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## **MANAGING THROUGH MEASURES: A STUDY OF IMPACT ON PERFORMANCE**

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## ABSTRACT

Performance measurement has developed rapidly over the last two decades. The dissatisfaction with financial measures, which came to the fore in the 1980s, has given way to a plethora of balanced performance measurement frameworks. Over the period, the focus has moved from designing balanced performance measurement systems, through implementation to the use of measures to manage performance. There is now a debate in the literature over whether performance has a positive impact on business performance, but despite the research, until recently, few studies have examined the use of performance measures and how performance measurement impacts performance. This paper reports on a study of the use of performance measures in multiple business units of the same organisation. The findings suggest that current research into the impact of performance measurement on performance may be too simplistic in its approach as much of the research relies on studying the physical and formal systems used, ignoring the types of factors found to be important in this study. These factors include Simons' (1991) concept of interactive control and the paper suggests that this concept deserves further study.

**Key words:** Performance Measurement, Performance Management, Business Performance

## INTRODUCTION

With the Balanced Scorecard (Kaplan & Norton, 1992) being cited by Harvard Business Review in 1997 as one of the most important management tools of the last 75 years, performance measurement has been attracting a great deal of interest (Neely, 1998a). There are now numerous balanced performance measurement frameworks (Keegan et al 1989; Lynch & Cross, 1991; Fitzgerald et al, 1991, Kaplan & Norton, 1992; Neely et al, 2002) and multiple processes for the design of performance measurement systems (Bitton, 1990; Dixon et al, 1991; Kaplan & Norton, 1993, 1996; Neely et al, 1996, 2002a; Krause & Mertins, 1999). The problems of implementation have also been studied (Meekings 1995; Bierbusse & Siesfeld 1997; Lewy & Du Mee, 1998; Schneiderman, 1999; Bourne et al, 1999, 2000, 2002, 2003), but the whole area of how performance measures are used has attracted less attention until recently. This now appears the focus of current research (e.g. Lipe and Salterio, 2000, 2002; Kalagnanam, 2001; Vakkuri and Meklin, 2001; Barsky and Marchant, 2001; Malmi, 2001; Malina and Selto, 2002; Epstein, 2002) and the use of performance measures is the subject of this paper.

The research described in this paper was designed to address the question "how the differences in use of performance measurement have different impact on business performance?" Our working proposition was that the manner in which the data is acquired, analysed, interpreted, communicated and acted upon has an impact on business unit performance. But in undertaking this research, many other factors have to be taken into account.

Currently, there is a continuing debate in the performance measurement literature as to whether performance measurement has a positive impact on business performance or not. As the literature review will show, the evidence is mixed. As a consequence, a better question may be “under what circumstances does performance measurement positively impact on organisational performance?” In practice, the organisational context, performance measurement content and process will all impact on the outcome. Our observation from reviewing the literature was that there was little field research focusing on the process<sup>1</sup> of using performance measures and therefore we designed this research specifically to investigate the use of measurement and impact on performance. In this study, by examining different business units in the same organisation, many of the contextual, process and content factors were common allowing us to focus on the use of the measures. The case studies examined how performance measures were used in high and average performing business units. High and average performing business units were selected, as we wanted to know what differentiated the performance between the best and the average, rather than between the best and the worst. Our research analysed the difference in practices and relates these to differences in performance.

The format of this paper is as follows. Firstly, we review the literature, summarising the factors believed to influence performance measurement effectiveness using Pettigrew et al’s (1989) framework. Secondly, we outline the research itself and the methodology used to gather case study data and to “control” for common organisational factors. Thirdly, we describe the organisation in which our cases studies were conducted and, in particular, the management structure and performance measurement systems in use. Fourthly, we report our findings including the differentiators between high and average performing business units. These are then discussed and contrasted with Simons’ concept of interactive control. Finally we conclude and suggest this is an area for further research.

## **THE LITERATURE**

Many practitioners embarking upon a redevelopment of their performance measurement system assume that their efforts will have a positive impact on the organisation’s overall performance (Bourne et al, 1999). This is often their basic reason for beginning such a project, but published research suggests that success is not certain.

A recent study has analysed 99 published papers on the impact of performance measurement on organisational performance (Franco & Bourne, 2004). Although the study revealed that the majority of papers found that performance measurement had a positive impact on organisational performance, further analysis suggested that the more rigorous the research method used, the less likely performance measurement would be found to have a positive impact. The conclusion has to be that the research findings are contradictory. Whilst some studies have found that the use of non-financial performance

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<sup>1</sup> Despite significant research into the impact of performance measurement, little of this research focuses on the process of using the measures to manage performance.

measures has a positive impact on business performance (Ittner & Larcker, 1998, 2003; Banker et al, 2000) others found no relationship (Perera et al, 1997, Neely et al, 2004).

