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**An investigation of the skills and
knowledge required by
management accountants to fulfil
their new job role that
accompanies an ERPS
implementation**

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**M.Sc. International Business
2006-07**

**An investigation of the skills and
knowledge required by management
accountants to fulfil their new job role
that accompanies an ERPS
implementation**

By Faye Richardson
2007

A Dissertation presented in part consideration for the
degree of M.Sc. International Business

Executive Summary

The utilization of enterprise resource planning systems (ERPS) has become widespread in recent years and research has focused on the consequences of their implementation. Such consequences that accompany the implementation of an ERP system have included a change in the role of management accountants. This research uses interviews within one international firm (Firm X) to further investigate the changes to the role of management accountants. After identifying a firm where the role of management accountants has changing appropriately, it investigates the skills and knowledge required to fulfil these new roles, whether accountants have coped with the role change and how firms have assisted with the change in role.

The implementation of the ERP system within firm X has been accompanied by an appropriate change in the role of management accountants. The ERP system reduced the time spent taken on routine tasks and allowed more time to conduct deeper analyses. The management accountants have migrated to work within cross functional product teams using their specialist knowledge to assist with strategy and business support. The interviewees indicated that certain skills and knowledge became more essential to have to fulfil these roles. These included technical skills including IT and accounting skills, soft skills such as communication, persuasion and teamwork as well as a need for greater awareness of the business and the work of other departments. Being proactive and a willingness to work within that type of role were also required. The research indicated that most of the management accountants within the firm appeared to have coped with the need for these skills however they had not been provided with any specific training or assistance to help develop the new skills. They did however already have knowledge to perform the deeper analysis from the accounting qualifications and IT training and general workshops were available to help with the new system.

The researcher suggests that more specific training could be offered to help the management accountants fulfil these roles more successfully, especially to develop softer skills. However this research merely represents a starting point and ends with a call for accompanying research in the same area. The researcher suggests more in depth empirical research across a larger sample size allowing the skills to be ranked in importance allowing managers to target skills training more specifically.

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LIST OF ABBREVIATIONS

ABC	Activity Based Costing
AFD	Assistant Financial Director
CCA	Competitor Cost Analysis
CRM	Customer Relationship Management Software
ERP	Enterprise Resource Planning
ERPS	Enterprise Resource Planning System
ES	Enterprise Systems
ESS	Enterprise System Software
EWS	Enterprise Wide Systems
IIS	Integrated Information System
IS	Information System
IT	Information Technology
MRP	Material Requirement Planning
MRP II	Manufacturing Resource Planning
PLCC	Product Life Cycle Costing
SCM	Supply chain management software

Chapter 1 Introduction

This chapter will provide an initial discussion covering the relevant research, the research objectives, the method of investigation and finally the structure of this thesis. Based on this introductory discussion the theoretical background will be presented

1.1 Literature review and background

In the increasingly competitive environment of the world's economy, it is becoming essential for companies to evolve and adapt if they are to survive and succeed. Since the 1960's there have been huge advances in computing technology and software development. The development of ERP systems (enterprise resource planning systems) has been noted as one of the most innovative within information technology in the past decade (Al-Masheri, 2002).

Across the world firms are introducing ERP systems in an attempt to integrate all the departments and functions across the organisation and result in many benefits including the improvement of organisational efficiency and the ability to supply managers with real time information. Such characteristics are claimed to allow managers to respond more efficiently to changes in the business environment, make more appropriate decisions and thus remain competitive (Spathis and Constantinides, 2003).

The systems have the potential to affect different departments throughout a firm in which it is implemented. This research focuses specifically upon management accountants following the call by authors such as Chapman and Chua (2000 p.14) for more research into the area of the impact ERP systems are having on management accounting due to the increasing speed at which ERP systems are being developed and their 'potential to radically alter the field of accounting' (see no 9 pg 300). Research has looked at a variety of aspects of the link between the adoption of ERP systems and management accountants as reviewed by Rom and Rohde (2007). One aspect has been the actual techniques that management accountants use. Following criticism from Johnson and Kaplan in 1987 that management techniques have lost their relevance, new advanced management accounting techniques have been developed. Research has looked into whether the adoption of these new techniques is linked to the implementation of ERP systems with mixed results (Fahy and Lynch, 1999; Granlund and Malmi, 2002; Scapens and Jazayeri, 2003; Hyvönen 2003; Spathis and Constantinides, 2004). Other aspects include the organisation of

management accounting following ERP implementation (Quattrone and Hopper, 2005) as well as the use and perceptions of ERP systems by management accountants such as to reduce the distance between the controller and controlled (Dechow and Mouritsen, 2005). Much research has also been directed into determining whether investing in ERP systems and management accountants actually has a positive effect on the firms performance and if when, why? Results are varied (Hayes *et al.*, 2001; Poston and Grabski, 2001; Dehning and Richardson, 2002; and Hunton *et al.*, 2003).

This research will focus on one specific relationship between the management accountants and the ERP system. It will look the skills and knowledge management accountants require to fulfil their new roles as business analysts that accompany the implementation of ERP systems. Prior research in this area research stems from evidence that there is a shift in the tasks management accountants' complete following ERPS implementation. Booth *et al.*, (2000) found ERP systems to be effective with regards to the transaction processing aspect of management accountants work however not effective with regards to reporting and decision support. These finding imply there could be a shift in the tasks management accountants conduct and potentially a change in their job role. With the reduced need for management accountants to perform routine transaction processing the free resources could result in layoffs of accounting personnel or more time spent on reporting and decision support and thus a new role. There has been some evidence of layoffs but there is also evidence of new roles including advisory roles and roles involving the implementation and maintenance of the information systems.

Evidence for advisory roles includes Granlund and Malmi (2002), Caglio (2003), Lodh and Gaffikin (2003), Scapens and Jazayeri (2003) and Spathis and Constantinides (2003). Scapens and Jazayeri (2003) suggested a shift away from traditional accounting activities towards a wider more advisory and managerial role and Granlund and Malmi (2002) agree saying that the free time allows accountants additional time to conduct more useful information analysis for business support. Similarly, Caglio (2003) suggested that 'hybridization' of accountants is taking in place in organisations that are adopting an ERP system. That is, accountants are dealing 'less with traditional accounting activities' instead 'devoting more time advising and supporting line people as internal consultants' (p.145). This was later echoed by Burns and Baldvinsdottir (2005). Evidence for roles involving the implementation and maintenance of the information systems includes El Sayed (2006) who suggested that some management accountants are also using the

implementation of ERP systems to redefine their role by ‘reinventing their expertise in relation to the ERP system’ (p. 84) promoting their accounting knowledge as ‘important for the proper functioning of these technologies’ (p. 84).

Researchers have briefly suggested skills needed for the management accountants to fulfil these roles effectively. These include IT skills and increased communication skills. However little in depth research has looked into this area and there has been no research into whether firms are providing help for the management accountants to develop these skills.

1.2 Research objectives

The literature review highlights that little research has investigated the skills needed for management accountants to fulfil these new job roles and how companies are helping their employees to develop these skills. Therefore this research will first aim to identify a firm in which a change in the role of management accountants to become analysts has accompanied the implementation of an ERP system. It will then investigate the skills and knowledge perceived as important but the management accountants to fulfil these new roles. It will also investigate how well the management accountants cope with these new roles as well as the support and training provided by the company to the accountants to assist with the transition.

1.3 Research methodology

The method of this study will be to collect qualitative data through interviews of management accountants within an anonymous international firm who have implemented ERP systems. It is to be stressed that this research merely represents a starting point for research in this area and is to be accompanied by a more in depth empirical study at a later point.

1.4 Structure of dissertation

This dissertation will include six chapters. This first chapter is this introduction that briefly covers the research background, research objectives, the research method and the structure of this dissertation.

The second chapter is a literature review that will briefly look at the function management accounting plays within a company. It will then outline ERP systems before reviewing prior research into the effects such systems can have upon management accountants. Chapter three will discuss the research objectives of this dissertation that stem from the literature review. The fourth chapter will focus on the research methodology. It will briefly outline the research technique used, how and why the firm was selected, the themes on which interviewees will be quizzed and drawbacks to the research design. The fifth chapter will outline the results of the interviews and some of the responses that answer the research questions. The sixth chapter will comprise of a discussion and will discuss the results in the wider context relating them to the prior research. The final chapter will be the conclusion that will outline some limitations of the results and the recommendations for the accompanying study. It will also address the academic and managerial implications of the findings and suggest further research areas. At the end of the dissertation there will be a reference list as well as appendices.

Chapter 2 Literature Review

This literature review will look in more depth at the previous research briefly outlined in the previous section. The focus of this research is to look at the effect that the implementation of Enterprise Resource Planning Systems (ERPS) have upon the roles of management accountants. This literature review will first briefly look at what management accounting is. It will then look at what exactly Enterprise Resource Planning Systems (ERPS) are and how they could effect management accounting and specifically the role of management accountants.

2.1 Management Accounting within Organisations

This section will look at what management accounting is and what its function is within an organisation. It will also look at current management accounting practices that are used. This brief overview is important because the implementation of ERP systems has the potential to change the function of management accounting within an organisation as well as the practices used.

Ahrens (2005 p.8) states that ‘a typical textbook definition of management accounting its that it ‘measures and reports financial and non-financial information that helps managers make decisions to fulfil the goals of an organisation’ (Horngren *et al.*, 2003 cited in Ahrens, 2005). Management accounting is mainly responsible for companies’ internal requirements which are primarily used for controlling its operations. It allows the continuous improvement of planning and designing operating objectives and to help direct and inform management decisions. This contrasts with financial accounting that is responsible for companies’ external requirements, providing financial data for external parties such as shareholders. This includes the production of the primary financial statements that are a statutory requirement. Therefore, financial accounting often takes priority over management accounting.

Traditional management accounting practices include variance analysis and standard cost accounting. However, in 1987 Johnson and Kaplan published ‘Relevance lost: the rise and fall of management accounting’. The book was highly critical of the traditional management accounting practices and emphasised that they had lost their relevance for the modern demands of companies. Most of the techniques had been developed prior to

1925 and they argued that they no longer met the demands of managers in the increasingly competitive global market.

Following these claims there has been innovation within management accounting with the development of new advanced management accounting techniques. The new techniques combine both financial and non-financial information and allow the operations of a company to be linked to its strategy and objectives, providing the appropriate information to better inform managerial decisions. Techniques include activity based costing (ABC), competitor cost analysis (CCA), product life cycle costing (PLCC) and many others. However, research indicates that these techniques are not being as widely used as expected, despite the fact a significant competitive advantage could be gained (Adler *et al.*, 2000 p.132). Other research has suggested that ERPS implementation can allow the use of these advanced management accounting techniques. This research will follow later along with research into other changes in management accounting caused by ERPS implementation.

