 per cent of colleges showing poor attainment. No college scored poorly in each of the nine constituent measures of quality leadership and 27 per cent of colleges had good levels of implementation in all of these areas, but only 4 per cent scored very highly. Similar levels of implementation (34 per cent being poor) relate to supplier relationships.

Table I Overall profiles by practice and performance

Overall score	Business leadership (%)	Service processes (%)	People (%)	Performance management (%)	Results (%)
< 50.0	10	31	4	15	4
50.0 –	35	29	38	25	27
60.0 –	38	33	35	44	48
70.0 –	13	6	19	13	19
80.0 –	4	0	4	4	2
90.0 –	0	0	0	0	0
Total	100.0	100.0	100.0	100.0	100.0
Mean	61.2	56.3	63.0	61.4	63.6

Figure 3 Scatter graphs showing associations between practices and performance
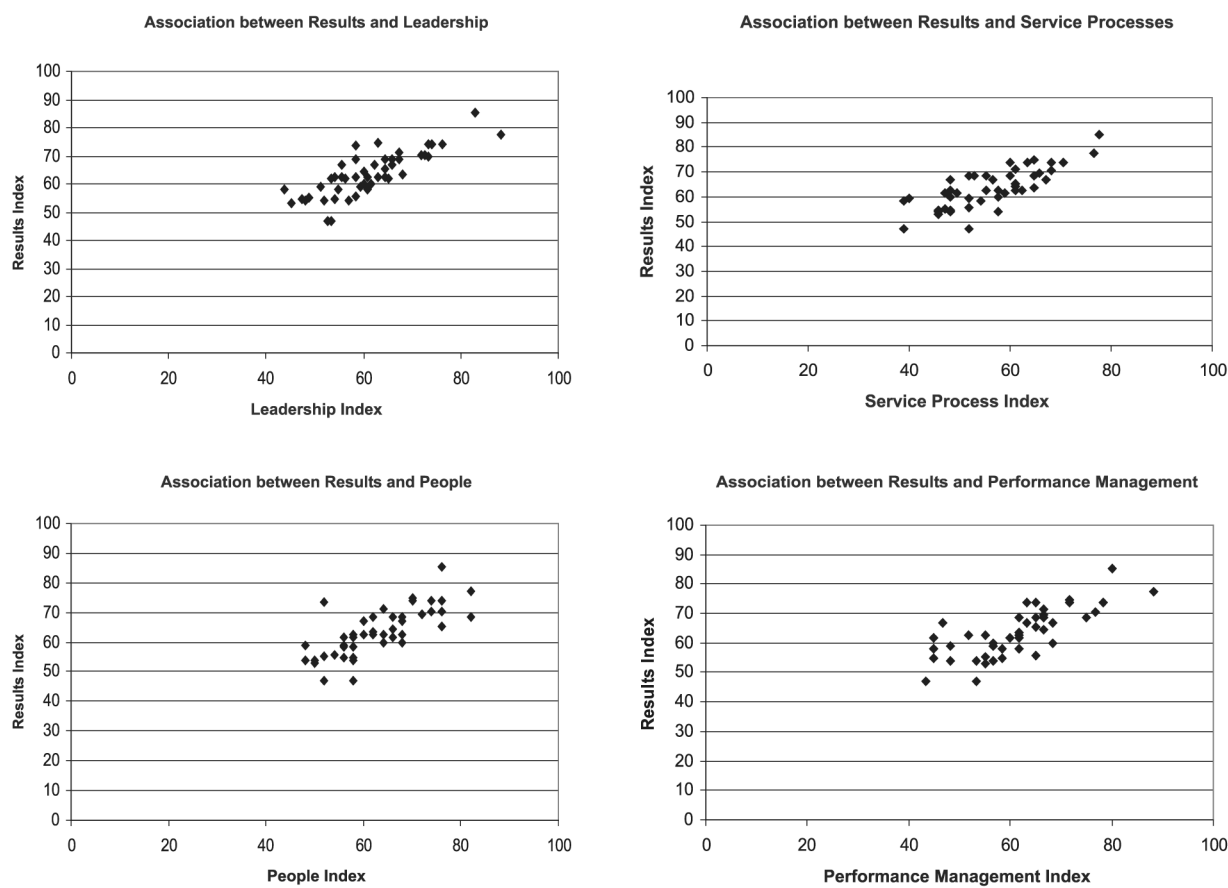
Table III Distribution of measures for business leadership

Overall score	Quality leadership (%)	Value orientation (%)	Market acuity (%)	Relationship marketing (%)	Supplier relationships (%)
< 50.0	2	19	19	2	17
50.0 –	31	25	31	2	17
60.0 –	46	46	31	42	44
70.0 –	17	10	15	19	8
80.0 –	2	0	4	33	15
90.0 –	2	0	0	2	0
Total	100.0	100.0	100.0	100.0	100.0
Mean	62.5	56.9	60.2	68.5	61.7

Weaker practices include short-term supplier relationships, a passive role in influencing suppliers and outsourcing strategies having the effect of "hollowing" the college. No colleges exhibited all three shortcomings, while almost half the sample had good levels of implementation for all practices. A bigger proportion of colleges have poor levels of implementation with respect to value orientation (44 per cent). While almost half the sample recognise the value of service, maintain proactive support functions and have managers who are starting to consider non-value added activities, only one college has high value orientation. The weakest aspect of business leadership across the sector is market acuity, with half of the colleges scoring poorly. Only 9 per cent of colleges provided evidence of teamwork, empowerment and measurement in this area, with only two colleges having high levels of implementation. Strong and significant association exists between all aspects of business leadership, as indicated by Table IV.

Table IV Association between measures of leadership

	Quality leadership	Supplier relationships	Value orientation	Market acuity
Relationship marketing	0.669[*]	0.501[*]	0.566[*]	0.607[*]
Quality leadership		0.597[*]	0.522[*]	0.775[*]
Supplier relationships			0.476[**]	0.608[*]
Value orientation				0.656[*]

Notes: [*] Represents significance at the 0.1% level; [**] Represents significance at the 1% level

Service processes

One-third of the sample has poor practices related to service representations, as indicated by Table V. This is reflected in the standard of physical facilities, resources and materials or the availability and hours of operation, which relate more to staff or college needs rather than the customer. A majority have good levels of service representation, while four colleges display both limitations.

New service development has a marginally poorer set of constituent practices, with 42 per cent of colleges displaying poor levels of implementation. These colleges do little to involve customers in the design or development of new courses and associated processes can be *ad hoc*. Five colleges exhibit all limitations, although a majority do exhibit good practices overall. Business processes have similar levels of poor implementation, with weaker colleges paying little attention to business process across departments and tend to use IT for just standard business applications. Half of the sample has good business processes, characterised by defining, mapping and redesigning key process and investing in IT as means of improving functional performance. In terms of eBusiness, 60 per cent of colleges have implemented systems which allow customers

to, at the very least, search for information. Some colleges do have integration across functions and they use IT for improved communication. One in ten have very high levels of implementation relating to eBusiness.

In contrast, more than half of the colleges have poor levels of practice implementation relating to *kaizen* (continuous improvement process). These colleges have limited training for quality and no systematic programme of continuous improvement within their organisation. Only one in three colleges display good practice levels in all areas relating to *kaizen*. This represents one of the poorer areas of practice implementation identified in the study. Three-quarters of colleges score poorly with respect to moments of truth. This implies that these colleges have not fully identified processes for delivering customer service, paying little attention to reasons for staff turnover and have no service guarantees or strategies in place for service recovery. Only one college in six shows good attainment in each of the constituent practices described. Statistically significant associations (though only moderate in their strength) exist between nearly all of the pairs of measures in the area of service processes, with the association between *kaizen* and moments of truth being particularly strong ($r = 0.693$, $p = 0.000$), as indicated within Table VI.