Whether performance measurement per se is a “good thing” is certainly of academic interest, but for those engaged in directing and managing organisations, the more immediate question is “under what circumstances does performance measurement positively impact on organisational performance?” To answer this question we will briefly review the literature. As stated previously, the organisational context, performance measurement content and process will all impact on the outcome, so we have adopted Pettigrew et al’s (1989) framework of context, content and process in our presentation of the literature.

### *Context*

Pettigrew et al (1989) defined context as both the organisation’s external environment (such as the competitiveness of the industry, the economic and political situation) and internal context (such as structure, culture, management style and resources). We address these in turn.

Our review of the literature found studies of the impact of external context on organisational performance. Smith & Goddard (2002) and Waggoner et al. (1999) have suggested market uncertainty, supplier characteristic and the economic situation all impact performance measurement effectiveness, whilst Goold & Quinn (1991) argued that performance measurement effectiveness is contingent on the speed of change and the measureability of performance. Lokman and Clarke (1999) studied the influence of market competitiveness on the use of information, performance measurement and business unit performance and Husain and Hoque (2002) found that economic constraints and regulatory regimes influenced the use of measurement systems. Publish research suggests that external environmental factors do have an impact on performance measurement effectiveness, but so far there is no overarching framework to describe this relationship.

The impact of internal context has been more widely researched and there are many aspects cited, from organisation size and structure, culture and management style, management resources and capabilities, the interface between the measurement system and other processes and the maturity of the system itself. We have summarised these in table 1.

<b>Internal Context</b>	<b>Authors</b>
System maturity <ul style="list-style-type: none"> <li>• More mature systems are more effective</li> </ul>	Evans, 2001; Martins, 2002
Organisational structure <ul style="list-style-type: none"> <li>• Importance of aligning structure and measurement</li> </ul>	Hendricks, 1996; Bourne et al, 2002
Organisational size <ul style="list-style-type: none"> <li>• Measurement is easier in larger organisations and more problematic in smaller ones</li> </ul>	Hoque and James, 2000; Hudson et al. 2001a, 2001b
Organisational culture <ul style="list-style-type: none"> <li>• Alignment between the cultural elements embedded in the measurement system and the users’ cultural preference is beneficial</li> </ul>	De Waal, 2002; Gates, 1999; Johnston et al., 2002; Lingle and Schiemann, 1996; Lockamy and Cox, 1995; Maisel, 2001; Malina and Selto, 2002; Bititci et al, 2004
Management style	Gelderman, 1998; Libby & Luft, 1993; Hunton et

<ul style="list-style-type: none"> <li>Appropriate style important, appropriate style may be different in different settings and phases of implementation and use</li> </ul>	al, 2000; Simon 1987; Bititci et al, 2004
Competitive strategy <ul style="list-style-type: none"> <li>Measures should be aligned to strategy</li> </ul>	Kaplan and Norton, 1996, 2001; Lockamy, 1998; Mendoza and Saulpic, 2002; McAdam and Bailie, 2002; Neely, 1998
Resources and capability <ul style="list-style-type: none"> <li>Companies need resources and capabilities to implement and refresh their measurement systems</li> </ul>	Bourne, 2004, Kennerley and Neely, 2002
Information Systems infrastructure <ul style="list-style-type: none"> <li>High data integrity and a low burden of data capture are important</li> </ul>	Bititci et al., 2002; Eccles, 1991; Lingle and Schiemann, 1996; Manoochehri, 1999
Other management practices and systems <ul style="list-style-type: none"> <li>There should be alignment between measurement and other systems (e.g. budgeting, compensation)</li> </ul>	De Toni and Tonchia, 2001; Eccles, 1991; Eccles and Pyburn, 1992; Kaplan and Norton, 1966, 2001; Moon and Fitzgerald, 1996; Otley, 1999

Table 1: Internal contextual factors impacting performance measurement effectiveness

### *Content*

The content of the measurement system is concerned with what is being measured and how the measures are structured. For example, authors have identified that: -

- The specific definition of the measures themselves is important (to both the designer of the measures to clarify strategy and to the user of the measures to influence behaviour and direct action, Neely et al, 1997)
- The different dimensions of the measures used are important to the users of measurement systems as they direct management focus (Kaplan, 1984; Johnson & Kaplan, 1987), be they internal and external or financial and non-financial (Keegan et al, 1989); leading and lagging (Kaplan & Norton, 1996) or balanced (Kaplan & Norton, 1992).
- The structure (the way the individual measures interrelate) too has been found to be important to the users of measurement systems (Lipe & Salterio 2000, 2002), be that a pyramid (Lynch & Cross, 1991), matrix of results and determinants (Fitzgerald et al, 1991), strategy map (Kaplan & Norton, 1996) or a success map (Neely et al, 2002).

Empirical content studies suggest that performance measurement is more effective when the measures are appropriately designed (Neely et al, 1997), include multiple dimensions (Lingle & Schiemann, 1996) and are structured in a way that helps managers understand the interrelationship and reflects strategy (Lipe & Salterio, 2000, 2002).