2.2 Enterprise Resource Planning Systems (ERPS)

This section reviews the academic literature published on enterprise resource planning systems (ERPS) by first providing an overview of what ERPS are. This will follow with the benefits they offer to a firm but also their drawbacks and where they have been adopted.

2.2.1 ERP systems – an overview

ERP systems are comprehensive commercial packaged software solutions that seek to integrate the entire range of a business's processes and functions by combining different modules. Modules can include purchase and sales order management, finance and production however it is possible to adopt just a few modules of the ERP system (Hyvönen 2003). The integration allows a seamless flow of information throughout an entire organisation and thus allows users to view the entire business and its processes from a single information and IT architecture in real time information (Klaus *et al.*, 2000). Therefore managers to see how the business is doing as a whole and to access and analyse company wide data to better inform decision making (Sweat, 1998) and the systems provide the ability to drive effective business engineering. Such systems are therefore a natural response to the new global economy and are thus a function of globalisation where remaining competitive is key to survival.

The concept of ERP systems has evolved from the MRP (materials requirement planning) systems of the 1970's. MRP systems were developed as a production planning and control technique to assist in manufacturing to allow a more accurate estimation of the materials needed for pre-booked orders (Gupta, 2000). These MRP systems later evolved into MRPII (manufacturing resource planning) systems in the 1980's. MRPII systems advanced on the MRP systems by integrating new business functions such as production, finance and human resources therefore allowing assistance for the entire production planning and control cycle rather than just the manufacturing cycle (Klaus *et al.*, 2000). However, MRPII systems concentrated solely on the planning and scheduling of internal resources. Furthermore, each function had its own information systems that operated separately and often independently, from any of the other stand alone systems within the company (Davenport, 1998). Therefore, there was a need for a software solution that integrated all of the applications to increase efficiency and through the provision of greater information for improved decision making.

In early 1990 the solution emerged (Gupta, 2000). ERP systems allow the integration of modules through the installation of a software package suitable for any organisation (Scapens *et al.*, 1998). Each module is based on so-called industry best practice and can include all of the core processes and functions of the enterprise such as accounting, stock control and logistics (Kavanagh, 2001). However, it is not essential to adopt all of the modules and its implementation can be a continuum with the addition of further modules over a period of time. Furthermore, not only do ERPS allow integration of applications within a firm, they are also capable of planning resources across organisations linked to its supply chain. The German based company named SAP Aktiengesellschaft (commonly known as SAP AG in the business press) is currently the world market and technology leader in providing ERP systems. SAP stands for Systems Applications and Products in data processing and its latest package known as SAP R/3 was released in 1994 (SAP Website). In 2005 they were reported to supply around 60% of the market (Dillard *et al.*, 2005) and were present in more than 90 countries in 1998 (Scapens *et al.*, 1998). Such has been the growth of such systems in the past decade that SAP's revenue growth is reported to have soared from \$500 million in 1997 to \$7 billion in 2003 (Dillard *et al.*, 2005). Other top vendors include Oracle, BAAN, J. D. Edwards and Peoplesoft.

ERP systems have been referred to in a number of ways in the information systems (IS) literature. These include Enterprise Systems (ES) as well as Enterprise Wide Systems (EWS). However, ERP systems are a type of company wide Integrated Information Systems (IIS) and other company wide systems also exist. Rom and Rhode (2007 p.50) note that most research into IIS has been conducted on ERP systems however 'there is more to IIS than ERP systems' as other non-ERP IIS exist. These include strategic enterprise management (SEM) suites as well as best-of-breed (BoB) systems (Hyvönen 2003). Other IIS may be adopted as they may be more user friendly or allow more flexible analysis and reporting but all IIS have integration as a key feature. This dissertation will focus specifically on ERP systems and therefore other IIS systems will not be discussed in any further depth. However, their existence should still be noted as this research may also be relevant in their implementation and this could be an area of potential further research. For further details regarding non-ERP IIS, see Rom and Rhode (2007, p.50).

2.2.2 Why are companies adopting ERP systems?

ERP systems have been highly praised with authors stating that the adoption of such systems may be the most important development in the corporate use of information technology in the 1990s (Davenport *et al.*, 2004). However, it should also be noted that these 'potential benefits' are often what the developers of the software and the consultants implementing it would have you believe and they are not always realised. The key feature of ERP systems is the integration of modules across the firm and this leads to numerous benefits to the company as well as benefits for the firms' management accountants. Such benefits for both will now be reviewed.

Firstly, the integration of modules across the firm means that as they are all linked, the updating or inputting of one piece of information automatically updates or adds data in other modules. Consequently all data need only be entered once, typically where it originates. This may reduce the amount of transaction processing done within the firm and thus there is the potential to reduce costs through the redundancy of staff whose prior work involved manually re-processing the transactions in a different function (Davenport *et al.*, 2004). This could have a direct effect on the management accountants as a large proportion of their work involves transaction processing. Therefore the systems have the

potential to free up their resources and could potentially result in their layoffs or allow the increased time to perform other work to a greater depth.

This automation of data updating can be demonstrated by customer purchase that would be entered into the system in the module that deals with order entries. This entry would set up an automatic chain of activities with the order passing to the manufacturing module that in turn would request the necessary materials from the supply chain module that would order them from the suppliers and use the logistics module to transport them to the factory. The purchase entry is also sent to the financial module whereby it can be followed through to cash receipt and the link between systems allows the tracking of the revenue, cost and profit products make (Gupta, 2000). Not only does this automatic updating of data theoretically reduce the amount of transaction processing within the firm, it also allows the easier tracking of particular activities throughout the firm as well as allowing the availability of real time data. Such access to real time data allows a firm to better respond to its customers' needs (Gupta, 2000). Other cost savings that may arise from the integration include no longer having to interface the many separate systems as well as through the elimination of the costs associated with maintaining the old legacy systems as IT staff are no longer required to support them.

Secondly, for this integration of all modules to be a success, company data must be usable in all modules. Therefore its collection and reporting of both financial and non-financial information must be standardised across worldwide operations (Newman and Westrup 2005 p.268). The standardisation of data allows the data to be disseminated across the entire organisation and along the whole value chain. This would not have been possible previously with non-standardised reporting techniques within a firm. The standardisation also allows all staff to be better informed as they have access to company wide data in a format that they too use and thus can understand (Nah *et al.*, 2001 cited in Spathis and Ananiadis 2005 p.196). If data in other modules to their own was previously reported in a format they were not familiar with, the staff would not be as well informed. Furthermore staff may also gain a greater understanding of other departments possibly leading to a greater cooperation and improved collaboration between departments and branches. It may also help improve the morale of staff as they may feel more connected across the firm, working towards a common purpose. Specifically related to management accounting, this integration and standardisation also allows the monitoring, managing and co-ordination of global from a single information and IT architecture. This allows a better

analysis of data and more informed decision be made based on implications for the entire company, not just one small section (Sweat, 1998).

Thirdly, the integration of modules has the potential to allow an increase in production and efficiency by linking the supply chain capabilities to other modules such as orders therefore reducing both production time and inventory. For example, the inputting of an order immediately links to stock to ensure the necessary materials are available or alternatively orders the required materials. This can lead to a reduction in inventories for example Gupta (2000 p.115) reported a reduction in inventories 'anywhere from 15 to 35 percent'. Such reductions have been linked to leading to an improved company performance (Poston and Grabski (2001) and this is of great necessity in an increasingly competitive environment that requires cost reduction and an improvement in quality and customer service. However, this benefit would have no impact upon the work of management accountants.

A final advantage of adopting an ERP system may include the adoption of industry 'best practice' as 'best practices' are programmed into the system software for the various modules. Specifically for management accounting, this may for example lead to the production of increased and improved quality of reports and financial statements all of which may lead to an improvement in decision making and strategy design. It may also allow the adoption of advanced management accounting techniques that previous software did not support. Such adoption of new techniques will be discussed later.

2.2.3 What disadvantages do ERP systems have?

The systems are not without their drawbacks. These drawbacks can be company wide and not just isolated to the management accountants however they will still be briefly addressed.

2.2.3.1 Cost

Their implementation can be very costly and this is the main obstacle to their adoption, particularly for smaller firms. The average cost of ownership of an ERP system has been estimated by O'Leary (2000) to be \$15 million with a \$53,320 cost per user and has also been estimated that organisations worldwide spend around US\$18.3 billion every year on ERP systems (Shanks *et al.*, 2003). Therefore, adopting such a system represents a

considerable investment from any companies IT budget. For example, it was shown to be approximately 60-70% of this budget in the Middle East region (American Chamber, 2002). Further expenses may also be incurred by maintenance and the updating of the system as well as some ERP vendors charging companies to renew annual licences once the company becomes dependent on the supplier of their system.

In addition there are often cost overruns caused by time overruns and with 'most consultants charging on a man-hour basis' (Gupta 2000 p116). The actual implementation of the software within the firm and the change over to the new system may also be long and disruptive to the normal business practice possibly reducing the firms effectiveness and potentially turnover. For example, the average time to deploy an ERP system was found to be 23 months (Knorr, 1999). Furthermore, this implementation may require a large team who therefore cannot complete other work further disrupting normal business practice.

2.2.3.2 Employee resistance

A plethora of research has looked at the problems with employee resistance to the new systems and Gupta (2000 p.116) notes that 'organisational resistance to change may be high'. This could link to the investigation to be undertaken here as management accountants may not wish to adapt to a new role in relation to the new ERP system. More generally across the firm there may be resistance to the change and some employees may not wish to learn a new system whilst others may find them difficult to use making them inefficient. Crowley (1998) has noted that inadequate training of users has cause the failure of many ERP systems and Gupta (2000) has noted that poor end user training is a common problem.

2.2.3.3 'Weakest Link' problems

The company wide integration may also cause problems through a 'weakest link' problem where an inefficiency in one department may have a detrimental effect on other modules of the system. Other problems may arise through an incorrect data entry by one department that will cause data errors throughout the system (Gupta 2000). Because of the integrated nature of the information systems, if someone enters the wrong data, the mistake can have a negative domino effect throughout the entire enterprise (Stedman, 1999). A simple error in the enter invoice amount may be fed directly into other accounts such as budgets, material ordering systems, and creditor management reports (Chapman

and Chua, 2003). This was clearly shown in Scapens and Jazayeri's (2003) case study of the implementation of an ERP system at BM Inc. where the 'integrated data flowed so quickly through the system that there was little opportunity to track down mistakes before they showed up on everybody's screens' (p. 215). Such errors in inputting are quite common and can now enter the new ERP systems unchecked and thus have a greater and more immediate impact in ERP systems and decisions made on the incorrect data within them.