People

Colleges have good practice with regard to empowerment and being innovative organisations, with 77 per cent and 86 per cent having good levels of attainment, respectively. However, practices relating to

Table V Distribution of measures for service processes

Overall score	Business processes (%)	*Kaizen* (%)	Moments of truth (%)	New service development (%)	Service representations (%)	eBusiness (%)
< 50.0	13	33	40	27	10	25
50.0 –	38	19	35	15	23	15
60.0 –	21	31	21	46	42	40
70.0 –	15	10	4	8	15	10
80.0 –	15	4	0	4	6	10
90.0 –	0	2	0	0	4	0
Total	100	100	100	100	100	100
Mean	58.1	56.8	50.1	58.5	59.6	58.5

Table VI Association between measures of service processes

	New service development (%)	Business processes (%)	eBusiness (%)	Kaizen (%)	Moments of truth
Service representations	0.439**	0.386**	0.373**	0.419**	0.510*
New service development		0.411**	0.387**	0.615*	0.619*
Business processes			0.593*	0.519*	0.543*
eBusiness				0.425**	0.383**
Kaizen					0.693*

Notes: * Represents significance at the 0.1% level; ** Represents significance at the 1% level

the cycle of virtue were relatively disappointing, with 44 per cent of colleges having poor levels of practice implementation (this relates to a set of three mutually reinforcing activities; job training and education, employee involvement in improvements and recognition and reward of staff). Those colleges who can do more to empower their staff tend not to identify or respond to service failure, nor do they encourage job flexibility and they are currently promoting a culture of "one person, one job". Encouragingly, almost 70 per cent have good levels of practice implementation for each constituent attribute relating to empowerment, while no college displays all of these limitations (Table VII).

In terms of being innovative, colleges with weaker practices do not facilitate group/ individual learning, while innovation and entrepreneurship are discouraged. No college displayed all three weaknesses, while 83 per cent at least promoted knowledge and saw innovation as desirable. With regard to the cycle of virtue, over 40 per cent of colleges showed variable recognition, had skills development/training programs and utilise staff improvement teams, with one in ten scoring very highly. Strong and significant levels (0.1

per cent level) of association exist between the three practices, as shown in Table VIII.

Performance management

A majority of the sector has implemented good levels of practice relating to performance management. However, with respect to balanced scorecard implementation, 36 per cent of colleges (see Table IX) currently use either anecdotal market information or place no explicit emphasis on student retention or customer loyalty. Emphasis also needs to be given to the implementation of formal quality measurement systems or procedures for capturing customer complaint data. These weaker colleges may have systems for reporting only the statutory performance requirements and have limited measurement of customer satisfaction. Encouragingly,

Table VIII Association between measures of people

	Innovative organisation	Cycle of virtue
Empowerment	0.516*	0.691*
Innovative organisation		0.734*

Note: * Represents significance at the 0.1% level

Table VII Distribution of measures for people

Overall score	Empowerment (%)	Cycle of virtue (%)	Innovative organisation (%)
< 50.0	8	19	4
50.0 –	15	25	10
60.0 –	44	38	56
70.0 –	21	13	17
80.0 –	13	6	13
90.0 –	0	0	0
Total	100	100	100
Mean	64.3	58.9	65.3

Table IX Distribution of measures for performance management

Overall score	Balanced scorecard (%)	Service standards (%)
< 50.0	13	17
50.0-	23	25
60.0-	46	42
70.0-	6	13
80.0-	10	4
90.0-	2	0
Total	100	100
Mean	62.6	59.7

almost 40 per cent of the sample have good practices in all constituent areas of balanced scorecard implementation, with one college in eight showing strong levels of implementation across the board.

In terms of implementing service standards, over 40 per cent of colleges have poorer practices, tending to afford inadequate support for staff, having few service standards in place or implementing standards that are easily achievable. In these colleges, the understanding of service quality remains unclear. Almost half the colleges had good levels of practices in each area, but only two colleges had very high levels of practice implementation. Strong and significant association exists between the two practice areas ($r = 0.797$, $p = 0.000$), suggesting those who have good management systems in place are more likely to have a larger number of challenging, well-understood service standards.

Results

As indicated earlier in the paper, the colleges' operational and business results are better than the corresponding levels of practice, suggesting potential vulnerability among colleges (i.e. current performance levels, however good, are not supported by comparable systems and practices and perhaps may be unsustainable). The best results correspond to business performance, where only 16 per cent of colleges are scoring poorly. A total of 84 per cent have margins and return on net assets at least at the sector average and positive cash flows and overall, almost one-quarter of the colleges have very high business performance (see Table X).

The next best area of performance is organisational productivity. Only 22 per cent

of the colleges exhibit poor performance, while 71 per cent of colleges have displayed static/increasing market share, improving productivity and levels of productivity at least equal to the sector average. One in eight colleges have high organisational productivity. Similar performance has been attained in terms of service quality, although 27 per cent of colleges attained an index of less than 60. These colleges need to address staff morale, the clarity of their service role, how they meet customer needs or the levels of service differentiation. Weaker colleges also have a tendency to let down their customers, have quality levels which are poor relative to the sector, employ staff who are seen to respond slowly or have variable levels of courtesy. Weaker colleges may register some customer complaints, have decreasing levels of customer satisfaction or have customers who perceive lower levels of value. Encouragingly, no colleges show all limitations, with one in four having good levels of performance, although only 4 per cent attained an index of 80+ with respect to service quality.

A greater proportion of colleges (35 per cent) show poor levels of customer growth. These colleges may have no recent innovations in service, slower rates of development, high rates of student drop-out and loss of local partnerships or a relatively fast decline in customer base. Only one college has all four shortcomings, with almost 60 per cent of the colleges displaying good performance and one in ten attaining high levels of growth.

The poorest levels of performance relate to results for stakeholders. Almost half of the colleges have either a high staff turnover or an attention to social/environmental issues that is restricted to compliance. The inter-association between the performance areas is

Table X Distribution of measures for results

Overall score	Customer growth (%)	Service quality (%)	Organisational productivity (%)	Results for stakeholders (%)	Business performance (%)
< 50.0	4	6	11	15	10
50.0 –	31	21	11	31	6
60.0 –	35	44	61	29	40
70.0 –	19	25	11	13	21
80.0 –	10	4	7	10	21
90.0 –	0	0	0	2	2
Total	100	100	100	100	100
Mean	62.9	64.3	62.6	57.9	67.2

significant except for the association between business performance and each of service quality, customer growth and results for stakeholders, as well as between results for stakeholders and organisational productivity. In contrast, the association between service quality and customer growth is particularly strong ($r = 0.769$, $p = 0.000$), as indicated in Table XI.

Discussion – implications for the FE sector

The results show the strengths and potential areas for improvement for the 48 colleges involved in this study. However, as already suggested, the relative strengths and shortcomings may well be representative of the wider FE sector. Many of the practices identified have already become the focus of improvement activities within some of the colleges studied. Additionally, the results of this study raise a number of implications for the sector as a whole and are therefore worthy of further discussion.

With respect to business leadership, the sector is strong in terms of relationship marketing, but can improve its practices related to value orientation and market acuity. In terms of key leadership strengths, employees in the college sector typically have an understanding of, and a commitment to, customer service. Colleges are likely to make explicit mention of quality values in their mission statements and promote these ideas actively within their organisation. There is also a level of senior management involvement in the leadership of quality initiatives. The sample of colleges view customers as partners and use these relationships with their customers to create mutually beneficial products. The sector typically has long-term relationships with their suppliers.

There is currently little evaluation of management on non-statutory areas of performance and little measurement of staff satisfaction or efficiency. Typically, no process benchmarking has existed outside the participation in this study. Across the sector, managers tend to be autocratic and cross-functional communication within the colleges is limited. A crisis mindset also tends to prevail with respect to solving problems. In terms of recruitment, the colleges tend to be passive in their influence of workforce suppliers, and college activities have tended not be questioned with respect to their value. These represent the aspects of business leadership requiring the most immediate attention by college managers.