### *Process*

Four main processes have been identified in performance measurement (Neely et al, 2000; Bourne et al, 2000); these being design, implementation, use and refreshing.

As we stated in the introduction, the processes of design and implementation have been studied and both have an impact on the outcome (Bourne et al, 2003) and effectiveness of

the measurement system (Neely & Bourne, 2000). Similarly the refreshing, or redesigning, of measures and the measurement system is important. Authors emphasise the need for continuous reviews of the measures themselves, their results, and their impact on goals and strategy with a clear focus on improvement and learning (Ghalayini and Noble, 1996; Johnston et al., 2002; Kaplan and Norton, 2001b; Kennerley and Neely, 2002, 2003; Lingle and Schiemann, 1996; Neely et al., 2000) to keep the measures and measurement system relevant for the organisation and its users (Manoochehri, 1999). The argument made is that the measurement system will lose its effectiveness over time if it is not updated in line with the environmental and organisational needs. However, three of Neely et al's (2000) processes (the design, implementation and refreshing processes) concern changing the state of the measurement system. From our review of the literature, the status quo (the situation where the performance measures are stable and used in managing performance) is less researched.

Empirical studies of the use of measurement systems in the field at the level of detail of the process stages are rare, with Simons' (1991) work on interactive control being a notable exception. In his research he investigated the "levers of control" used in organisations to measure and manage performance. He concluded by differentiating between simple feedback control, and "interactive control" in which managers interact much more closely with the data and management system. He found the interactive control to be more effective in certain situations. But given the relative lack of field studies, a framework was needed to inform our research.

One of the simplest approaches to investigating the use of measures is through the stages in underlying process, being data capture, data analysis, interpretation, communication and decision making (Neely, 1998). Our literature review identified that writers focusing on the key processes associated with the use of performance measures have identified seven factors; (1) the linking to strategic objectives (Atkinson 1998; Otley 1999); (2) the method of data capture (Lynch & Cross, 1991; Simons, 1991; McGee, 1992; Neely, 1998); (3) data analysis (Lynch & Cross 1991; Neely, 1998) (4) interpretation (Simons, 1991; Neely, 1998) and evaluation (Ittner et al, 2003; Kerssens-van Drongelen & Fisscher, 2003); (5) the provision of information and communication (Bititci et al 1997; Forza & Salvador 2000; Kerssens-van & Fisscher 2003; Lebas 1995; Lynch & Cross 1991; Simons, 1991; McGee, 1992; Neely, 1998; Otley, 1999) (6) decision making (Ittner et al, 2003; Neely, 1998) and (7) taking action (Flamholtz, 1983, 1985; Simons, 1991). Synthesising these five stages and seven factors we have arrived at the process stages presented in table 2.

<b>Process stages</b>	<b>Authors</b>
Alignment with strategic objectives	(Atkinson 1998; Otley 1999)
Data capture	Lynch & Cross (1991); McGee (1992); Simons (1991); Neely (1998)
Data analysis	Lynch & Cross (1991); Neely (1998)
Interpretation & evaluation	Simons (1991); Neely (1998); Ittner et al (2003); Kerssens-van Drongelen & Fisscher (2003)
Communication and information provision	Bititci et al (1997); Forza & Salvador (2000); Kerssens-van & Fisscher (2003); Lebas (1995); Lynch & Cross (1991); Simons (1991); McGee (1992); Neely (1998); Otley (1999)
Decision making	Ittner et al (2003); Neely (1998)

Taking action	Flamholtz (1983, 1985); Simons (1991)
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Table 2 Process stages identified in performance measurement

During this research, we adopted the framework from table 2 to guide our data collection, case and cross case analysis. However, we did make one adjustment. It was decided that as “decision making” is often difficult to observe (Ramachandran, 2004), it would be subsumed in this study under the more observable outcome of the decisions - “taking action”.

### *Summarising the literature*

Our review identifies the contextual, process and content factors found in the literature that are believed to impact the effectiveness of performance measurement. Given the significant number of the contextual, process and content variables identified, studying of the impact of performance measurement on performance is difficult. Therefore an approach that simplified the issues was needed. Hence the approach adopted here, that of researching high and average performing operations in the same organisation, where many of the contextual, process and content variables are the same. This enabled us to focus on “how the differences in use of performance measurement have different impact on business performance?” within a “controlled” environment.

## **THE RESEARCH METHODOLOGY**

In order to progress the research, we needed access to an organisation that had multiple business units operating in a similar manner in the same marketplace. Ideally, the system should have been in place for more than two years, so that it was embedded and not a new system (Bourne et al, 2000; Evans, 2001; Martins, 2002). Further, the system needed to include a range of financial and non-financial measures, ideally that represented the perspectives of a Balanced Scorecard or similar recognised framework. The existence of a common data collection and processing system would be beneficial as it would increase the probability of having reliable and comparable performance information. Having the data management and reporting controlled by an IT department independent from those being measured would also reduce the chance of the data and information being distorted by the users.