Furthermore, Gupta (2000) notes that blurring of company boundaries can cause problems in accountability, lines of responsibility and morale. It may not be possible to isolate where problems are stemming from or who is responsible for particular tasks leading to interdepartmental confusion and conflict. Other problems could arise from a resistance to share internal information between departments thus reducing the effectiveness of the software. Other issues with company wide integration could stem from the limited customisation options of the systems that may have considerable effects on some departments. Compatibility with the business procedures is a major issue for companies to decide on a new system. Al-Mashari (2002 p.166) noted that several other researchers point out that 'standardisation might be achieved at the cost of flexibility' and that it may be difficult to 'accommodate emerging changes in business processes'.

2.2.3.4 Implementation failures

With all of these drawbacks and issues with ERPS implementation, it is hardly surprising that ERPS implementations fail more often than not (Legare, 2002). An example occurred at Foxmeyer Drug, a \$5 billion pharmaceutical company that filed for bankruptcy in 1996 citing a failed ERP implementation as the primary cause (Legare, 2002). Other examples of implementations with negative outcomes include Mobil Europe, Dell (Davenport, 1998) as well as Siemens and Panasonic (Robley *et al.*, 2002). Therefore, whilst they offer a great many benefits to a company, this is dependent on the success of their implementation.

2.2.4 What evidence is there of adoption?

With such high costs of implementation, adoption was initially in large companies (Curran *et al.*, 1998). Ross (1998) named 1998 'The ERP revolution' and by late 1999 the majority of the Fortune 500 had adopted such systems (Kumar and van Hillegersberg,

2000). Possibly motivations for adoption at this time include the Y2K or 'millennium bug' problems that were anticipated, currency consolidation such as the Euro and the requirements of the Sarbanes Oxley Act in the U.S. for companies to report on the internal controls over information systems. Industries included manufacturing, construction, aerospace, finance, education and retail sectors (Chung and Snyder, 2000). In 1998, Davenport reported that SAP/R3, the market leader in ERP systems had been implemented in nearly every personal computer, semiconductor and petrochemical company. However more recently the systems are becoming increasingly adopted in small and medium sized companies (Foley and Stein, 1997). With the high end markets close to saturation, vendors have targeted medium sized companies as with such companies having an average annual IT budget of \$500,000, the size of such a market just within Europe has been estimated to be worth \$50 billion (Everdingen *et al.*, 2000)

2.3 ERP systems and management accounting

This section will look at the implications the implementation of ERP systems have upon management accounting and will focus mainly on the results of the prior research. Researchers have looked into different aspects of the impact ERP systems could have upon management accountants. This research is specifically focusing on the change in role of management accountants that accompany an ERPS implementation. Other research includes the impact ERPS have upon the techniques management accountants' use, the impact ERPS have upon performance and the impact ERPS have upon the organisation of management accounting. This other research will first be briefly looked at as it can link to the role of management accountants however for more in depth research please refer to Rom and Rohde (2007). Following this, the research into the change in tasks and role of management accountants will be reviewed.

2.3.1 ERP systems and the techniques used by management accountants

There is a vast array of research that looks into the relationship between ERP systems and the adoption of the previously explained advanced management accounting techniques. This area of research falls into the broad category of research looking into the use of ERP systems by management accountants. This is of interest to managers because if the implementation of an ERPS does not result in the change of usage of the information system by the management accountant, the implementation is of no value to the firm.

Such research into the adoption of advanced management accounting techniques may link to the role of management accountants as the ability to use new techniques may enable management accountants to perform a deeper analysis and act more effectively in a business advisory role. However the results have been mixed. Granlund and Malmi (2002) and Scapens and Jazayeri (2003) did not find the implementation of ERP systems to change management accounting practices *significantly*. An explanation was that the companies had no desire to adopt the new techniques and did not want to change from their techniques before. Granlund and Malmi (2002) also found that in the majority of cases, firms still operated their management accounting techniques, both traditional and new, in separate systems rather than within the ERPS. Similarly, Hyvönen (2003) found no significant correlation between the adoption ERPS and advanced management techniques and Fahy and Lynch (1999) found that no new performance metrics are implemented. However Spathis and Constantinides (2004) have found that some management accounting techniques have changed following the implementation of ERP systems but as Rom and Rohde (2007) note, the study ‘arguable has major flaws’ (p.49).

2.3.2 The economic benefit of investing in ERP systems and management accountants

Much research has also been directed into determining whether investing in ERP systems and management accountants actually has a positive effect on the firms’ performance. This has been of great interest due to the significant costs of the systems however results have been varied. Poston and Grabski (2001) found that ERP implementation had no effect on performance as did Kennerley and Neely (2001) who found that whilst changes had taken place within the firm, no identifiable financial impact could be observed. However, Hunton *et al.*, (2003) found the performance of non adopters, but not of adopters, to decrease. Dehning and Richardson (2002) have further investigated to find when and why there are positive impacts in performance. This could be of importance in the current investigation because if retaining the management accountants in a new advisory role has no economic benefit to the firm, they may ultimately be layoffs of accounting staff.

2.3.3 ERP systems and the organisation of management accounting

The organisation of management accounting following ERPS implementation has been investigated by Quattrone and Hopper (2005). They found that with the implementation

of the ERPS, control went from a single point or “totalitarian view of control [...] to a multiplicity of loci of control’ (p. 420). Prior to the implementation of ERP systems, managers would have to wait until the end of the month for the management accountants to ‘produce the numbers’ and the data they required. Here the management accountants had the control. Following the implementation of ERP systems, managers are able to access the information directly and gain control. Anyone with access to an ERPS can “exert control as they wish, slicing and dicing the organisation and information, and defining what should be controlled, how and why, differently.” (p. 422). They no longer require the management accountants to act as mediators between themselves and the companies’ information systems and furthermore, the data has the added advantage of being in real time (Scapens *et al.*, 1996a).

Further research includes Scapens *et al.*, (1996) who found the decentring of accounting knowledge away from the accountants and Scapens and Jazayeri (2003) found that following ERPS implementation there was an increase of accounting knowledge in line managers. Burns and Baldvinsdottir (2005) also observed that SAP centralized the accounting function and decentralized control to many people in the company who became “hybrid accountants” as did Caglio (2003) who also found IT people and line people to start to use accounting information due to its easy accessibility in the ERP system. Parker (2002 as cited in El Sayed 2006) has argued that with this decentralisation of the management accounting function and a decline in the demand for traditional skills, management accountants will find themselves at a career dead end. Newman and Westrup (2005) have also stated that there is the “potential for ERP systems to undercut accountants’ expertise” (p. 269) thus eroding their monopoly as the new systems allow managers and IT personnel to become literate in accounting. This has particular importance within this study as research has found that management accountants can gain new roles as business analysts and therefore retain an important role within the firm, using their accounting knowledge to inform decision making.

2.5 Changes to the role of management accountants that accompany ERPS implementation

The change in the role of management accountants to act as analysts that accompanies ERPS implementation is the main area of research that this particular investigation aims to further. This is one of the consequences of ERP systems automating many of their routine tasks thus allowing time for a deeper analysis. However, other consequences of

ERPS implementation include layoffs and the creation of other routine tasks such as data maintenance by the ERPS. I will first outline the evidence that ERPS free up the resources of management accountants. I will then look at the evidence for the different consequences to management accountants. Following this, I will look at the new skills management accountants need to fulfil these new analysis and business support roles.

2.5.1 Evidence for ERPS freeing accountants' time and resources

Research has investigated how the implementations of ERP systems have changed the tasks that management accountants complete. This research has a direct link to the change in the role of management accountants. The 1989 paper by Newman *et al.*, suggested that major tasks of management accountants are score-keeping and the maintenance of financial records for internal and external users. Management accounting was a centralised 'bean counting' task that was carried out far away from the factory floor (Friendman and Lyne, 1997; Burns and Baldvinsdottir, 2005). However, evidence suggests that the ERPS reduce the time needed for the execution of routine tasks and, thus, leave accountants extra time for additional tasks (Chapman and Chua, 2000 p.204). Such routine tasks include the processing and reporting of transactions that as previously explained, are automatically updated by the system and therefore are typically only inputted once. Booth *et al.* (2000) divided management accounting tasks into transaction processing, reporting and decision support and concluded that ERP systems were effective with regard to transaction processing however not with regards to reporting and decision support. Other routine tasks include maintaining the adherence to agreed accounting standards that become automatically programmed within the ERPS. An example of how the system can reduce the routine work of management accountants is by Meall (2003) who reported that following the transition of budgeting from spreadsheet application to ERP based budgeting there was reduced budget preparation time. Whilst not suggesting that the ERPS could make budgeting redundant it does suggest that the ERPS can improve the efficiency of budgeting, therefore freeing up accountants' time.

This change in tasks has a direct link to this investigation. With a reduction of routine tasks to complete it could be assumed that this will reduce the need for so many management accountants and result in layoffs. Whilst some research has found this to be one of the consequences of ERPS implementation, other research has found the ERPS to

create new routine tasks for the management accountants whilst other research has found management accountants to gain a new role. Such research will now be discussed.

2.5.2 What are the consequences of management accountants gaining free time and resources?

The different consequences following the freeing up of management accountants' time as discussed above will now be outlined.

2.5.2.1 Layoffs of accounting staff

With a reduction of routine tasks for management accountants to complete that are automated by the ERPS, there has been layoffs of management accountants within some firms. Burns and Scapens (2000) reported the number of employees in the accounting function in a case study of a UK firm to decrease from 120 to 60 during the period of 1990-97. Granlund and Malmi (2002) also reported the reduction in accounting personnel but that the severity of the reduction varied across the ten case studies conducted. However, Newman and Westrup (2005 p.269) have argued that whilst they have found evidence of the reduction of the numbers of accountants, this is a 'continuation of processes that go back before the advent of ERP systems'. Thus it is not due to the ERP systems automating tasks but instead due to company wide rationalisation

2.5.2.2 Evidence that the ERPS may create other routine tasks

Other research has suggested that whilst management accountants spend less time on transaction processing, the ERPS increase other routine tasks such as data maintenance. As previously discussed within the drawbacks of ERPS, the maintenance of data integrity is essential for the proper functioning of ERPS (2.2.3.3). Research has indicated that this increased need for the maintenance of data integrity falls to the management accountants and thus creates a new routine task that was not part of their job prior to the ERPS implementation (Bhimani 2003). This maintenance job has fallen to the management accountants as most errors become apparent in the work of management accountants and thus it becomes their job to rectify them. However, Baxendale and Jama (2003) suggested the opposite and concluded that management accounting data integrity and reliability will increase following an ERP implementation as information will be shared rather than re-entered. It should be noted though that these conclusions were not empirically tested

Another routine task suggested to have increased following the implementation of ERPS is basic information retrieval. Bhimani (2003 p.88) suggests that ‘unfamiliarity with the means to query data is likely to provide a role for management accountants for some time’.