As already identified, the area perhaps requiring the greatest attention is the sector's service processes. The results show that there is scope for improvements in all of the constituent practices, including business processes and new service development. However, in particular, the sector has to address its limitations in implementing *kaizen* and managing moments of truth.

There is currently little attention to business processes across departments within the colleges. Electronic communication is limited across substantial parts of the sector, with many disconnected systems in use and IT tends to be used primarily as a replacement for labour rather than for improved communication. Training staff for quality is limited and quality procedures tend to be limited. There is a general acceptance regarding the inevitability of staff turnover, processes for delivering customer service are not fully understood and service guarantees are either limited or non-existent. Typically, there is no direct input into the development of new services and the design processes tend to be *ad hoc*. Availability of staff and issues of access appear problematic.

Table XI Association between measures of results

	Organisational productivity	Service quality (%)	Customer growth (%)	Results for stakeholders (%)
Business performance	0.408**	0.155	0.276	0.140
Organisational productivity		0.489**	0.420**	0.230
Service quality			0.769*	0.408**
Customer growth				0.405**

Notes: * Represents significance at the 0.1% level; ** Represents significance at the 1% level

People initiatives are strong across the sector, especially empowerment of staff and innovation. Although practice levels are good, more work needs to be done in relation to the cycle of virtue. Staff involvement in the college sector has also been highlighted by a separate LSDA staff satisfaction survey as being very important (Davies and Owen, 2000). The sample of colleges typically employs staff who are empowered to deal with problems and to make decisions immediately, where individuals will take ownership of problems that arise. Staff have the discretion to take action as appropriate. Within these colleges, management both promote and resource learning and active information sharing also exists. Innovation forms a key part of college strategy, with resources being actively allocated to innovative activities. However, for a large proportion of colleges, feedback or recognition of service performance is limited.

In terms of performance management, typical levels of balanced scorecard and service standard implementation across the FE sector are reasonably good, although one-third of the surveyed colleges remain weak.

The colleges typically seek customer feedback and implement this in improvements to their service provision. The measurement of quality is also linked explicitly to improvement initiatives aimed at both the short and long term. Typically, the colleges in the sample do employ performance standards that are based on external benchmarks and these are designed to stretch the colleges. Quality is also seen in terms of results and underlying practices.

> '... Employees are likely to respond to a variety of customer needs which extend beyond their core service and customers are likely to recommend these colleges to other prospective customers...'

Quite often, however, market information used by the colleges is at best anecdotal and performance measurement rarely extends beyond statutory requirements and the traditional sectorial measures of retention and achievement. In a large proportion of colleges, knowledge of service standards is limited to their management team and is rarely disseminated to the employees.

Results are good, especially business performance, organisational productivity and service quality, although a significant minority under-perform in customer growth and results for stakeholders. The sample of colleges typically has positive cash flows. They have very high retention rates for students and other customers, with an expanding customer base. Organisational productivity is continually improving and the colleges are seen as being reliable service providers. Employees are likely to respond to a variety of customer needs which extend beyond their core service and customers are likely to recommend these colleges to other prospective customers. There have been improvements in customer satisfaction in recent years. The colleges are viewed as offering their customers value.

However, a large number of colleges in the sector have had no recent service innovations, despite the organisations considering themselves to have a culture of innovation and supporting strategies for this culture. The colleges tend to have little impact on society beyond their core function and statutory requirements, while internal morale among staff is problematic and their service concepts appear unclear to both customers and staff.

Table XII lists the strengths and areas of improvement for the college sector, within each of the five key components of Learning PROBE.

In a comparative regional study based on the service sector in the North East of England (Prabhu *et al.*, 2001), a number of challenges facing the public sector relative to the service sector as a whole were identified. In terms of leadership, the role of management in developing a service culture was relatively weak and the sector needed to improve its HR practices. The former is consistent with the measure of value orientation for the participating colleges described in this paper, but the weaker HR practices appear to be in contrast with the colleges who participated in Learning PROBE. The public sector within the north east needed to focus on lowering development times for their new services, differentiate the services they offer and be able to meet or exceed customer needs where possible. These challenges seem to be consistent with the challenges facing the FE sector in terms of service processes and outcomes connected to service quality. The

Table XII Strengths and areas for improvement across the sector

Area	Strengths	Areas for improvement
Leadership	Relationship building	Management style
	Customer relations	Problem solving
	Employee attitude	Influencing suppliers of workforce
	Management involvement in quality leadership	Value for money
	Quality values	Elimination of "waste"
	Supplier relationship and stability	Benchmarks
	Outsourcing	Measurement of employee satisfaction
		Management reward
Service processes		Accessibility
		Organisation structure for service and product development
		Customer input for products and services
		Management of business processes
		IT as basis for knowledge management
		IT integration
		Electronic commerce
		Problem handling strategy for service recovery
		Education and training for quality
		Service guarantees and warranties
		Attention to employee loyalty
		Managing "moments of truth"
People	Real-time employee handling of problems	Recognition and reward
	Learning organisation	Employee involvement
	Strategic role of innovation	
Performance management	Management of customer loyalty	Performance measurement and reporting
	Management attention to quality measures	Understanding markets
	Clarity of goals	Visibility and communication of standards
	Customer satisfaction measurement	Support for employees
	Challenging standards	Established service standards
Results	Cash flow	Clarity of service concept
	Return on assets	Employee satisfaction
	Overall productivity within organisation	Impact on society
	Level of customer satisfaction	
	Courtesy	
	Reliability	
	Value (quality/price)	
	Trends in customer satisfaction	
	Customer base	
	Customer retention	

colleges do, however, appear to be at an advantage in terms of results pertaining to business performance.

In further analysis, Prabhu *et al.* (2002) identified a number of key advantages found among organisations related to education, compared with their counterparts within the north east region. These were primarily focused around people-related issues and included strategies related to involving employees, listening to staff, recognition and reward, problem solving and real-time handling of problems and failures. These relative advantages have a parallel with the participants of Learning PROBE, who have identified their key strengths as being in people related initiatives, although, regrettably, both surveys indicated that employee satisfaction was a challenge facing the sector. In terms of service quality, staff responsiveness and reliability were both identified as strengths.

In terms of challenges, the colleges who participated in Learning PROBE also share a number of similar issues with their north eastern counterparts. From the regional study, Prabhu *et al.* (2002) indicated that key to the improvement of the north east's educational organisations relates to the implementation of reporting systems, including benchmarking, performance measurement and reporting and the measurement of customer satisfaction. Further improvements were also reported in relation to the implementation of formal quality procedures and focusing on activities within the organisation that add little or no value. Each of these challenges is also identified in Table XII as issues that require attention within the FE college sector.

Aside from the findings described, the study showed that the participating colleges have been enthusiastic about using Learning PROBE. Apart from the obvious benefit of identifying individual strengths and weaknesses, there have been a number of additional benefits. Learning PROBE encourages colleges to use staff feedback through the team approach utilised by PROBE. Many participating colleges are taking part in an organisational review for the first time and find it both a useful way to learn more about the college and an empowering experience. Participating employees tend to feel more comfortable with cross-college work and many have gone on to form a cross-college quality resource. One college used the members of the Learning PROBE team to develop target setting within the college; another used them to form the basis of a quality team. The systematic approach to reviewing processes has also benefited subsequent general quality reviews within colleges and approaches to inspection. A number of colleges have used the experience gained when dealing with external inspections. One college said:

> PROBE has given the college a snapshot of how all our processes work. The senior management team has discussed its findings and has recognised its value in informing self-assessment and continuous improvement. PROBE was a focus of a training day for our corporation members. In our view, colleges in the sector would benefit from using PROBE, particularly for self-assessment and continuous improvement.