The case study organisation was selected as it provided a network of comparable business units with similar characteristics in which we could study how performance measures were used to manage performance. These practices could then be evaluated against direct information from both financial and non-financial measures, linking practices with comparative levels of performance. The methodology was therefore designed to minimise both internal and external contextual differences (Pettigrew et al, 1989, Bourne et al, 1999) allowing the research to focus on process, content and outputs. Table 3 illustrates how the approach was used and the factors, which were believed to be common (or controlled for) across the cases and those identified as the focus for this research.

Ten individual case studies were conducted in total, five in high performing business units and five in average performing business units. To ensure consistency of data collection across cases and researchers, a case study protocol was established to guide data collection (Yin, 1994) using table 3 as the basis for the data collection and being informed by the literature identified above. As many factors were common across the cases being studied, our working proposition was that “the manner in which the data is acquired, analysed, interpreted, communicated and acted upon has an impact on business unit performance”.

**Insert Table 3 about here**

The study was then conducted over a four month period in three phases. This first phase comprised interviews with senior management and support staff in head office and observation of the systems and procedures in use (seven days on site in total). During this period, five regions were arbitrarily selected to be studied and financial and non-financial performance data was extracted from the balanced scorecard and profit and loss accounts to identify the performance of the business units in these regions. The second phase involved interviewing the five managers responsible for these regions, discussing individual business unit performance and selecting the business units to investigate. The third phase comprised the site visits to the business units across the UK. The data collection itself was conducted through a series of semi-structured interviews with Branch Managers, branch office personnel and operators. This was supported by direct observation and inspection of data and documentation to increase confidence in the findings by the triangulation of different sources. Between half a day and a day was spent in each of the business units over a two month period during phase three of the research and between four and six individuals were interviewed per branch.

The cases were selected on the basis of two business units per region, with each Regional Manager proposing a high and average performing business unit for study. The intention in doing this was to minimise the differences between regions and in the management style of Regional Manager. However, the Regional Managers’ recommendations were not accepted without verification. Access to the scorecard performance data and business unit profit and loss accounts enabled the researchers to form an independent view of comparative business unit performance. As mentioned, during phase one, interviews were conducted with central staff. This included IT staff responsible for performance measurement reporting, representatives from training, senior operations managers, accounting personnel and directors. As a result of the researchers’ own analysis of the performance information, which was confirmed by the additional interviews, two of the original case studies were rejected. Two further cases were then conducted to replace the lost cases.

Following Yin’s (1994) prescriptions, individual cases were compiled before cross case comparisons were made. Cross case comparisons were undertaken in two stages. Initially, pairs of cases in the same region were compared. This was then followed by full cross case comparison. Drawing conclusions from case study research is a difficult process, so the approach adopted was based on Miles & Huberman's (1994) view of qualitative analysis. This focuses on three phases – i) data reduction, ii) data display and iii) conclusion drawing and verification. The next section describes the case study organisation in more detail.



## **THE CASE STUDY ORGANISATION**

The case study organisation is a UK based company providing repair services. These services are sold directly to the consumer but also provided as a service to insurance companies. Service is delivered through an extensive network of branches (local business units of the organisation) across the country. Each business unit has a Branch Manager and is managed as a profit centre within the service network. Regional Managers oversee some 10 to 15 business units and the Regional Managers report directly to the Operations Director.

The organisation as a whole has been using a “Balanced Scorecard” for over five years. At the business level, that includes measures of financial performance, customer and employee satisfaction and operational performance. However, the manner in which the scorecard has been cascaded to the business unit level has resulted in a much greater focus on financial and operational measures. The customer perspective at the business unit level is measured through customer service measures, and the innovation and learning perspective through measures of operator productivity and rework.

The Branch Manager therefore receives weekly reports on operational performance including service levels and operator performance. These are generated automatically by the IT system from data capture during transactions and presented in the form of traffic lights (green for on target, amber for near target and red for off target). The system presents the twelve scorecard measures in summary form, with the last week, month to date and year to date figures appearing on a single screen. The software allows further interrogation and drill down to transaction level. Branch Managers also have access to the scorecards of other business units within their own region so that they can compare their own business unit’s performance with that of their colleagues. The Branch Managers also receive an operators’ scorecard (showing data on attendance, productivity and rework) on a weekly basis and the business unit profit and loss account each month.

There was also an incentive scheme in operation. Branch Managers’ annual bonus was paid on the basis of achieving the budgeted profit target for the business unit. However, their performance was assessed on the basis of their scorecard performance, which was used as the basis for their annual salary increase. The operators within the business unit were paid through a productivity bonus system that rewarded high levels of output in a week and penalised non-attendance and poor quality. From our observations, the combination of bonus paid on achieving budgeted profit and base pay on scorecard results, balanced the focus between financial and non-financial measures. However, the operator bonus scheme drove different behaviour. This was believed by management to have increased overall productivity across the company, but also caused the kinds of dysfunctional behaviours one would expect in specific situations (Kerr, 1995, “On the Folly of Rewarding A, While Hoping for B”), presenting Branch Managers with some dilemmas over allocation of jobs.