2.5.2.3 New roles for management accountants: ERPS selection, implementation and maintenance

Several authors have indicated in some cases management accountants have used ERPS to reinvent their role in relation to the new systems including through tasks involving the implementation and maintenance of the ERPS. Caglio (2003) found a more prominent role for the accounting department in the management of the new IT system. Newman and Westrup (2005) also found, some management accountants were using the implementation of ERPS to reposition themselves and their roles. They found that accountants were using the skills and business knowledge they have of the organisation to define how the systems should be aligned to make the best use of the technologies ‘to extract their potential for the competitive advantage of organisations (p 268). Similarly, El Sayed (2006) has also suggested that some management accountants are also using the implementation of ERP systems to redefine their role by ‘reinventing their expertise in relation to the ERP system’ (p. 84) promoting their accounting knowledge as ‘important for the proper functioning of these technologies’ (p. 84). However, Newman and Westrup (2005) also reported that in some though not all organisations it was the IT or senior management that had taken control of the ERP’s and made the ERP systems work for themselves, resulting in the marginalisation of the accountants.

Whilst this research is interesting, this role is not the role this research aims to investigate further. This investigation aims to further the research into management accountants adopting the role of analysts. The prior research in this area will now be reviewed.

2.5.2.4 New roles for management accountants: Business Consulting Tasks

Evidence suggests that accountants are redefining and widening their role by using the free time for ‘value adding’ activities. Many authors have suggested that this free time can be used to perform a deeper financial analysis and interpretation of data than before and to make contributions to the future strategy of the company and for business support and improvements. Granlund and Lukka (1998a p.195) have stated ‘the modern

integrated accounting systems might relieve pressures caused by current reporting routines and give room for more profound analysis and genuine decision support'. Such analyses may include for instance looking at the data to understand patterns and changes that effect the organisation's efficiency, effectiveness, and achievement of operational and strategic goals. With this, strategic decisions can be based for the benefit of the firm and management accountants can become much more actively involved in management decision-making. (Hunton *et al*, 2003). With this widening role, Chapman and Chua (2000 p.11) as well as Granlund and Lukka (1998a p.187) expect an increase in the status of management accountants within the organisation.

The findings of different research will now be reviewed. Burns and Scapens (2000) studied the changing role of management accountants using surveys, field studies and case studies within UK firms. They found an emergence of 'hybrid' accountants during a period of layoffs within the company that were a result of IT advances. Such hybrid accountants had accounting knowledge but also an understanding of the business and its operations and worked along process managers. Granlund and Malmi (2002) studied the effects of ERP systems on management accountants' work at ten Finnish companies using preliminary and brief field studies. They found that in five of these companies the systems allowed the management accountants to devote more time to business analysis. Scapens and Jazayeri (2003) also studied the effects of ERP systems on the roles of management accountants by conducting a field study from 1996 to 1999. Their results also suggested this shift away from traditional accounting activities with the elimination of routine jobs towards a wider more advisory and managerial role for management accountants with the increased production of more forward looking information. Caglio (2003) conducted a study in an Italian company. She also found the role of accountants to be changing and suggested that 'hybridization' of accountants is taking in place in organisations that are adopting an ERP system. That is, accountants are dealing 'less with traditional accounting activities' instead 'devoting more time advising and supporting line people as internal consultants' (p.145). Therefore, the role of the management accountant has changed from 'bean counter' to 'business consultant'. Burns and Baldvinsdottir (2005) also conducted a field study of a single company and also found that SAP implementation allowed the management accountants to become analysts. Newman and Westrup (2005 p. 269) have also found that ERPS have allowed accountants, in particular more senior accountants to 'reposition themselves from being providers of information to becoming information analysts'.

However, it should be noted that such a role change relates back to the prior discussion regarding employee resistance to change. While this change in job role may appeal some more contemporary management accountants, it may not appeal to more traditional management accountants. Therefore this could affect the management accountants success within their new job role.

2.5.2.5 A summary of the consequences of management accountants gaining free time and resources

One of the major consequences of the implementation of ERPS to management accountants is the decrease in the routine work they conducted previously. However it should be noted that this may not be the case in all firms as often the implementation of such a system is unsuccessful. This increase in free time and resources has been used by firms in a variety of ways and one major use has been the change in the role of management accountants to work within a business advisory role. This will be the key focus of this investigation that aims to look at the skills and knowledge management accountants require to successfully fulfil such a role.

2.5.3 What new skills and knowledge do management accountants need to fulfil the new roles?

The aim of this research is to research further the skills and knowledge management accountants require in addition to the principles of financial analysis to successfully fulfil the role of a business analyst. Researchers have briefly touched upon the skills they believe are required. Granlund and Malmi (2002), Scapens and Jazayeri (2003) and Spathis and Constantinides (2003) have all suggested that ERP systems pose new requirements for management accountants. Scapens and Jazayeri (2003) state that ‘the move from record-keeper to internal consultant requires management accountants to acquire new skills’ (p.224). The first skill they noted was that management accountants needed to be able to use the new systems in order to be able to extract the information they need for analysis. Spathis and Constantinides (2003 p.243) agreed stating that ‘accountants need to have good IT skills to apply their knowledge in the new IT-led work environment’. Furthermore, it has been suggested that the management accountants will be required to have considerably more analytical and interpretive skills if analysis for

advising is to become a more central factor to their job role (Chapman and Chua 2000 p.11).

A second skill that Scapens and Jazayeri (2003) noted was a need for interpersonal skills and an increase in communication skills. Burns and Scapens (2000) said that management accountants within the new hybrid roles must be able to interact with people in all parts of the organisation and Chenhall and Langfield-Smith (1998 p.383 see 10) also noted this saying that this new role for management accountants required them to possess the right amount of emotional and social skills.

A third skill that Scapens and Jazayeri (2003 p.224) noted was that 'the management accountant has become a sales person and a change agent' and thus it is implied that management accountants need sales techniques and the ability to convincingly put forth and 'sell the idea of what can be done with the information, and then make things happen'.

Finally researchers have suggested that management accountants require greater business knowledge. Scapens and Jazayeri (2003, p. 223) noted that management accountants now require a 'much broader knowledge of the business than would be required for a record keeping role'. This is because they need to be able to 'link cost and financial information to the strategic development of the business (p.224). Granlund and Malmi (2002 p.311) also agreed with this 'need for a good understanding of the business' as did Burns and Scapens (2000). Spathis and Constantinides (2003) also suggested that a good understanding of organisation's business activities and processes was particularly important during the ERPS implementation because it would require a lot of cross-functional cooperation. However other researchers have proposed that trainee management accountants may find it difficult to develop such knowledge following the implementation of an ERPS. Ahrens and Chapman (2000) have suggested that the repetitive record keeping work served as an important entry level task for junior management accountants. They suggested that the work served as an important learning step for the junior accountants to develop their business knowledge as well as gain experience of the organisation processes and the information systems. They suggest that such knowledge can be used later in their careers as they pass higher levels of professional examinations and grow into more advisory roles to give commercial and strategic advice. As Boland (1993) demonstrated, a lot depends on how the individual

management accountant understands the organisation. With the absence of the role there is a concern that this career development path may disappear and junior management accountants may be thrown into an advisory role before understanding the firm as a whole however Bhimani (2003) has found that in some companies, trainees gain such knowledge through undertaking a variety of placements within the firm.

2.5.4 How have employers helped management accountants develop these new skills and knowledge and how are employees coping?

Whilst researchers have commented upon the skills they perceive that management accountants require within their new analyst roles, very little has been written about specific training for management accountants to develop these new skills. Researchers have commented on the training provided by companies to use the new ERPS however this is not just specific to the management accountants but company wide. Furthermore, Gupta (2000 p. 116) has noted that 'one problem that is common to all implementation is poor end user training'. In relation to the business knowledge required, Järvenpää (2001 p.452) has suggested that 'competencies and the worldview can develop, expand and get richer through wide cross functional experience and interaction' however did not mention any examples of training and help firms provided. Furthermore, there has not been any research into how management accountants are coping with this change in job role and needing new skills. This therefore represents a topic within this area of research with potential to investigate.

2.5.5 Summary of findings from prior literature

The utilization of enterprise resource planning systems (ERPS) has become widespread in recent years as companies strive to remain competitive in global markets. Their central characteristic is company wide integration allowing users to access company wide information from a single IT architecture. Such integration allows the automation of processes within the company and increased organisational efficiency.

Management accounting is the provision of information to internal users for decisions making. Evidence suggests that the implementation of ERP systems reduces the amount of routine work for management accountants. Newman and Westrup (2005) found that accountants are adjusting to ERPS in different ways in different organisations and the different results from different authors support this. In some firms this has resulted in

layoffs of management accountants whilst in other the ERPS itself has created new routine work to be done. In other firms, there has been a change in the role of management accountants. Some management accountants are working in roles involving the design and implementation of the new ERP systems however a large body of evidence shows that in many other firms, management accountants are adopting the role of analysts. This investigate aims to first identify a firm where this too is the case. Following this, it will aim to further investigate the skills and knowledge required to fulfil these roles. Some authors have already suggested new skills and knowledge requirements that management accountants require to fulfil these wider job roles. These include good IT skills, increased analytical skills, a good understanding of organisation and its different activities and processes as well as improved communication and interpersonal skills to help them sell their ideas to others.

This investigation will aim to expand upon these skills as well as investigating how the management accountants are coping with needing these skills and how the firms are aiding them to develop them. Little prior research looks into this area and there is a significant gap in the research. Such research would allow the skills needed to be identified and targeted for improvement through training. Such improvement may help the management accountants perform more effectively within their new job roles and therefore such research would have significant managerial implications. The research objectives are outlined in the following chapter.

Chapter 3: Research Objectives

This section will outline the research objectives and questions that the research will aim to answer. The present study is to be undertaken after reviewing the existing literature on ERP systems. Previous research has proposed that a change in the role of management accountants will accompany the implementation of an ERP system as the system will reduce the time taken for routine transaction processing and thus free up the time of management accountants. Whilst some studies have found this to result in layoffs, other studies have found that with their spare time, accountants are able to prepare sophisticated analyses and act as analysts. (Scapens and Jazayeri 2003). However Granlund and Malmi (2002) did not find this to be realised in all companies studied.