Conclusions

The survey undertaken has been successful in that 48 FE colleges have completed a rigorous diagnostic benchmark of their business practices and resultant performance for the first time. The authors believe that Learning PROBE is a useful process, which has already resulted in some positive outcomes for those involved. Colleges, that have participated so far are those who proactively take up offers of support in order to improve their organisations. A bigger challenge to the LSDA in the future will be to encourage participation among the wider population of the FE sector, especially among those who are likely to exhibit "room for improvement".

For many colleges, the operational and business results are better than the corresponding levels of practice. While this may at first sight appear to be good news, a note of caution is needed. Previous research (Hanson *et al.*, 1994; Appleby and Mitchell, 2002) suggests potential vulnerability where performance levels, however good, are not supported by comparable systems and practices. The analysis has demonstrated that the FE sector has many examples of good practice, which provides learning opportunities within the sector. Learning from other learning providers is clearly a relatively safe and viable option. There is, however, a need to widen and further develop existing networking within the sector and establish more systematic ways to share best practice.

In addition to the obvious benefits of the benchmarking comparisons for each college, the diagnostic process also introduces and reinforces the underlying principles of excellence. It is, therefore, a very useful process for any college at the beginning of their quality journey as well as for those already committed to using the excellence model. Continued use of the benchmarking tool will provide a growing database of best practice and performance information, thus providing learning opportunities for the sector as a whole.

Additionally, further research is planned which will allow comparison of the FE sector with best practice in other service organisations, which have been measured using Service PROBE. This will, at the very least, widen the networking and learning opportunities across other service industries, but may also promote innovative solutions for organisational improvements.

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Paper 7

Robson, A., Yarrow, D., Owen, J. (2005) "Does quality drive employee satisfaction in the UK learning sector?", International Journal of Quality and Reliability Management, Vol. 22, No. 5, pp465-484.

Does quality drive employee satisfaction in the UK learning sector?

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Abstract

Purpose – The purpose of this paper is to provide empirical evidence to assess the nature and extent of the link between employee satisfaction and organisational performance.

Design/methodology/approach – This paper examines the link between staff satisfaction and organisational performance, presenting findings from 21 colleges of Further Education that have participated in both a survey of staff satisfaction (covering over 2,600 staff from these colleges) and in a diagnostic benchmarking exercise using the "Learning PROBE" methodology.

Findings – The results suggest that whilst each of the measured aspects of work are regarded as being important by a majority of survey respondents, the level of "satisfaction" displayed in each of these attributes is indicated by only a minority of those surveyed. The findings support the existence of a link between staff satisfaction and organisational excellence. Staff satisfaction levels are most strongly associated with the leadership and service processes indices, and even more so with the overall organisational diagnosis. This suggests that colleges that are implementing "good practices" covering a range of managerial aspects, and who are achieving corresponding organisational results, are likely to be closer to satisfying their staff. Practices relating to people, performance management and organizational results also show association with staff's satisfaction gap, although not as significantly as above. The results suggest an holistic approach to implementing business practices appears to be more effective than concentrating only on deploying good practices in only a single area of the managerial process.

Originality/value – The value of the paper is to the UK Further Education Sector in that it identifies those organisational practices, which improved, can in combination address to some extent the work satisfaction levels of their employees.

Keywords Business excellence, Job satisfaction, Further education, Benchmarking, Surveys

Paper type Research paper

Introduction

Quality improvement is high on the agenda of the United Kingdom's public services, and the education, learning and skills sector is no exception. The general drive for improvement has been strongly influenced by the central government, largely through the introduction of its various performance initiatives, such as "Best Value Reviews" and "Comprehensive Performance Assessments", and by increases in stakeholder awareness and expectations. There has been much encouragement for the public services to introduce formal quality frameworks in order to enhance organisational performance (Sanderson, 1996). McAdam *et al.* (2002) reported that within the public sector the "Business Excellence Model" (BEM) and "Investors in People" (IIP) were considered by managers as offering an appropriate set of models and performance indicators that have relevance to the sector. There was also an indication that various

models, particularly those cited above, were being used in combination to address both operational and strategic issues. The UK government through the Cabinet Office (2001) have identified BEM, IIP, Charter Mark, and ISO9000 as the four main quality schemes being implemented across local government and were encouraging organisations across the sector to use one or more of these tools in combination. Interestingly, Bowden (2000) commented that both BEM and IIP have been revised in recent times to increase their emphasis upon cultural and motivational issues, including a focus on satisfaction levels among employees.

In terms of the public sector, Davis (1998) reported that a lack of awareness had existed until the late 1990s regarding the potential scope of benchmarking in local government. Within this sector, low levels of aspiration restricted the organisations' potential to gain from the process and formal evaluation across the sector was limited. Davis commented that whilst benchmarking was maturing, its public value was limited, and at the time through a combination of factors, development was being inhibited. Moreover, Ball *et al.* (2000) commented that benchmarking in local government was seen as a management tool which was being implemented to address two separate issues: a way of challenging sectoral processes and as a method of central government control, primarily in terms of implementing financial constraints. Bowerman *et al.* (2002) argued that, in its evolution, benchmarking more frequently responded to the requirements of the central government than those of the implementing local authority and was typically used for defensive purposes rather than performance gains. These authors view benchmarking's development and application as being quite separate to its equivalent within the private sector.

From a different perspective, the belief that employee satisfaction is an important consideration in relation to the delivery of high-quality services (and products) has long been embedded in theories, models and writings on the themes of quality improvement and organisational excellence. Deming (1993), for example, saw "Joy in work" as an end in itself, and inextricably linked with effectiveness of the system. Silvestro (2002) suggests that the American TQM "gurus" are "...unanimous and unequivocal in the view that increasing process ownership and job satisfaction will yield returns in both quality and productivity", while Peters and Austin (1986) stress the theme of "ownership", arguing that employees with a feeling of ownership with respect to either their organisation or role are more likely to provide better levels of performance.

An explicit link between employee satisfaction and loyalty, and profitability, was suggested by the architects of the "service-profit chain" (Heskett *et al.*, 1994), who argued that satisfied employees create value in the services provided to customers, which in turn, has the potential to lead to customer satisfaction and subsequent loyalty. They see that effective support mechanisms and policies internal to their organisation as being key drivers of employee satisfaction.

Whilst the logic embodied in the service-profit chain has gained widespread acceptance (Wirtz, 2003; Meyer *et al.*, 1999), some authors regard it as unproven or as an over-simplification. Sivestro and Cross (2000), for example, argue that the drivers of business success are more complex than the chain suggests, while Silvestro (2002) calls into question what he sees as a key assumption within TQM, HRM and service management literature, and a component of what he calls "the received wisdom",

namely, the link between employee satisfaction and loyalty, service productivity and profitability.

An interesting question that arises relates to the extent to which quality-focused approaches implemented by organisations impact upon the work satisfaction of their employees. Lam (1995) identified that TQM programs improve co-worker relationships and knowledge of supervision, but they can make work more demanding in terms of volume, skill and accuracy, thus enhancing some but not all aspects of employee satisfaction. From Lam's study, the overall result was to find no net increase in staff satisfaction or personal effectiveness. In a higher educational context, Hart and Shoolbred (1993) identified that although quality systems and measurements are discussed widely, little has been said about the employee working experience within organisations employing such frameworks. Rowley (1996) examined a variety of factors that impact upon staff motivation in this sector together with strategies for motivation, concluding that motivation is key to the culture of quality and as movement within the sector is towards quality enhancement, employee motivation will increase in importance. Rowley also concluded that the most important issue connected to staff motivation is the psychological contract between staff and management. Powell (2002) considered the flattening of structures within the education sector, but has concluded that culture change must be addressed before restructuring in order to maximize the empowerment of employees, recognising that motivation and empowerment are central to education and structures need to be addressed in terms of their empowering or restricting effects. In the wider service context, Jarrar and Zairi (2002) commented that employee empowerment is still very much in its infancy and organisations are still unwilling to pass on power to their employees. Oshagbemi (2001) has identified a number of personal characteristics amongst academic staff that combine to explain their levels of satisfaction pertaining to their managers and has concluded that in order to increase levels of employee satisfaction, managers within the academic sector need regular development programs to enhance their managerial effectiveness.