## **THE FINDINGS**

Drawing together the threads from the different cases was a difficult task as much of what was happening in the different business units was similar. Repeating the similarities is of less value, so table 4 summarises the results of our final full cross case analysis emphasising the differences in each of the phases of the use of performance measurement. In this section, we present our findings and observations by phase of the process, again focusing on the differences rather than similarities. We begin with alignment to strategic organisational goals and end with taking action.

**Insert Table 4 about here**

#### *Alignment to strategic organisational goals*

The assumption underpinning the use of the balanced scorecard measures at business unit level was that getting a “Green Scorecard” drove better performance (both financially and non-financially). However when this proposition was challenged, there was wide spread acceptance by the Regional and Branch Managers that the link between financial performance and the scorecard results had never been fully investigated and ready acceptance that the connection was not perfect. We interpreted this a strong indication that the scorecard was being used as a means of controlling standards and not for maximising performance.

High performing business units were differentiated from the others by their business unit managers’ use of simple mental models, which they used to manage the business unit on a day-to-day basis. They described how they used their own indicators (not the formal weekly scorecard measures) to manage, often using unofficial data sources (see below). These had been developed from experience or insight into what the true drivers of business unit performance were. Many revolved around managing volume effectively and efficiently, but others focused on the development of individual skills and team working – aspects absent from the business unit level scorecard.

#### *Gathering data*

The formal Balanced Scorecard presented data gathered automatically from the service processes. Manual data input purely for measurement purpose was minimal.

The practice that differentiated high performing business units from the average was that managers in these business units collected additional data throughout the week from their planning boards, conversations with team members and observations of activity. They did not wait until the end of the week to take appropriate action as they adjusted their activities as the week progressed. As a result, the weekly scorecard results rarely came as a surprise to these managers. This proactive approach to data collection was visibly less apparent in average performing business units and not mentioned in discussion with Branch Managers or staff

#### *Analysing data*

Basic data analysis and display was performed by the IT system providing traffic light feedback against target and month to date and year to date figures automatically. However

the system did provide opportunities for extensive and time consuming analysis of the results through data enquiry tools and data drill down to transaction level. Further, these applications and reports allowed comparisons between business units in the same regions, so managers could make direct comparison of their performance measures against their regional colleagues.

The information on average performing Branch Managers' use of data analysis tools was inconsistent, with some managers spending considerable time on analysis and others spending very little time. However, in high performing business units the use of data analysis tools was consistent. In high performing business units, scorecard data analysis using the standard data enquiry tools was very light. We have concluded from this that the managers in these business units were simply using the scorecard data to check their own assumptions and not as a fundamental tool for managing the business. However, in two business units, additional tools had been developed to overcome specific problems. An example was a detailed spreadsheet designed to calculate precisely consumable usage, something that had been a problem for the business unit in the past and that the tool helped overcome. There was also evidence that managers were managing using their own systems rather than relying on the common company performance measurement systems. Evidence for this included the continued use of old planning boards and additional focus on lost jobs.

#### *Interpretation and Evaluation*

Interpretation is concerned with extracting meaning from the performance measurement system. This was achieved by providing direct comparisons in the display of the weekly scorecard against targets. Additional comparisons were also available so that a Branch Manger could compare their performance against other business units or the regional average.

All business units were well aware of their performance in comparison to other business units within the region and the better business units could express their performance in terms of company wide league tables. The factor that differentiated high performing business units was the way they ignored inappropriate targets. Many targets were set on a company wide basis, and so were more or less achievable at business unit level depending on local circumstances. High performing Branch Managers simply expressed the opinion that they ignored inappropriate targets and managed their business unit with reference to their own targets (which on occasions were higher than those set nationally). We have concluded that high performing business units are therefore not putting scarce resource into addressing specific inappropriate goals enabling them to maintain a high level of performance overall.

#### *Communicating Insight*

At a company level, performance was communicated through the weekly scorecards, operator scorecards and monthly profit and loss account. These activities were reinforced by regular management meetings, one on one discussions and the monthly "state of the nation" email from the operations director.

However at the business unit level, communication was the biggest differentiator between high and average performing business units. The intensity of communication in high

performing business units was so much greater, the frequency, the approach, the level of detail in the content as well as the time spent. To provide one illustrative example, some Branch Managers had difficulty in interpreting their own profit and loss account, but in one business unit the who team spent two hours on a Monday morning once a month analysing item line by item line the whole of the business unit profit and loss statement and discussing what actions they could take to improve. In high performing business units, regular intense whole team meetings were not uncommon and reinforced the perpetual performance dialogue in the business unit.

### *Taking action*

Action taking was hard to observe but appeared to differ greatly across the organisation depending on management style.