This management accounting research will further investigate the changes in the role of management accountants that accompany implementation of an ERP system in one particular firm. The word accompany has been used as do Scapens and Jazayeri (2003 p204). This is because, as they too argue, such changes in the role of management accountants cannot necessarily be directly related to the implementation of ERP systems. In particular this research aims to look at the skills and knowledge required by management accountants to fulfil a business advisory role within a firm. However, it is first important to identify a firm in which there has been an appropriate change to the role of the management accountants. Therefore the first and second research objectives are to look at:

- Whether the implementation of the ERP system has freed time for management accountants through the automation of routine tasks.
- If so, how are the free time and resources being used? Has there been an increase in other routine tasks? Have there been layoffs or has there been a change in the role of accountants within the firm?

If the research reveals that there has been a change in the role of the management accountants, the third research objectives will be to investigate the skills and knowledge required and how the management accountants have coped with needing these skills:

- What skills and knowledge are more important now for the management accountants to fulfil their new role successfully?

- How the management accountants have adapted to the new roles and coped with needing these new skills and knowledge. Have management accountants in traditional roles found it difficult to change?
- Has the firm helped the management accountants develop or gain these new skills and knowledge?

Such research is of great relevance to managers. With such high costs of implementation and such high failure rates, it is hardly surprising that research into features for successful implementation occurs (Gupta, 2000). The research here will add to this specifically to the research upon the change in role of management accountants by focusing on the skills management accountants need within their new roles and whether firms are aiding their management accountants develop or gain these skills. Such research may allow managers to target their training more specifically to get the most from their management accountants.

Chapter 4: Research Methodology

This section will outline the research methodology including the type of research that will be undertaken, how and where it will be undertaken and the topics to be covered. It will also explain why there are inevitable drawbacks to the chosen research methodology and how the research is merely an exploratory case study to be complimented with more in depth research based upon the results at a later date.

4.1 Type of research

Interviews were conducted with both closed and open ended questions and were semi structured in that broad themes were discussed and agreed in advance. Questions were formulated to begin with general ones such as what do you do in your job before leading to more and more focused questioning such as what skills and knowledge do you feel you need more now than you did before and why? The interviews were conducted during the summer of 2007 over the telephone and lasted approximately 30 minutes. The interviews were tape recorded and subsequently transcribed. The transcribed reports can be found in appendices B, C and D. The interviewees wished to remain anonymous. In every case the interview commenced with the outline of the background to the study, prior results and the particular interests of this research. The information provided by the researcher to the interviewees can be found in appendix A.

4.2 The firm and interviewees

Normally it would be best to select the organisation under study as representative as possible however this has not been possible. This is because there are strict time restrictions to my research and access proved to be difficult within this time frame in a firm where I had no personal contact. Therefore, the firm under study has been selected non-randomly on the basis of a personal contact within the firm. Furthermore, it would be best to select interviewees as representative as possible however my personal contact assisted with access to interviewees and selected two other management accountants within the firm to participate.

However, the firm does still fulfil my criteria of being an international firm to give my thesis the necessary international dimension and also of a firm that has adopted an ERP

package just over a year previously to have allowed time for the management accountants' role to have changed.

4.2.1 Company Profile

The company wished to remain anonymous and therefore will be referred to as 'Firm X'. Firm X did however consent to the inclusion of basic information to formulate a company profile. The company is one of the world's leading heavy building materials companies employing approximately 25,000 people in 15 countries with operations in the UK, North America, Australia, Continental Europe and Asia Pacific. (Information from company website). This research is based upon operations within the UK. The company is split into two major divisions each operated by separate management teams. These are the building products division and the aggregates division. The two separate divisions have separate head offices within the UK and separate management teams however they do work together. Both divisions are further subdivided into product areas that often operate from different sites.

4.2.2 Interviewees

The three management accountants interviewed work within the building products division. This division is further subdivided into product units that include bricks, concrete, mortar and clay roofing. Their job titles and years that they have worked at the company are outlined in the results. The interviewees are in direct contact with the ERP system and use it within their work activities.

4.3 Interview Topics

Topics that will be covered include

- basic background of the individual interviewees
- the management accountants role in the implementation process
- the management accountants change in role following the implementation process
- Whether the implementation has been followed with layoffs of other management accountants from Firm X.
- new skills and knowledge that the interviewees required in their new roles
- how well the management accountants and their colleagues have adapted to needing these new skills and knowledge

- how Firm X has helped management accountants develop these new skills and knowledge
- the future perceptions for the role of management accountants

Interviewees were asked different questions depending on their particular job title and the interviews did not all follow the exact same structure although they were all questioned on the same themes.

4.4 Inevitable Flaws

Time restrictions and problems with access have led to inevitable flaws in the research methodology. As previously noted, Firm X was selected non randomly on the basis of a personal contact due to time restrictions and potential problems with access to a firm where there are no personal contacts.

Furthermore, ideally a quantitative research method such as a survey or questionnaire would be used to generate more reliable data. However, interviews will be used first to direct and inform the questionnaire on the topic. Therefore, the research is simply initial research that merely represents a starting point to the research in this specific area. It is an exploratory study and would later be accompanied by more in-depth research where by more rigorous methodologies could be adopted. This later research could be conducted across a larger number of randomly selected companies to increase the validity and generalizability of the findings and conclusions or be longitudinal because as mentioned by Scapens (1994, p. 310) longitudinal studies are especially useful to study organisational change or here the change in the role of management accountants.

Chapter 5 Results

In the following section we present the general results and themes from the interview material. The results will be split into the following sections.

First the background will be looked at including the background of the interviewees as well as the background to the ERPS implementation in firm X. I will also present the results to show that a change in the roles of the management accountants to become analysts has accompanied the implementation of the ERPS. The next section will review the skills and knowledge that the management accountants perceived as important to fulfil these new roles. It will also look how successful the accountants think they are at these skills and what assistance if any Firm X is giving them. Quotes are presented to emphasise certain points and the interviewees will be numbered for ease of giving these quotes.

5.1 Background results

Initial questioning revolved around the job title of the interviewee and their background within Firm X. The results were as follows:

Interviewee	Job Title	Years worked for Firm X	Any additional background
1	Trainee Management Accountant	Three	Recruited as a graduate trainee. Due to qualify with CIMA in two months. Company has supported interviewee through their professional qualification.
2	Analyst	Six	Recruited as a graduate trainee. Qualified with CIMA after three years.
3	Assistant Financial Director	Eleven	Has worked at the firm since joining as a qualified analyst and moved through positions since.

Interviewee three informed us that the ERPS was implemented approximately just over one year ago and that the project has been managed mainly by a devoted IT group within the IT department. Therefore all the interviewees were present when the system was implemented. Interviewee three also informed us that chosen ERPS package implemented is J.D. Edwards after trials in firm in the US and that the motivation for implementing it

was to maintain competitiveness with rival firms in the increasingly competitive world economy and 'to keep up with the competitors'.

5.2 Has the implementation of the ERPS been accompanied by a change in the role of management accountants to act as analysts?

All of the interviewees claimed that the implementation of the ERP system had freed up their time and resources by automating many of the routine tasks they undertook previously. Interviewee two stated that 'since the implementation of the new IT system we have had a lot less clerical boring routine work to do as it automates it'. For example she said that they 'no longer have to do the data inputting we had to before as the data is automatically captured from the primary processes'. Interviewee three also agreed; 'there is a lot less routine transaction processing'.

Previous research has found a variety of ways in which this free time has been utilised. The research found that this free time is allowing the management accountants to perform a more in depth analysis and to work in the role of an analyst. However the evidence against the other ways in which this free time has not been used will first be addressed.

Prior research has sometimes suggested that sometime the ERPS itself can create other routine tasks. However, none of the interviewees mentioned that they had seen an increase in any other routine tasks such as data integrity. Other prior research has indicated that layoffs of management accountants can result from the reduction in their routine work. None of the interviewees from Firm X said that any layoffs had accompanied the implementation of the new ERP system. However, interviewee three did mention that there had been a company wide shake up with the rationalisation of over 300 jobs a two years before and that the management accounting department had become 'pretty streamlined from that'. Interviewee three also said that for the moment there are some teething problems and that the system is still not operating at its optimum. She went on to say that 'once they are ironed out we will take the staff situation from there' and therefore there may be layoffs in the future. Furthermore other prior research has suggested that there may be a change in the role of management accountants and that they become more involved with the ERPS selection, implementation and maintenance. None

of the interviewees suggested that they were in any way involved in the implementation, development or maintenance of the information system. The senior management were involved in the decision to implement it following its successful trial in the US branch of Firm X and the IT department took all responsibility for its implementation in the UK branch and its maintenance.

Finally, the evidence to support that management accountants have adopted an analyst role will now be presented. Interviewees two and three noted a change in their job roles accompanied the implementation of the ERP system. With the free time created by the ERPS, the management accountants have been able to perform deeper financial analysis and business support through advising managers and working within project teams in a financial capacity. Interviewee three said that the primary task of most of the management accountants was 'advising managers'. Interviewee two also stated this was her main task and that she 'assessed the financial implications of operational decisions and looked at operational performance from an accounting perspective, to allow the managers to make a better informed decisions'. Furthermore, the management accountants now work in cross functional teams that 'bring together people with different backgrounds and mindsets all working on a common project' (interviewee two) rather than just within the management accounting department. The management accountants are integral parts of these teams and play a 'central role' (interviewee two).

In contrast to interviewees two and three, the change in the job role of interviewee one cannot be directly attributed to the implementation of the ERP system. There is however an explanation for this. The interviewee was participating on the graduate finance programme before and after the ERPS implementation and said that her role was had been constantly changing in the three years with the firm as she moved through the graduate programme. The system implementation coincided approximately with the part of their programme that was always scheduled to be a year working in the role of an analyst before qualifying. Where as previously such a role may have included more routine transaction processing, interviewee one now conducts the same new advisory tasks to complete following the ERPS implementation. Therefore, whilst interviewee one cannot comment directly on the skills that have become more important in contrast to their previous role, they can still comment of the skills they perceive to be of importance. Such information is still of use because interviewee one works in the same job role as other management accountants working in cross functional teams advising managers 'by

providing the financial analysis' even if the reason for the adoption of this new job role cannot be directly linked to have accompanied the ERPS implementation. Furthermore, the results from interview one further provide evidence that the reduction in routine work does not hinder the training of management accountants and the development of their business knowledge. Interviewee one was training as a management accountants and stated that she did do some clerical work when she first started but that it was less than she had thought she would have to do and instead did 'a month long operations placement' and was 'shadowing an operations manager'. She said that this helped her to 'understand the business from the very bottom'. Interviewee three also said that whilst there are now less automated jobs to do, it 'is not a problem' and that whilst they may have spent more time doing such jobs in the past during their training, they now complete placements in other functional areas as well as different roles in the finance division to 'try to get the graduates as close to the business as possible' to allow them to learn the business that way.