In summary, the literature review suggests the hypothesis that employee satisfaction and loyalty drive service performance has gained widespread acceptance, influencing managers, consultants and academics. In turn, this has influenced organisational assessments and improvement strategies so that they may impact upon employee satisfaction. Questions have been raised, however, about the extent to which this theory is supported by empirical evidence, and whether the link between employee satisfaction and organisational performance is as direct and as straightforward as we have been led to believe.

This paper examines the link between employee satisfaction and organisational practices and performance in a specific setting. More than 2,600 staff, working in 21 colleges located throughout England who participated in an in-depth diagnostic benchmarking exercise using the "Learning PROBE" methodology, also responded to a staff satisfaction survey, thus creating the opportunity to identify and measure the extent of the links between organisational excellence and employee satisfaction. The opportunity to explore these inter-relationships in the context of a sizeable sample of colleges and their staff therefore, has the potential to make a worthwhile contribution to knowledge in this important area. To report upon a major benchmarking exercise within the public sector, with implications both at the micro and macro level

potentially offers a major breakthrough from the sectorial limitations identified by the authors earlier in the paper as well as providing the empirical evidence to uphold or reject the hypotheses centred around the association between organisational excellence and employee satisfaction.

Background and research methodology

The post-16 sector of UK education has undergone substantial recent change. The central government has stressed the need for quality improvement in the learning sector. The Further Education Funding Council (FEFC, 1993) introduced self-assessment into the sector in England in September 1993 and it is now a core component of the colleges' management. The Learning and Skills Council (LSC), which took over the work of the FEFC in April 2002, has continued this process, providing the sector with a number of supporting publications, including *Self Assessment and Development Plans* (LSC, 2001a), which defines the roles of self-assessment and development planning as being integral part to the organisation's management, whilst *A Guide for Providers on Self-assessment and Development Planning* (LSC, 2001b) suggests that the main role for self-assessment is self-improvement.

At the end of the 1990s, the college sector had experience of applying metric benchmarks, but had yet to deploy a diagnostic or process benchmarking tool. A decision was made through partnerships involving the Learning and Skills Development Agency (LSDA) to either develop a new diagnostic benchmarking tool specific to the learning sector or to modify one that was readily available.

Learning PROBE is the (modified) diagnostic benchmarking tool, adapted from the original work of London Business School and IBM consulting (Hanson *et al.*, 1994; Voss *et al.*, 1997) by the LSDA and the Centre for Business Excellence (CfBE), a research centre based in Newcastle Business School, Northumbria University. The PROBE tools measure practice and performance in key areas of organisational activity, helping the organisation to understand its own areas of strength, areas with scope for improvement, and how its practices and results compare with those of other organisations. This benchmarking exercise provided a number of colleges with their first experience of diagnostic benchmarking, and has given the LSDA an opportunity to identify, on behalf of the FE colleges, sector wide strengths and limitations in terms of management, deployment of good practices and performance achievements. The LSDA's remit and activities also extend to designing and implementing surveys of staff and learner satisfaction, providing opportunities for complementary insights to corroborate, challenge or refine the PROBE findings.

At the micro-level, the research process undertaken within the participating colleges can be described as "action research" in that both the deployment of the diagnostic benchmarking tool within the colleges and the administration of an employee satisfaction survey were intended primarily as aids to the colleges' management teams as they reflect upon their organisations' current status and plan for further developments. This involves some of the key features of Lewin (1948) approach to action research, summarised by Abraham (1997), where the features include the research being focused on real problems, action being taken to redress problems and professional researchers collaborating with the organisations who are the research subject. Dick (2002) describes this methodology as having two aims: action to bring about changes in a community or organisation and research to increase understanding

for both researcher and client. In this case, such research was based on the individual college, where critical self-evaluation of its practices and performance indicators was undertaken and subsequently validated independently against the available evidence and compared relative to the sector, thus identifying strengths and challenges and agreeing upon strategies for improvement.

At the aggregate level, which more explicitly underpins the work presented in this paper, the aim of the research was to gather data from a large number of colleges which could be analysed collectively in order to understand patterns and inter-relationships which could inform policy and thinking across the Further Education Sector and beyond. This represents a quantitative approach to research, based on sector wide data, which has been used in the development of this paper to test the key hypothesis set out in the literature review, that various associations potentially exist between organisational excellence and employee satisfaction.

Some work has been undertaken to investigate the reliability of diagnostic benchmarking as a research method, and the robustness of the data that the technique gathers. The Made in Europe study (Hanson *et al.*, 1994) identified a tendency for stronger performers to self-assess somewhat pessimistically, while conversely those who are furthest from world-class standards tend to be a little optimistic. Robson and Yarrow (2000) identified a number of issues concerning data validity and consistency, concluding that on balance the diagnostic benchmarking approach, properly managed, can provide reliable data and generate valuable lessons for a sector, region, or other corporate community of practice. The issue of data reliability within, and consistency across, the participating colleges was addressed by them being led through the benchmarking process by a facilitator within the environment of a diagnostic workshop. The facilitator's role was to evaluate the college team's self-assessment against available evidence within the organisation, and subject to discussion and consensus, provide a range of amended measures and relevant written feedback (Appleby *et al.*, 2002).

The overall findings relating to the sector are described by both Appleby *et al.* (2002) and Owen *et al.* (2003). These results confirm that high levels of practice implementation do lead to high levels of operational and business performance, and areas of strength and opportunities for improvement that invite attention on a sector-wide basis have been identified. Twenty-one of the colleges benchmarked through Learning PROBE also participated in a staff satisfaction survey, offering the authors a useful opportunity to determine the extent to which key findings from the institutional survey map onto the perceptions of the staff employed within them. The large number of participants (more than 2,600) gives this associated staff survey a high level of credibility.

Overview of the analysis
From the benchmarking data, five PROBE indices are examined in detail: leadership, service processes, people, performance management and results, each assessed through an aggregate index of scores assigned to a number of connected business practices or aspects of performance. The outputs of the analysis are categorized into three groups:

(1) an index score below 60 represents practices or results which at face value are priorities for attention;

(2) an index score between 60 and 70 is labelled as "good"; and

(3) an index score of 70 indicates practice or results that can be considered to be moving towards excellence.

Colleges can be categorized as "winning" (world-class and potential winners, which have high practice and performance indices), "promising" (high practice, but low performance), "vulnerable" (low practice, but high performance) and "room for improvement" (low practice and performance indices). Each of the four categories of organisation has been covered amongst the colleges considered within this paper.

The staff survey invited staff to indicate their level of satisfaction with respect to a wide range of aspects of their working life and attributes that their college might display, by indicating their level of agreement with a series of "positive" statements using a five-point Likert scale strongly agree, agree, neutral, disagree and strongly disagree. In order to determine a measure of staff's priorities, they were also asked to indicate the level of "importance" that they would attach to each of the 38 attributes, again using the scale above. The gap between "importance" and "satisfaction" has been determined for each of the 38 work-related attributes, which is referred in this paper as the staff's "satisfaction gap". For example, if they strongly agree about an attribute in terms of importance, but were neutral in terms of satisfaction, the "satisfaction gap" would have a value of two (i.e. five minus three) on this scale. The 38 attributes cover six key areas, as shown in Table I. The survey respondents consisted of:

- 10 per cent aged under 30, 22 per cent 30-40, 37 per cent 41-50 and 32 per cent aged 51 and over;
- 65 per cent of respondents were female and 35 per cent male;
- 9 per cent came from ethnic minority groups;
- 67 per cent were employed full time;
- 11 per cent of respondents were in management posts; and
- 58 per cent were employed in academic positions.