At the business unit level we observed a real dichotomy. In some instances action was taken immediately on the discovery of a specific problem whilst in other circumstances, action was delayed. We have concluded that when the source of the problem is apparent and could be easily rectified, high performing managers acted quickly. On the other hand, when either the cause wasn't apparent or could not be simply fixed, action was delayed. This meant that some natural variation in performance wasn't acted upon inappropriately. It also meant that considerable latitude was given to individuals whose performance deteriorated if the underlying cause was known (such as a personal problem). In fact this ability to focus on both task and people issues simultaneously was a factor often present in high performing Branch Mangers and less apparent elsewhere.

## **DISCUSSION**

The studies undertaken did reveal that at a basic level, measurement and management of performance was done in a similar manner across the business units. All used their reports, displayed them in line with company policy, communicated weekly to the staff and fulfilled the requirements of the appraisal system. Some, despite having been trained, were still not fully conversant with the profit and loss (P&L) accounts, but at the basic level, this was the only difference observed and was not common across all average performing business units.

The differences observed between the high and average performing cases was in the way they managed with the measures. Average performing business units were using the performance measurement system as a simple control system, gathering the data, analysing it, interpreting and communicating the outcome and then taking action. On the other hand, high performing business units were using the measurement system much more interactively. The performance measures were simply keeping the score at the end of the week and informal data gathering and tracking systems were used to follow progress and guide quicker corrective action. This was reinforced by frequent formal and informal communication and informed action. Items less easily tracked (mainly cost items booked to the ledger) were reviewed in a more simplistic manner, but the level and involvement in the detailed analysis was significantly higher in specific cases.

This raises the question, “is what we are observing in high performing business units just an example of Simons’ (1991) interactive control?” Simons stated

“A management control system is categorised as interactive when top managers use it to personally and regularly involve themselves in the decisions of subordinates. When systems are used for this purpose, four conditions are typically present: Information generated by the management control system is an important and recurring agenda addressed by the highest levels of management; the process demands frequent and regular attention from operating managers at all levels of the organisation; data is interpreted and discussed in face-to-face meetings of superiors, subordinates, and peers; the process relies on the continual challenge and debate of underlying data, assumptions and action plans” .

There are similarities. Managers were personally and regularly involving themselves with their subordinates’ performance, performance information was regularly used in face-to-face discussions and meetings and performance was continually debated. However, there are also differences:

1. This study was not of senior management of large organisations.
2. The information used in this study was not confined to the formal performance measurement system. The findings suggest that higher performing business unit managers were responding to informal indicators during the week, using the formal measurement system to keep the score at the end of the week.
3. The taking of action was influenced by local knowledge of personal and business circumstances and did not always coincide with meeting specific organisational targets (which locally were thought to be inappropriate).
4. The interactive nature of the use of the measurement system was across the whole business unit’s performance; Simons (1991) suggested that interactive control should be confined to one system, as it is unsustainable across all systems for prolonged periods.
5. The concept of mental models (Eccles & Pyburn, 1992) does not explicitly appear in Simons’ (1991) study.

It can be argued that some of the differences (1, 2 & 4 above) can be explained by the smaller size of the business units in this study compared to Simons’. However, it might suggest that “interactive control” may be different at different levels of the organisation, may be used differently or may require refinement:

1. Interactive control at a corporate level guides the development of formal responsive and timely reporting on key lead indicators; at the business unit level less formal indicators play this role.
2. At business unit level it is possible to take account of knowledge of personal circumstances and local differences in deciding on when and how to act. This is also known to be the case at the corporate level (Mintzberg, 1972) but not explicit in Simons’ (1991) concept of interactive control.
3. If the pervasive interactive control we observed in this study is sustainable at the business unit level, but (according to Simons, 1991) not at the corporate level, can we design strategies to link the two and maximise the benefit from both?

4. Should we revisit Simons' (1991) "interactive control" in the light of subsequent developments in explicit mental models of cause and effect relationships such as strategy maps (Kaplan & Norton, 1996) and success maps (Neely et al, 2002)? There is evidence that such frameworks are useful for decision making (Lipe & Salterio, 2000, 2002) and challenging assumptions is explicitly mentioned in Simons' (1991) paper, but their role in "interactive control" has not been studied. As with Simons (1991) we identified models and assumptions as being important, but the company had not reached the stage of formally developing a success map.

## CONCLUSIONS

The impact of performance measurement on business performance has been studied and reported in the literature, forming part of the continuing debate as to whether performance measurement has a positive impact on performance or not.

The majority of performance measurement researchers are not explicit about the theoretical underpinning of their research (Michele et al, 2004). Here we have taken the proposition that the manner in which the data is acquired, analysed, interpreted, communicated and acted upon has an impact on business unit performance. Our findings suggest that this is over simplistic. The intensity of engagement and interaction with the performance measurement processes has a greater impact than would be suggested from most of the measurement literature (Simons, 1991 excepted). As stated in the discussions, our findings have similarities to Simons' concept of "interactive control", but there are differences. Given the research is based on a single organisation, we cannot claim that Simons' (1991) concept is incomplete, but this study should suggest that "interactive control" would benefit from further study in organisations using more recently developed performance measurement concepts and at multiple levels of the organisation.