5.3 What skills and knowledge are more important now for the management accountants to fulfil their new role successfully?

Following the successful identification of a firm where the roles of management accountants have changed and they are working as analysts, the skills and knowledge they require to fulfil these roles could be investigated. The management accountants all identified skills that were more important within their new roles. These have been divided into three broad categories as follows:

5.3.1 Technical knowledge

- **Analytical and management accounting skills.** The management accountants must have the skills and ability to perform a deeper analysis than before and use new or other techniques to do this. Interviewee two said that 'I am being able to use techniques I learnt in college for my qualification that I haven't had to use before because we haven't had the time'
- **IT skills.** The accountants must be able to use the new system if they are to derive the benefits from it and be able to pull up the relevant information to analyse to

fulfil their job role. IT skills are also important as employees are expected to be able to use their email and internet. This has become more important because the management accountants are working in cross functional teams and therefore 'do not see people always day to day' (interviewee two). Therefore IT has become how they communicate with members of cross functional teams 'through emails and schedule meetings and so on' (interviewee three).

5.3.2 Softer skills

- **Communication and presentation skills.** Management accountants must have the skills to communicate information from their analysis effectively to other staff within the firm. Such staff could include members of the cross functional teams who are non-accountants and thus as interviewee two said 'When we think something needs doing or changing we have to have the communications skills to put it across clearly and concisely in 'layman's' terms'. Without the rest of the team understanding what the management accountants have analysed, the management accountant will not have the team backing and support to actually be able to make changes. Thus it is essential that they have the skills to communicate with these non-accountants. However, the management accountants must also be able to communicate and present their ideas to senior management and the board in a confident and concise manner.
- **Social and inter-personal skills.** Management accountants must be able to work alongside other staff from other departments and co-ordinate teams effectively. As interviewee two said, 'Before we never really had much contact with people from other departments. Now we do on a day to day basis'. They must be able to work with the different people from different functional and discipline backgrounds
- **Team working skills.** The accountants are working less as individuals and more within cross-functional teams. They must have the skills to manage, motivate and work within such teams. The management accountants must also have the willingness to work in a team. As interviewee three stated 'I think some of the older staff were not so willing to work within teams and in a more analytical role as others' and later went on to say that 'they simply couldn't remain in the roles they were in if they wanted to keep their jobs'.
- **Persuasion and negotiation skills.** Management accountants must be able to convince others of the pros and cons to the financial implications of the

operational decisions that they are making and that their recommendations will 'prevail' (interviewee two). Interviewee three said that she wanted her management accountants to be able to 'influence managers with their personal recommendations' and interviewee two joked 'I guess it's a little like being a salesman, as you have to sell your point and ideas (to the management)' and that if this could not be done, then even doing the analysis is pointless'.

- **The skills and confidence to challenge what stands at the present.** As interviewee three said 'We want our management accountants to be confident enough to challenge existing practices and promote potential changes to operations that they identify in their analyses' and interviewee one noted that she has to be able to put her ideas to senior members of staff and tell them how they can be more effective which can be 'intimidating'.
- **Proactiveness and initiative** to actively look for new solutions or strategies and act on them by putting them to the product teams.

5.3.3 Business knowledge

- **Knowledge of other business functions**, such as IT, operations and marketing is necessary so that management accountants can effectively work with them in teams. Interviewee two said that she 'didn't know what they actually did day to day when it got down to it' and that she had to 'find out what they do within their jobs' so that she knew who to approach or who had particular knowledge.
- **Knowledge of the company's business.** Accountants must have a technical knowledge of the business and its processes and ability to understand how the business all fits together to be able to formulate achievable plans and make viable suggestions to changes. As interviewee three pointed out, 'they need to be able to produce realistic solutions' that will be viable.

5.4 How have the management accountants adapted to the new roles and coped with needing these new skills and knowledge. Have more traditional management accountants found it difficult to change?

Interviewee two states that she has coped well with adapting to the new role however she is moving into a role that she has always wanted to do. Therefore she was very willing to change however other staff do not appear to have been as willing to adopt the new roles but as interviewee three pointed out ‘they simply couldn’t remain in the roles they were in if they wanted to keep their jobs’. She also states that ‘most (management accountants) have adapted fine’ to their new roles and interviewee three says that most of the management accountants already possessed the skills to an large enough extent that they could fulfil their new roles and develop their skills further whilst doing this. However she did note that some of the management accountants were lacking in the confidence to make presentations to their relevant teams and that that there had been ‘slight tension’ within some of the multifunctional teams with resistance to the management accountants joining suggested a potential deficiency in interpersonal skills (interviewee two). She said that some of the management accountants found it nerve wracking when presenting their information and that others were not challenging their teams’ ideas with their own. However she was expecting the problems with tension in the teams to eventually iron out.

Both interviewees two and three have suggested that some of the older more traditional staff were not so willing to become a part of cross functional teams. Interviewee three said that working in this role was ‘out of their comfort zone’ as they had worked in the accounting department for a number of years. She said that these staff were not performing as well as other in the new role and therefore did not cope with the transition as well as others.

5.5 How has Firm X helped the management accountants develop or gain these new skills and knowledge

The results will again be divided into the three broad categories of skills identified.

5.5.1 Technical knowledge

Firm X has not helped the employees develop their analytical and technical skills further because they employ management accountants who both already possess these skills and are qualified or employee trainee management accountant who the support through college to gain these skills. However, the management accountants are developing their own skills through performing their new job role. As interviewee two noted 'I am being able to use techniques I learnt in college for my qualification that I haven't had to use before because we haven't had the time to consider using them' and is developing her skills working within the role. She noted that she read up on some developments in management accounting as they are always encouraged by CIMA for 'continuous personal improvement' and that she would not expect any additional training by the firm as they are employed 'because we already have the qualification and therefore should have the skills to do a deeper analysis even if we didn't have the opportunity (to do a deeper analysis) before'. In the case of interviewee one, the firm is providing these skills to the graduate by supporting her through college to attain the qualification and analytical skills needed within the role

Firm X has helped the employees develop new IT skills relating to the new system and all of the interviewees noted that there had been in house training for all staff however this would be expected. They interviewees also noted that there were periodic company wide IT workshops for staff to voluntarily sign up for to improve their skills. Therefore, if a member of staff lacked the confidence or the ability to send emails or schedule meetings using IT, help is available and there are channels through which they can learn however this is not specifically just for the management accountants. Interviewee one was also provided with in house training to use Microsoft Excel at the start of her graduate scheme.

5.5.2 Softer skills

However, none of the interviewees commented on training specifically for management accountants to adapt to the new roles. They did however comment on company wide workshops that were run such as team building days. These days could be important for the development of team building, social, interpersonal and communication skills that are essential skills for the management accountants to work effectively within the cross functional teams. Interviewee two also noted that the company would also support staff if they expressed a wish in attending an external course or seminar that they had individually found and would often ‘pay for you to go or give you the time off if you ask a manager and they agree it will be a benefit to your work’.

5.5.3 Business knowledge

None of the interviewees noted that there was specific training to develop their business knowledge and knowledge of other departments following the role change. However, interviewee two noted that it was a case of finding this out for herself when she began working within the cross functional teams and through experience working for the firm. Interviewee one did however provide an interesting insight as a knowledge of other business functions was provided to trainee graduate through placements within the different departments. Furthermore, knowledge of the company’s business was provided through an introductory placement with an operations manager to allow an ‘understanding the business from the very bottom’ (interviewee one) as well as to learn about the different products, processes and operations. Interviewee three said that they found ‘that it is a great way of quickly getting the graduates up to speed with the business when they start’

5.6 Chapter summary

This chapter has outlined the results of the research in relation to the research objectives. This research will now be discussed in the context of wider prior research in the following chapter.

Chapter 6: Discussion of results

The results for each of the research objectives will now be discussed in the wider context relating them to the prior research

6.1 Reasons for ERPS implementation

There was consistency between ours and others' case studies in terms of the reasons for the ERP system implementation. In this case study the key driver was to remain competitive in the increasingly competitive world economy through increasing efficiency within the firm. This is consistent with the results of other more in-depth studies into the reasons for implementation including Spathis and Constantinides (2004). There was also the suggestion that the company implemented the system 'to keep up with their competitors' (interviewee three). This could be suggestive of isomorphism. Isomorphism has been defined by DiMaggio and Powell (1983 p.146) as 'a constraining process that forces one unit in a population to resemble other units that face the same set of environmental conditions'. The particular isomorphism suggested here is mimetic isomorphism. That is, there was uncertainty about what is effective and efficient. As the companies competitors were seen to be adopting ERP systems, the organisation modelled themselves on its competitors by imitating their adoption of an ERP system in an attempt to remain competitive. The argument for how and the extent to which isomorphic pressures result in the adoption of ERP systems is further discussed by Benders *et al* (2006). Other drivers for implementation that have been suggested by Poston and Grabski (2001 p.272) include the reduction of redundant data, labour costs, bureaucracy, and errors (Latamore, 2000 as cited in Poston and Grabski, 2001) as well as to increase customer satisfaction. However this study did not aim to look at the reasons for the ERPS implementation in any further depth.

6.2 Has the implementation of the ERPS been accompanied by a change in the role of management accountants to act as analysts?

This research has found that much of the routine accounting and transaction processing activities are automated by the ERP system, J.D. Edwards. This is consistent with other research such as Granlund and Malmi (2002 p.310) who found that ERPS implementation

‘eliminated or increased the automation of internal transactions’ and Scapens and Jazayeri (2003 p.201) who found ‘the elimination of routine jobs’ following the implementation of SAP.

Prior authors have found in different studies, different ways in which these free resources have been used. In this particular investigation it was found that the free time was allowing the management accountants to work in the role of analysts. Other uses of these free resources in previous research included that the ERPS itself created new routine work for the management accountants. However there was no evidence of an increase in other routine tasks such as data maintenance in this research as was suggested as an implication of the system implementation by Granlund and Malmi (2000 p.311).

Another use of these free resources included the layoffs of accounting staff. The results from this study indicate that the implementation of the ERP system has not been accompanied by layoffs. In previous research by Burns and Scapens (2000) and Scapens and Jazayeri (2003), automation of the ERP systems lead to a decline in accounting personnel. Granlund and Malmi (2002) also found a reduction in accounting staff however they conducted their interviews in some firms up to five years after the implementation of the ERP system. In this research the interviews were conducted just over one year after the implementation of the ERP system and it was noted that there were still some ‘teething problems’ and that once they were ironed out the staff situation would be reassessed. Therefore it may be that layoffs accompany the ERPS implementation in the future and this could be re-addressed in a longitudinal study by revisiting Firm X and conducting further interviews over the next few years to allow such changes to be mapped. It was also noted in the results that there had been a prior company wide rationalisation of positions and this may also factor in the system implementation not resulting in any layoffs as the staff were already ‘streamlined’.