Whilst differences exist in employee perceptions in terms of age, gender, ethnicity, job status, managerial status and job function, they have not been reported in this paper. Instead, the focus of the paper is on the associations of employee perception with the implementation of "good practices" and resultant organisational performance of the employing college. It should be emphasised that "organisational performance" is assessed within the PROBE benchmarking process through examination of a broad and balanced basket of measures of external outcomes and internal performance indicators.

Given the size of the sample, each of the key sub-groups listed have been represented in the sample by a meaningful number of employees. To consider the overall results, percentage frequency distributions (focusing on the extent of the overall negative and positive responses for each of the 38 staff satisfaction attributes) and weighted scores have been used. To look at the differences between importance and agreement for each measure across the sector, and the extent of any association between staff importance and their satisfaction gap with the key PROBE indices, relevant non-parametric tests have been applied. Where significant results have been

38 attributes reflecting aspects of staff's working life in their colleges	Importance			Satisfaction		
	Weighted score	Negative Percentage	Positive Percentage	Weighted score	Negative Percentage	Positive Percentage
Area 1. My own role						
1 I feel valued in this organisation	4.48	5	89	2.82	38	29
2 I understand my role and contribution to goals of college	4.41	4	88	3.63	13	58
3 My views are sought and considered	4.31	4	85	2.74	41	27
4 I feel I have job security	4.45	5	87	2.88	36	34
5 There is opportunity for me to progress within organisation	4.02	9	72	2.45	51	19
6 My manager gives me the support I need to do my job effectively	4.55	4	92	3.41	25	52
7 I have the authority to do a good job	4.42	4	89	3.29	25	47
8 I get sufficient training to do my job effectively	4.44	4	89	3.30	23	46
9 I get feedback from my manager on the work I do	4.37	4	88	3.17	31	44
10 I am not thinking of leaving the college	3.98	8	67	3.20	31	44
Area 2. The staff of the college						
11 Staff work well together in teams	4.54	3	91	3.42	19	49
12 Staff views are sought and considered	4.48	3	91	2.64	45	22
13 Staff are involved in planning improvements and setting targets	4.31	4	85	2.73	41	25
14 Academic and support staff have shared goals	4.25	4	81	2.73	40	23
15 Staff know what they are expected to do	4.53	3	92	3.17	24	39
16 Staff know how well they are performing	4.43	3	90	2.98	31	31
17 Staff receive appropriate training to make them effective in their job	4.53	3	92	3.14	26	39
18 Staff feel they have job security	4.51	3	89	2.57	47	22
19 Staff are committed to improving quality of all aspects of college	4.41	3	87	3.29	22	42
Area 3. Style of senior management						
20 Staff are not afraid to say what they really think	4.39	3	89	2.63	45	23

(continued)

Table I.
Staff satisfaction survey: levels of importance and satisfaction attached by staff to 38 attributes reflecting aspects of their working life

38 attributes reflecting aspects of staff's working life in their colleges	Importance			Satisfaction		
	Weighted score	Negative Percentage	Positive Percentage	Weighted score	Negative Percentage	Positive Percentage
21 Staff are encouraged to take risks or try new things without fear of failure	4.14	5	79	2.50	49	17
22 Management see complaints as opportunities for improvement rather than threats	4.31	4	85	2.66	43	24
23 Management are effective in making decisions about the organisation	4.50	3	89	2.56	47	20
Area 4: Communication						
24 Communication is effective in the college	4.60	4	92	2.42	54	18
25 Information regarding strategic and operational goals/performance communicated effectively	4.28	4	84	2.78	38	25
26 Information about the college is readily available	4.40	3	87	3.36	20	47
27 Staff are given the information they need to do their job effectively	4.57	3	92	2.79	38	25
Area 5: Customers						
28 The college encourages feedback from all its customers	4.45	3	89	3.58	13	55
29 The college acts upon feedback from all its customers	4.45	3	89	2.95	30	28
30 Complaints are dealt with effectively within the college	4.50	3	90	3.09	25	34
Area 6: The college						
31 The college has a reputation for the quality of its provision	4.58	3	92	3.08	28	36

(continued)

Table I.

38 attributes reflecting aspects of staff's working life in their colleges	Importance			Satisfaction		
	Weighted score	Negative Percentage	Positive Percentage	Weighted score	Negative Percentage	Positive Percentage
32 The college has a good future	4.61	3	92	3.28	20	41
33 Education is central to the management strategy of the college	4.60	3	92	3.06	32	38
34 Adequate resources are provided by the college for staff	4.57	3	93	2.56	49	22
35 Staff workspaces are adequate	4.49	4	91	2.44	53	22
36 Adequate resources are provided by the college for students	4.59	3	92	2.93	33	33
37 Equal opportunities are embedded into the culture of the college	4.52	4	89	3.64	15	59
38 The college genuinely cares about the welfare of its staff	4.62	3	93	2.61	46	24

Table I.

identified from these tests, these are indicated, and in turn explained, at the 5, 1, or 0.1 per cent significance levels.

Results

The staff satisfaction survey involved staff from a large number of colleges (Owen and Davies, 2003). Table I summarises the findings from staff of the 21 colleges that participated in both Learning PROBE benchmarking and the staff satisfaction survey. The percentage of negative respondents is those who either strongly disagree or disagree with the statement, and likewise, the positive percentage is those who strongly agree or agree with the statement. The level of negativity and positivity has been indicated for each statement with respect to both importance and satisfaction.

Most of the attributes included in the staff survey are regarded as important by a clear majority of the respondents, particularly in the areas of customers, the college and communication. These areas tend to focus on work related issues with either an external or organisational focus, whereas areas with a more personal focus (my own role and staff of the college) are still regarded as important, but relatively less so sector wide.

Interestingly, the three aspects displaying the lowest importance ratings across the sample are opportunity for progression, loyalty to the college and staff being encouraged to take risks.

It is clear from Table I that the level of importance attached to each of the 38 attributes considered is greater than the corresponding levels of satisfaction. In almost all cases, satisfaction has a weighted score of below 3 (weighted using 1 = strongly disagree up to 5 = strongly agree). Moreover, for each attribute, the difference between importance and satisfaction cited by each survey respondent is significant at the 0.1 per cent level, indicating that for each attribute, the college staff are displaying a "satisfaction" gap. The gap between staff's rating of the importance of each attribute, and their satisfaction with the extent of its implementation or realization, has been examined and taken to be a measure of this "satisfaction gap". Figure 1 shows the extent of the gaps for the 38 attributes considered, comparing a weighted score for each attribute in terms of its importance with a weighted score relating to satisfaction.

The two areas of measurement which consider organisational characteristics, style of senior management and communication, display particularly low levels of staff satisfaction regarding the level of effectiveness with which these aspects are being implemented within their college. Only one attribute from these two areas has a weighted score for satisfaction exceeding three and the satisfaction gaps are large across all of the parameters in these areas, identifying these as the areas in which the college staff are relatively least satisfied. Staff have pinpointed effectiveness of management decision making and being able to say what they think as aspects that are of particular concern. This negativity towards senior management contradicts the impact senior management commitment can potentially have on organizational excellence (Prabhu and Robson, 2000b) and the latter characteristic also identifies the extent of the work needing to be done relating to employee empowerment, upholding the findings of Jarrar and Zairi (2002) and Powell (2002).