This study has tried to contribute to this debate through multiple case studies of the use of performance measurement in a single organisation. This approach has the advantage of controlling many of the contextual, process and content factors identified in the literature as having an impact on performance measurement. In particular, the physical aspects of the performance measurement system used in each of the business units was based on the same measures, using the same data collection and processing systems and producing the same data output and reports. It also has the advantage of allowing comparisons to be made between the performance of the business units being studied as, firstly, performance could be compared using the same performance data and, secondly, the business units studied are in the same industry, in similar locations, with similar customers and all subjected to the same business constraints.

But such an approach does have disadvantages. Being conducted in a single organisation has implications for wider validity. Are the findings identified here relevant in a wider context? Similarly, as the research was based on a common performance measurement system, the uniqueness of this system has to be considered. Although the system was loosely based on the balanced scorecard (all four perspectives were measured), it could not be necessarily considered representative of performance measurement systems generally in use. The IT tool in use supporting the measurement system is one of some 27 currently on

the market (Marr et al, 2003). The industry itself is a further factor. Multiple branch repair services companies are not uncommon, but are far from widespread. The results need to be interpreted in that light.

Further, the business unit comparisons relied on us being able to control for all the contextual, process and content factors as identified in table 3. By taking and comparing pairs of business units in the same region, we believe that we eliminated most of these influences. However, one factor, which is much more localised than the customer demand, is the local job market. In London this was highlighted as an issue and, as we did have a high and average performing pair of business units in London, this emerged during our initial cross case analysis. Although this was not a factor identified during other cross case comparisons, we cannot fully rule out the possibility that the quality of staff was a factor and this limitation should be more closely controlled in any future research.

Being based on a single organisation, the wider applicability of our specific findings from this study should be questioned. However, what is important is the issue that this study raises, that studies that are confined to the physical and formal performance measurement routines are likely not to observe many of the key factors that differentiate between high and average performance. If, as we suggest, the interactive nature of the use of the measurement system is important, future research will need to find ways of observing, measuring and quantifying this interactivity to allow a richer picture of the impact of performance measurement on performance to be developed.

This exploratory study has raised issues for future research. Firstly, we would recommend that further cross business unit research is conducted in multiple organisations to test whether the findings are replicable and applicable to a wider cross section of industry. Secondly, we would recommend longitudinal studies that tracked changes in practice and changes in performance. This would be useful to understand whether the practices found here are sustainable and produce sustainable higher levels of performance. It also would provide insights when managers and practices changed in the same business unit. Thirdly, once the factors have been refined, it would be appropriate to test the findings using survey instruments developed from the case study insights. Ideally these surveys would be conducted across multiple organisations, but with multiple respondents from each of the organisations, rather than single organisational responses which currently dominate the literature (e.g. Lingle & Schiemann, 1996, Gates, 1999). Fourthly, quasi-experimental approaches (similar to those by Lipe & Salterio, 2000, 2002) could be used to validate the importance of the individual elements identified in the case and survey research. This would tease apart factors that may naturally occur together. Finally, it must be remembered that the impact on performance measurement effectiveness of many of the contextual, process and content issues in the literature has still have not been fully researched and there is still much work to be done in this arena.

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<b>Factors</b>	<b>“Control mechanism” and Research Focus</b>
<b>External Context</b>	
Industry competitiveness	All BUs <sup>2</sup> in the same business. Local differences minimised by comparing BUs in the same region
Economy	All BUs in the same business. Local differences minimised by comparing BUs in the same region
Political environment	Common
<b>Internal Context</b>	
System maturity	In place across the business for 5 years
Organisational structure	All BUs of a similar size, structure and reporting to similar regional structures
Organisational size	All BUs of a similar size inside a medium sized enterprise
Organisational culture	The same organisation, but local variances to be observed in the BUs studied
Management style	The same organisation, but local variances to be observed in the BUs studied
Competitive strategy	The same organisation, but local variances to be observed in the BUs studied
Resources and capability	The same organisation, and staffing levels but local variances to be observed in the BUs studied
Information systems infrastructure	Common throughout
Other practices and systems	Common throughout
<b>Processes</b>	
Alignment with objectives	Common measures but local useage to be investigated and observed in the BUs studied
Data capture	Formal data capture through a common IT system but to be investigated and observed in the BUs
Data analysis	Reports common but additional analysis to be investigated and observed in the BUs studied
Interpretation & evaluation	To be investigated and observed
Decision making	To be investigated and observed
Communication and information provision	Reports common but additional analysis to be investigated and observed
Decision making and taking action	To be investigated and observed
<b>Content</b>	
Definition of performance measures	Common definition and central data processing enabling reliable comparisons on BUs
Dimensions measured	Common balanced scorecard dimensions
Structure and presentation	Common structure with no strategy / success map but comparative data displayed