Finally, in other previous research the free time created by the ERPS was utilized by the management accountants having a greater role within the new ERPS selection, implementation and maintenance. The results of this investigation are not in line with some other case studies where it was found that the new role and tasks of the management accountants were related to the IT system. The management accountants were not at all involved in the selection, design, implementation or maintenance of the ERP system. This

was undertaken by a group of devoted specialists. This contrasts with other evidence including Newman and Westrup (2005 p.268) who found evidence for management accountants being 'actively engaged in defining what is needed for information management and how ERP systems were to be aligned in a process to extract their potential'. It also contrasts with the conclusions of El Sayed (2006) who found some accountants to be 'promoting themselves as a group of relevant experts in deriving benefits from these systems' (p.83). However Granlund and Malmi (2002 p.311) found that 'the role of accountants in implementing and developing ERPS varied across (their) case firms'. Furthermore, an explanation for the management accountants not being involved in this particular research could be that the system was initially trialled and implemented within Firm X in the US. Therefore, the system selection, design and format had already been decided and simply transferred across to the UK operations.

The implementation of the ERP system within Firm X did however appear to have been accompanied by a change in role of the management accountants. Such a change in the role has been found in a large body of prior research. In this study the management accountants now perform a wider business consulting role assisting managers by conducting deeper analyses of financial information to evaluate the economic consequences of strategic or operating decisions. The results from this study are in line with the common findings or suggestions from other studies that management accountants are acting as business consultants assisting managers with strategy and making operating decisions. Scapens and Jazayeri (2003) found a reduction in the time needed to perform routine jobs and suggested that the management accountants will therefore gain a wider role. They suggested that the management accountants in their case firm were potentially put in the position of 'internal consultants or analysts, who assist managers to create strategies and to take operating decisions' (p. 223). Quattrone and Hopper (2001) also found that management accountants are now performing more business orientated tasks. Granlund and Malmi (2002) proposed that ERP systems would provide controllers more time to prepare sophisticated analyses and conduct business support. However they only found this to be realised in half of their case studies and suggested that this could be explained by that the implementation projects within many of the case firms were still ongoing and in their early stages. They argued that value adding features such as management accounting do not have priority during the implementation as other features such as financial accounting are a legal requirement. They therefore

suggested that the systems may have a greater impact on the role of management accountants once their time comes.

In this study, the implementation of the ERPS did have a noticeable impact on the roles of management accountants despite its relatively young age. However, the system had already been pre trialled and implemented in the US branch of the company before being transferred to the UK. This may have allowed the UK implementation to be faster with fewer problems and therefore the changes to the role of the management accountants was quicker as the time for value adding features came round faster than in other companies that did not have a pre trial in another branch.

However, as interviewee three pointed out, the company and department had been going through a prior shake up anyway. Therefore the note of Scapens and Jazayeri (2003 p.230) that ‘whilst we can say that SAP *facilitated* these changes, we cannot say that they were the *result* of the implementation of SAP’, also applies to the implementation of J.D. Edwards here. As the department was undergoing a prior shake up and rationalisation, had J.D.Edwards not be implemented there is still the possibility that there may have been a change in the role of management accountants within Firm X.

6.5 What skills are more important now for the management accountants to fulfil their new role successfully

There was consistency between the skills and knowledge identified in this study to fulfil their new roles successfully and the roles identified or suggested in other studies including Granlund and Malmi (2002), Scapens and Jazayeri (2003) and Spathis and Constantinides (2003). Further skills have also been suggested and the reasons for needing these skills have been looked at in a greater depth.

The skills identified as required to fulfil these roles can be divided into three broad categories; technical skills, softer skills and finally business knowledge. The skills in each of these three categories will now be looked at.

6.5.1 Technical knowledge

This broad category of requirements includes traditional accounting knowledge to allow a deeper analysis and IT knowledge.

6.5.1.1 Accounting knowledge

Management accountants are performing a deeper analysis within their new roles and therefore require improved analytical skills and up to date accounting knowledge. Järvenpää (2001 p.449) has noted that accountants working in this type of role need to have 'excellent skills in basic accounting'. Management accountants are encouraged by their relevant accounting qualification boards for continual knowledge development and learning to keep up to date with developments. With the new roles, management accountants have more time for deeper analysis and may have to use some of the techniques that they learnt at college or that are new and that they did not have time to use previously. It is important that management accountants are proactive in their personal development and take it upon themselves as their responsibility to meet the requirements of them. Furthermore, the management accountants must have the technical knowledge and ability to adapt information to the needs of a given situation to conduct a relevant analysis and viable solution.

6.5.1.2 Increased IT skills

Having IT skills is essential if management accountants are to be able to extract their required information from the system to perform their desired analysis if they are to perform their job to the optimum. Spathis and Constantinides (2003) suggested that management accountants need to have good IT skills to keep up with the constantly changing IT environment and this is demonstrated in this study with an increase in emailing as a means of communication and on line meeting scheduling within Firm X. Management accountants must be able to keep up with these developments to keep up with the requirements of their jobs posed by the technology.

6.5.2 Soft skills

This broad category of requirements includes the improvements of communication and interpersonal skills for team working.

6.5.2.1 Interpersonal skills

This study has highlighted the importance of interpersonal skills. The management accountants are working more in cross functional teams with staff from other departments and little accounting knowledge. The management accountants must have the interpersonal and social skills to work within these teams as well as the ability to cross functional barriers. This was also seen by Järvenpää (2001) as being an essential requirement for management accountants.

6.5.2.2 Team working skills

The management accountants must have the ability to work effectively as a team member and to co-operate and co-ordinate with other team members.

6.5.2.3 Communication skills

This study confirmed the previous suggestions of other authors that management accountants require more developed communication skills within their new roles. Scapens and Jazayeri (2003 p.223) and Granlund and Malmi (2002 p.311) have both previously claimed these skills are required for management accountants to work effectively in their new roles. This is because the skills allow management accountants to not only inform other members of staff with the results of their analysis but also to persuade them of the correct course of action.

Management accountants need the skills to communicate the results of their analysis effectively to other team members in as one of the interviewees put it, 'layman's terms'. They need to be able to communicate to non-accountants the economic consequences of the different activities. However, they also require the skills and confidence to put their results to senior management. As Scapens and Jazayeri (2003 p.224) have said, 'decision making often involved interaction with a variety of managers, with different backgrounds and ideas'. Therefore, the management accountants must be able to adapt their communication techniques for different people. Järvenpää (2001 p.447) also noted this saying that it is 'not enough to produce the management information, but to bring the information into context of other managers and into their frames of meaning'.

Once the analysis has been communicated effectively, the management accountants must have the skills and ability to steer the other team members in the direction that they think

makes financial sense. Järvenpää (2001 p.449) said that 'a good management accountants should be a convincing performer' and Scapens and Jazayeri (2003 p.224) have said that management accountants have become 'a sales person and change agent, rather than a reporter'.

6.5.3 Business knowledge

A final broad category of skills needed is business knowledge. Management accountants must have a wide knowledge of the business. They must understand the organisation and its products and processes, the different functions within the firm as well as the industry it is in.

6.5.3.1 Knowledge of other functional areas

Lodh and Graffikin (2003) hypothesized that multidisciplinary knowledge is needed as a management accountants and this has also been demonstrated in this study. Management accountants must have knowledge of other functional areas such as marketing, IT, and production in order to operate as an effective team member. In this study this was shown as essential as it allows management accountants to know who has expertise in what and therefore who to approach with problems or solutions when necessary. Furthermore, this knowledge will help them work more effectively within teams and cross the functional boundaries as noted within interpersonal skills.

6.5.3.2 Knowledge of the organisation and its activities

The management accountants must have a thorough knowledge of the organisation, its activities and its processes if they are to produce viable solutions to problems. This knowledge would also allow them to better recognize the strategic impacts and value creation potential of decisions taken

Burns and Scapens (2000) note a need for the management accountants to understand the business allowing them to relate their financial analysis to the wider information flows such as strategy development. Similarly Scapens and Jazayeri (2003 p.224) said that 'management accountants have to take a wider view of the business and to be able to link cost and financial information to the strategic development of the business'. Järvenpää (2001 p.449) has said that a good management accountants should 'understand the business well and be able to run it at least in theory'. Furthermore, the importance of this knowledge is highlighted in a study by Pierce and O'Dea (2003 p.266) who found many

managers to perceive the management accountants as too focused on 'bottom line financial numbers and lack the knowledge and skills necessary to take a broader perspective'. They found that this 'manifested in the tendency by many accountants to report figures without any attempt to interpret them'.

5.6 How have the management accountants adapted to the new roles and coped with needing these new skills and knowledge. Have more traditional management accountants found it difficult to change?

Our results indicate that most of the management accountants have adapted fine to the change in role however they have highlighted some difficulties and areas of weaknesses with some specific skills. Firstly there was some tension within some of the teams following the joining of the management accountants and this may suggest the management accountants have weak interpersonal skills.

A second problem has been with communication and presentation skills. It was identified that some of the management accountants lacked confidence with presenting their analysis and they were poor at communicating the information in a way that allowed it to be understood and that emphasised the best course of action. It was also identified that some management accountants lacked the confidence to challenge existing practices as well as to challenge decisions that were not the optimum financially. Clearly, to be successful within their new roles such capabilities are essential however some accountants are struggling.

A final problem highlighted was the reluctance by some more traditional management accountants to gain a wider role. The study indicated that if management accountants are not prepared to adjust to this room there may no longer be work for them. Therefore, the research seems to indicate that willingness is a prerequisite for success in the new role and that it is essential for management accountants to be proactive and take it upon themselves to develop new skills if they wish to remain in employment. This is similar to results from Järvenpää (2001 p.449) who said that one of the most important competencies for a management accountant should be the 'ability to continually develop (their) own job, accounting organisation and accounting system'.

Prior literature has also found other examples where management accountants have been unable to cope with the change in their role. As Burns and Scapens (2000) described from their research, in one example, there was an accountant who was excellent at analysing data and 'producing the numbers' however was unable to relate them to business and therefore was not retained. Therefore there are clearly areas that specific training and assistance could improve.

5.5 How has Firm X helped the management accountants develop or gain these new skills

The skills required will be addressed again in terms of their broad groupings; technical skills, softer skills and business knowledge.