The staff of the college is a less clear-cut area, although relatively high levels of satisfaction are reported regarding staff working well in teams and staff commitment
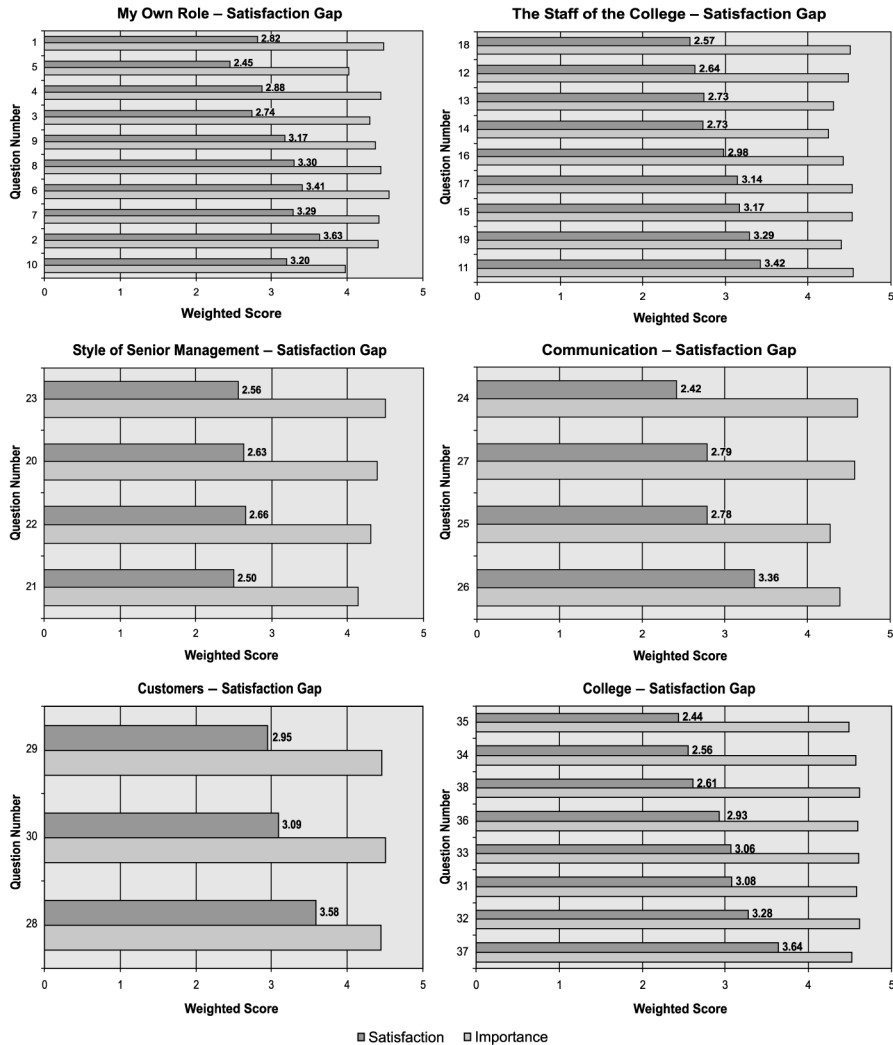
**Figure 1.**
Gaps between staff's
importance and satisfaction
ratings – based on
weighted scores

to quality improvement. In contrast, greater levels of absolute and relative (as indicated by the "gap") satisfaction exist with respect to staff views being sought and considered, involvement in planning improvements and setting targets, shared goals between academic and support staff, and most of all, job security. The latter point concurs with one of the key findings from International Survey Research Ltd (1997), which identified that job security was one of the main drivers in the downturn of employee morale amongst UK workers in the 1990s. The three areas described so far each have a majority of measures with a weighted satisfaction score below three, identifying these as the areas in absolute terms as requiring the greatest attention.

My own role is a more positively-rated area, with more aspects displaying greater satisfaction than dissatisfaction; and customers displays a similar profile, although

large satisfaction gaps exist in terms of how the colleges act upon feedback and how effectively they deal with complaints. It appears that the colleges are doing a good job of encouraging feedback from their customers, at least in the view of their staff, but a much poorer job of exploiting the feedback's messages as drivers for improvement.

In the area the college, there is a high level of relative satisfaction about the implementation of equal opportunities, but dissatisfaction and relatively large satisfaction gaps relating to adequate workspaces, adequate resources and genuine employer care about staff welfare.

The data have been tested to identify the extent of any association between staff importance, satisfaction and satisfaction gaps with the key benchmarking indices. Little association exists between the level of management practices implemented by the colleges or the organisational results they have achieved and the level of importance attached by the college staff to the particular aspects of their working life.

The indices relating to leadership and service processes display no significant association with the levels of staff importance attached to any of the 38 aspects considered in the staff survey. Some associations are apparent between the people index and several of the parameters – staff from colleges with a score in the higher bands (i.e. an index of 60 or more) attach more importance to the significant questions compared with those staff from colleges in the lower score band. The same patterns of association exist for performance management and results. It seems that in colleges in which people management and performance management are strengths, staff attach more importance to factors such as equal opportunities and availability of information about the college. This could be interpreted as a manifestation of greater identification with those colleges that are managing these aspects better.

Where associations exist in terms of the overall benchmarking diagnosis, it is staff from "vulnerable" colleges who attach the greatest importance to the significant questions. Staff from "promising" colleges also attach greatest important to adequate workspaces.

In summary, these results suggest that the extent and effectiveness of strategies in place and the organisational success of the college in themselves do not strongly influence the levels of importance attached to aspects of their working life by college staff.

In contrast, Table II shows that large numbers of significant associations have been identified between the benchmarking indices and the levels of staff satisfaction, and in turn, with the satisfaction gap between importance and satisfaction. With regard to the indices relating to leadership, service processes, people, performance management and result, the lower the index band of the college, the higher the satisfaction gap for the significant questions.

In terms of overall benchmarking diagnosis, the smallest gap for the significant questions can be found amongst staff from the "promising" colleges followed by those from colleges labelled as "winning". The only exception relates to the question pertaining to staff workspaces, where the staff from the "promising" colleges shows the biggest gap between importance and agreement. Both of these categories of colleges have stronger levels of business practices, which suggest that colleges with well-implemented management systems that cover a wide range of managerial practices have a greater chance of moving towards satisfying their staff. In contrast, staff from colleges labelled as having "room for improvement" or as "vulnerable" show

	Leadership	Service processes	People	Performance management	Results	Overall PROBE outcome
My own role						
1 I feel valued in this organisation						•
2 I understand my role and contribution to goals of college						
3 My views are sought and considered	•	••				
4 I feel I have job security		•	••		•	•
5 There is an opportunity for me to progress within the organisation						
6 My manager gives me the support I need to do my job effectively						
7 I have the authority to do a good job						
8 I get sufficient training to do my job effectively						••
9 I get feedback from my manager on the work I do						•
10 I am not thinking of leaving the college						
The staff of the college						
11 Staff work well together in teams	•					
12 Staff views are sought and considered	•					•
13 Staff are involved in planning improvements and setting targets	•	•				
14 Academic and support staff have shared goals		•				•
15 Staff know what they are expected to do						•
16 Staff know how well they are performing		•				•
17 Staff receive appropriate training to make them effective in their job			••			
18 Staff feel they have job security			•			
19 Staff are committed to improving the quality of all aspects of the college	••	•••	••	•	••	•••
Style of senior management						
20 Staff are not afraid to say what they really think		•				••
21 Staff encouraged to take risks or try new things without fear of failure		••				••

(continued)

Table II.
The "expectation gap"
and its association with
PROBE indices and
overall outcome

	Leadership	Service processes	People	Performance management	Results	Overall PROBE outcome
22 Management see complaints as opp's for improvement rather than threats	•••	•••	•			•••
23 Management are effective in making decisions about the organisation	•	•••	•		•	••
Communication						
24 Communication is effective in the college	••	•		•	•	•••
25 Information regarding strategic and operational goals/performance communicated effectively		•				•••
26 Information about the college is readily available	•					•••
27 Staff are given the information they need to do their job effectively	••					•
Customers						
28 The college encourages feedback from all its customers	•••	•••	•••	••	••	•••
29 The college acts upon feedback from all its customers	•••	•••	•••	•••	•••	•••
30 Complaints are dealt with effectively within the college	•••	•••	••	••	••	•••
College						
31 The college has a reputation for the quality of its provision	•••	•••	•••	•	•••	•••
32 The college has a good future	••	••	•••	•	•••	••
33 Education is central to the management strategy of the college						•
34 Adequate resources are provided by the college for staff	•	••	••	•		••
35 Staff workspaces are adequate		•				•••
36 Adequate resources are provided by the college for students	•	•••	••	•		•••
37 Equal opportunities are embedded into the culture of the college	•••	••	••			•••
38 The college genuinely cares about the welfare of its staff	•	••	••			•••

Table II.

the biggest satisfaction gaps for the significant questions, the latter predominating in questions relating to staff of the college, style of senior management, communication and customers. These two groups of colleges have weaker implementation of practices and the statistically significant results suggest that the better the implementation of the good practices, or the better the organisational performance, the smaller the satisfaction gap.