Table 3, Factors to be researched

<sup>2</sup> BUs = Business Units

	<b>Alignment to organisational objectives</b>	<b>Gather data</b>	<b>Analyse data</b>	<b>Interpret / Evaluate</b>	<b>Communicate insight</b>	<b>Take Action</b>
<b>High Performing Business Units</b> (Business units numbers 1,3,5,7,9)	<ul style="list-style-type: none"> <li>• Green scorecards lead to better performance (1,3,5,7,9)</li> <li>• Personal mental model of assumptions of what drives performance (1,5,7,9,)</li> <li>• Well trained people drive performance (3,7)</li> <li>• Motivated people deliver performance (1,3,5,7,9)</li> <li>• Motivation driven by communication (1,3,5,9)</li> <li>• Some measures interact together (3,7,9)</li> <li>• costs drive P&amp;L (3,5,9)</li> <li>• Volume, lost jobs and rework are key to P&amp;L (1,3,5,9)</li> <li>• Rework reflects training, motivation or personal issues (1,3,5)</li> <li>• Recruitment key to long term performance (1,3,7)</li> </ul>	<ul style="list-style-type: none"> <li>• Own data collection (1,3,5,9)</li> <li>• Daily tracking of job progress and results (3,5,7,9)</li> <li>• Occasional drill down to interrogate data (1,3,5,7,9)</li> <li>• Listening to office conversation and incoming calls (1,7)</li> <li>• Challenge cost allocation (3, 5, 9)</li> </ul>	<ul style="list-style-type: none"> <li>• Root cause analysis on lost jobs (3, 5, 7)</li> <li>• Specialised job costing software developed and used monthly (9)</li> <li>• Specialised local consumer usage tracking (7)</li> <li>• P&amp;L variance analysis with whole BU team to item line level (5)</li> <li>• P&amp;L analysis with office staff (7)</li> <li>• Old manual workload display board still used to track jobs in hand (1,9)</li> </ul>	<ul style="list-style-type: none"> <li>• Against company targets (1,3,5,7,9) (if appropriate, 1,3,5)</li> <li>• Against own local targets and standards (3,5)</li> <li>• Estimate week's results and use system to confirm evaluation (3,5,7,9)</li> <li>• Predict month end P&amp;L - but difficult (3)</li> <li>• Against regional BU (1,3,5,7,9) and against whole company (3,5,7,9)</li> </ul>	<ul style="list-style-type: none"> <li>• Display weekly results and league tables (1,3,5,7,9)</li> <li>• Monthly 2 hour whole team P&amp;L review meetings (5)</li> <li>• P&amp;L review monthly with office staff (7)</li> <li>• Bi-monthly off site evening meeting with pizza (3)</li> <li>• Regular one to one (5,7,9) and at every opportunity with operators (1, 3)</li> </ul>	<ul style="list-style-type: none"> <li>• On P&amp;L item lines (5,7,9)</li> <li>• On trend and not single result (3,5)</li> <li>• On morale and / or attitude (1,3,5)</li> <li>• On people issues, in and out of work (5,7)</li> <li>• After taking conditions into account (1,3,5,7,9)</li> <li>• On local BU issues (1,7,9)</li> <li>• On own data (1,3,5,9)</li> <li>• Early, when appropriate (1,3,5,9)</li> </ul>
<b>Average Performing Business Units</b> (Business units numbers 2,4,6,8,10)	<ul style="list-style-type: none"> <li>• Green scorecards lead to better performance (2,4,6,8,10)</li> <li>• Costs need to be contained (2,8)</li> <li>• People are important (2,4,6,10)</li> </ul>	<ul style="list-style-type: none"> <li>• Rely on automatic data acquisition (2,4,6,8,10,)</li> <li>• Weekly drill down to interrogate data (2,4,6,8,10)</li> </ul>	<ul style="list-style-type: none"> <li>• Operators' time sheet reviewed weekly (2,4,6,8,10)</li> <li>• 10 minute look through results at weekend (4,6,8)</li> <li>• Detailed weekly drill down to evaluate performance data (2,10)</li> </ul>	<ul style="list-style-type: none"> <li>• Against company targets (2,4,6,8,10)</li> <li>• Against region (2,4,6,8,10)</li> <li>• Traffic light colour (2,4,6,8,10)</li> <li>• Against budget (2,8,10)</li> </ul>	<ul style="list-style-type: none"> <li>• Display weekly results and league tables on wall (2,4,6,8,10)</li> <li>• Short performance reporting meetings (2,4,6,8,10)</li> <li>• Regular One to ones (2, 6,10)</li> </ul>	<ul style="list-style-type: none"> <li>• On variance from budget (2,8,10)</li> <li>• On red traffic lights (2,4,6,8,10)</li> <li>• On operations director's monthly focus email (2,4,6,8,10)</li> </ul>

Table 4: The results from the cross case analysis