Table II shows that the greatest levels of association with the various indices relate to measures corresponding to customers and the college, and the fewest associations relate to my own role and the staff of the college.

The most widespread levels of association with indicators of staff satisfaction relate to the PROBE indices leadership and service processes, and even more so to the overall diagnosis or outcome. This suggests that by implementing a broad range of good practices, and by achieving corresponding organisational results, the individual college is more likely to satisfy its staff with respect to a number of work-related issues. The indices relating to people, performance management and results also show association with the "satisfaction gap", although not in as widespread a way as the other benchmarking indices.

The areas showing the greatest "gap", style of senior management and communication, have component measures displaying the most statistically significant levels of association with the overall benchmarking diagnosis. The satisfaction gaps for parameters relating to style of senior management are also significantly associated with the colleges' implementation of practices relating to service processes, whilst the gap for the communication parameters are significantly associated with leadership practices. These additional findings suggest that practices relating to specific aspects of the managerial process can be put in place to work towards satisfying staff in these particular areas. This is important given the findings of International Survey Research Ltd (1997), which identified that organisations emerging from a process of "transformational change" (which the FE colleges arguably are) are likely to show one of a number of improvements including an improvement in the rating of senior management's leadership and improvements in communications.

Most striking of all in Table II are the comprehensive associations between the staff satisfaction parameters relating to customers and all of the benchmarking indices. There is a clear message here – when a college's staff think highly of its approach to seeking and acting upon customer feedback and complaints, that college is likely to have well-implemented practices and to achieve strong results. To put this another way "high-achieving colleges are in touch with their customers, and responsive to the feedback their customers are providing".

It is also evident that the indices relating to performance management and results display fewest associations with staff satisfaction and the satisfaction gaps. It seems that the increased focus on managing the performance of colleges, while it may impact substantially upon other stakeholders, is having relatively little impact on the satisfaction of colleges' own staff.

Discussion of the findings
Across the FE college sector, there appears to be a consistent difference between the levels of importance placed on 38 attributes of their working life by a sample of staff and the corresponding level of agreement by the individual that their college has

effectively implemented these attributes. In each case, a significant gap exists, suggesting that colleges have some way to go in terms of satisfying their staff. This gap appears to be across the board, covering aspects of work relating to the individual, the organisation and to the colleges' external stakeholders. Table III identifies areas displaying substantial satisfaction gaps for staff across the sample of colleges.

The results suggest that effective college leadership and good business operations play a part in helping to work towards satisfying their staff. Conversely, less impact upon meeting staff satisfaction is evident through explicit strategies relating to people, the measurement of organisational performance or the organisation's results themselves, whilst an holistic approach to implementing strategies and initiatives is apparently more effective than concentrating on any individual aspect of good practice, e.g. concentrating on business operations alone. That said, associations do exists between staff's "satisfaction gaps" and the college's attainment for certain measures of organisational practice or performance. The holistic approach to implementing practices and delivering organisational results helps colleges come closer to satisfying their staff, particularly in terms of senior management style, communication, the customers and the college.

However, the move towards organisational excellence helps reduce rather than eliminate this "satisfaction" gap, thus supporting the claim of a number of authors that the association between organisational excellence and employee satisfaction is not completely direct. This satisfaction gap obviously has an impact on staff enjoying their

Area	Attributes displaying substantial satisfaction gaps
My own role	I feel valued in this organisation
	My views are sought and considered
	I feel I have job security
	There is an opportunity for me to progress within the organisation
The staff of the college	Staff feel they have job security
Style of senior management	Staff are not afraid to say what they really think
	Staff are encouraged to take risks or try new things without fear of failure
	Management see complaints as opportunities for improvement rather than as threats
	Management are effective in making decisions about the organisation
Communication	Communication is effective in the college
	Staff are given the information they need to do their job effectively
Customers	The college acts upon feedback from all its customers
	Complaints are dealt with effectively within the college
College	Adequate resources are provided by the college for staff
	Staff workspaces are adequate
	The college genuinely cares about the welfare of its staff

Table III.
Substantial gaps between staff's ratings of importance and satisfaction

work and recommending the college as a place of employment. Whilst importance has only limited association with the extent to which staff claim to enjoy their work or would recommend their college as a place to work, the levels of satisfaction for all 38 measures have significant association with both of these factors. Moreover, the level of importance attached to all aspects of senior management style is negatively associated with levels of recommendation (i.e. those who attach less importance to these issues are more likely to recommend their college as a place to work), but recommendation is positively associated with the college's diagnosis relating to leadership, service processes, performance management and results. Finally, the most cited individual actions that staff would take to improve their working life are communication (20 per cent), management style (18 per cent) and resources (10 per cent), results that are consistent with the gaps reported earlier in the paper.

Staff satisfaction is an important issue across the public services in the UK and the education sector is no exception. In this study of the UK's further education colleges, Appleby *et al.* (2002) identified that the weaker colleges exhibit limitations in some of the following characteristics: job training, employee involvement, recognition and reward, flexibility and innovation; with employee involvement and recognition and reward being the most problematic sector wide. In regional studies across the wider service sector, Prabhu *et al.* (2001) identified that staff satisfaction was the performance outcome requiring greatest attention for each category of organisation, the public services included. Concentrating on the public sector alone, Prabhu *et al.* (2002) found that employee satisfaction is significantly lower for the public services compared with a number of key service groups from the private sector, although levels of employee satisfaction are significantly greater for the education-based organisations compared with their counterparts from the rest of the public services. This result concurs with those reported by Kristensen *et al.* (2002) from their Nordic 2001 study.

This paper has highlighted some issues where the gap between staff's ratings of importance and satisfaction can be bridged to some extent, and in turn, identified some areas which appear problematic for the whole sector. In both cases, indication has been given to the extent to which effective business practices and organisational results, in isolation or collectively, can help to bridge these gaps. However, it appears that business practices and organisational outcomes either individually or collectively will not completely address these differences, confirming the conclusions of Crow and Hartman (1995) that in terms of happiness and satisfaction, management have only a partial role in carrying out change, but do have the opportunity for some impact in this area.

Finally, the research method that underpins these findings uses a combination of diagnostic benchmarking and an extensive staff survey. This method appears to offer significant potential for further exploration of the mechanisms through which this and other sectors can continue to develop and improve. The two techniques have offered complementary "lenses" through which to view both an organisation and its sector, and the combined effect provides a potentially powerful set of insights into the current status of the sector and its opportunities for improvement. Clearly, there is potential for greater benefit to be derived through longitudinal studies applying the same or similar approaches, through which the impact of various interventions and changes to practice could be evaluated over time, and this could be further enhanced by combining these results with additional data about the same organisations, such as data pertaining to

customer and stakeholder satisfaction, learners' educational achievements and other quantitative results achieved by the colleges.

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