5.5.1 Technical Skills

Within the study it was found that management accountants required improved technical skills to fulfil their roles. It was also found that the company provided company wide IT training to use the new IT system and offered in house workshops for those requiring further help. It was also found that the company also provided new management accountants with Microsoft Excel training.

The company did not provide management accountants with any specific training to update their accounting skills and expected the accountants to take personal responsibility for this. The company did however support staff if they requested to attend a particular course following approval from managers. Therefore, it would appear that if management accountants are proactive in developing their personal skills and keeping up to date with IT and accounting developments, there are opportunities and support to do so.

5.5.2 Softer Skills

Very little training was provided by Firm X to help improve softer skills. Only teamworking workshops were provided to help improve team morale and co-operation and such workshops may help remove any tension within the groups following the addition of the management accountants. However there was no training for the improvement of communication or negotiation skills. Such skills are essential in the new roles and workshops may help improve the confidence of management accountants to

make presentations and to oppose the decision of the majority of they believe in a different course of action. Furthermore, presentation skills training such as training to make power point presentations may assist management accountants with their presentations and aid them to communicate their analyses in a more effective manner.

5.5.3 Business Knowledge

The study did not find there to be any specific training for the management accountants to develop their knowledge of other functional departments however the management accountants were learning this slowly through time spent working in the teams and experience. Järvenpää (2001 p.452) has suggested that ‘competencies and the worldview can develop, expand and get richer through wide cross functional experience and interaction’ and this appears to be also the case here. However, managers may wish to consider speeding up the development of this knowledge base through training to allow management accountants to work more effectively in their roles sooner. Similarly the study did not find any specific training for the management accountants to develop their knowledge of the business. Some of this knowledge would be learnt through experience and time working within the firm however Burns and Scapens (2000) have previously expressed a need for broader training and experience to allow management accountants to better understand their business rather than just training in accounting.

The only way in which the firm provided training in these areas of knowledge development was on the graduate scheme through a variety of placements in different departments and the initial shadowing of an operations manager to provide the trainees with the specific company knowledge they need. Such placements have also been suggested by Bhimani (2003) who suggested that within many large contemporary organisations, an aspect of the training of management accountants is their movements through a variety of placements to allow exposure to new and relevant experience (Ahrens and Chapman 2000 cited in Bhimani 2003). This overcomes concern voiced by Ahrens and Chapman (2000) that repetitive record keeping work served as an important entry level task for junior management accountants and that such training may become redundant with the implementation of ERPS.

5.6. Chapter summary

This chapter has discussed the results of this study in the context of the wider research material. Consistent with prior research, our research has shown that the role of management accountants is widening to include more business support. With the expansion of their job roles, management accountants are requiring new skills in addition to their accounting and technical accounting skills to fulfil these roles successfully. Such requirements can be split into three broad categories; technical skills, softer skills and business knowledge. There were opportunities within Firm X to acquire the increase in technical skills required through compulsory in house IT training on the new system as well as optional in house workshops and the opportunity to be supported to attend outside events if the accountants are proactive enough to do so. There are very few opportunities to develop the softer skills required. Teamworking workshops were conducted in house that may help with teamworking skills and interpersonal skills however there was no training to help with communication, negotiation or presentation skills. This lack of training could be addressed by management to improve the confidence of their management accountants to use their specialist knowledge within the team more effectively. There was no training for the development of business knowledge however this was developed through time and experience. If managers wished to speed this up to allow their management accountants to work at the optimum faster, in house training could be offered.

Chapter 7: Conclusions

This chapter will outline the conclusions from this research before addressing some of the limitations of the research and the recommendations for the accompanying study. It will also address the academic and managerial implications of the findings and suggest further research areas.

7.1 Conclusions

The study identified a firm in which a change in the role of management accountants to act as business analysts accompanied the implementation of an ERP system through a reduction in time spent conducting routine work allowing greater time for more in-depth analyses and the assistance of cross functional teams and managers in strategy design. This allowed the skills and knowledge requirements of this new job role to be investigated. The conclusions derived from this study are that in this particular case the knowledge and skills requirements for management accountants in their new role fall into three main areas. These areas are technical skills including IT and accounting skills, soft skills such as communication, teamwork and persuasion and increased knowledge of the business and the work of other departments.

The research indicated that most of the management accountants within Firm X appeared to have coped with the need for these skills however they had not been provided with any specific training or assistance to help develop the new skills. They did however already have knowledge to perform the deeper analysis from the accounting qualifications and IT training and general workshops were available to help with the new system. The research therefore highlights the development of the softer skills required as an area of training managers could focus on to assist their management accountants fulfil these new roles more effectively.

7.2 Strengths and limitations of the study

The study does have some strengths. Throughout the research it has always been made clear that this study merely represents a starting point for research in this area. This research has identified some skills and knowledge that management accountants perceive to be more important within their new roles. It has also highlighted that management

accountants appear to be able to cope with the changes as long as they are willing and therefore will be proactive in developing their skills and finding out this knowledge for themselves. Furthermore it identifies the softer skills area as an area of weakness for management accountants that could be focused upon for training and assistance. Therefore, the study paves the way for further research as will be discussed at a later point. However, several limitations of the research design followed in this study should be addressed.

7.2.1 Limitations with interviews:

Researcher bias. The interpretation of the answers by the interviewer is open to bias. The analysis of qualitative results is always highly subjective and other researchers may have interpreted the responses by the interviewees in a different way. To reduce this bias a second opinion from another researcher could be called for to gain their second opinion and interpretation.

The respondents' answers to questions during their interviews may have been incorrect if they had defective memories of their previous job role from previous years.

7.2.2 Limitations with the sample:

The sample in the study has many weaknesses.

Firm X was selected non-randomly on the basis of a personal contact due to time restrictions with my research and problems with access to a firm within this small time frame as discussed in the methodology. A randomly selected firm would have allowed my conclusions greater validity.

The interviewees were not personally selected but selected by my contact within Firm X as discussed in the methodology. Therefore, the selection of the interviewees by my contact may have been biased in some way for example in the attempt to represent the company and ERPS implementation in the best light possible. For example by choosing the accountants that were succeeding within their new roles.

The sample size of just three interviewees was very small and would need to be larger to increase the validity of the findings. However, this was not possible within the time frame of the study.

The interviewees were only from one of the two divisions within Firm X at just one of the locations of that division. Therefore, the respondents' opinions and answers may have been biased because of particular issues at that location. Alternatively their opinions and responses may have only been relevant to that particular division or location and not representative of firm X itself.

The interviews were only conducted within one country – the United Kingdom. However as stated in the company profile (4.2.1), the company is an International company and operates in 15 countries worldwide. Therefore, the results may have been biased for cultural reasons for example the role or view of a management accountant may differ across countries because of cultural factors. However, the United Kingdom is central to the worldwide operations of the company. Furthermore, Hyvönen (2003) states within his research in Finland that although it is a small country, it is well representative of an industrial nation and thus his results can be relevant in the wider European context. This could also apply to the United Kingdom in this study.

The interviewees all have different backgrounds and motivations within Firm X and thus may view the ERPS in a different way. For example, interviewee three states she is in charge of the success of the management accountants following the implementation of the new ERP system. Therefore, she may report that the management accountants adapt well to appear that she is doing her job correctly however another management accountant may not report the same level of success.

There may be bias towards the manufacturing industry within the results.

Finally a single firm case study is limited with respect to statistical generalizability and the conclusions could be easily challenged as they could not be applied to other organisations.

7.3 Recommendations for accompanying research

Despite the many limitations to the study, I believe that the results provide a good view on reality. This is because the results concur with some of the skills and knowledge other researchers have previously suggested management accountants to require. It also suggests further skills required as the research was more specifically targeted into this area than in other prior research. These exploratory interviews have allowed the

identification of the relevant issues within this area of research and can be used to further direct the research and focus its content. As previously outlined, this research will later be accompanied by more in-depth research where by more rigorous methodologies could be adopted. This accompanying research will now be briefly outlined.

The interviews could be used as the basis for a questionnaire. Such a research design would be more appropriate to gain more extensive knowledge from empirical data across a larger sample size from different organisations to better validate the findings. Such a questionnaire had not been possible within this research due to time constraints. As Hyvönen (2003) describes in his methodology, from sending 300 questionnaires in November 1999 and following up with a reminder in December 1999, by mid January 2000, of 99 respondents, 86 were useable. However, with greater time available, such a questionnaire could be conducted by post or online questionnaires that becoming increasingly popular. Such as research design would also lead to a triangulation of the research methods using interviews and questionnaires as called for by many management accounting researchers (Arnold, 2006). She cites Jick (1979) saying that 'by combining qualitative and quantitative methods, external, internal and construct validity are all enhanced' (Arnold, 2006 p, 14) and that subsequently 'the results are more generalizable and the overall contribution of the work is much greater'. Currently the research lacks generalizability as it was only conducted within one firm but empirical research across many firms would increase the generalizability.

The questionnaire could research which of the skills management accountants identified as important in their new roles they perceive as the most important. This could be achieved by the ranking of the skills outlined in this research by management accountants. Such research could help direct managers to develop specific training and assistance for the accountants to develop the skills that are perceived to be the most important for the role. This would help the management accountants to cope more successfully within their new roles and this is of great importance if their deeper analysis is to make an impact and improvements within the business. Furthermore, the questionnaire could be used to gain longitudinal data by asking the same employees in the same companies to complete the questionnaire on a yearly basis. This would allow the monitoring of the development of the skills by staff and whether they believe they have improved whilst working within the role.

7.4 Academic Implications

This research further confirms the results of previous findings. Consistent with Granlund and Malmi (2003) and Scapens and Jazayeri (2003) it too finds that ERP systems are automating tasks of management accountants and freeing up their time and resources. It also confirms prior findings that the roles of management accountants are changing however whilst some prior research has found there to be layoffs or roles for management accountants within the implementation and maintenance of the ERPS (Caglio, 2003, El Sayed, 2006), this research does not. It does however agree with other research that finds the roles of management accountants to be changing into a business consulting role.

However, Ahrens and Chapman (2000) voiced a concern that repetitive record keeping work served as an important entry level task for junior management accountants and that such training may become redundant. This research however finds that firms are training their junior management accountants in other ways. The research found that trainee management accountants were undertaking placements across the business to build up their knowledge of the business before being placed in an analytical role.

Finally the research has confirmed some of the skills suggested by other authors (Scapens and Jazayeri 2003) that management accountants may require in their new role as well as suggesting further skills and knowledge that may be important.

7.5 Managerial Implications

The research has highlighted an area of weakness for management accountants in the skills required to fulfil their new roles. This area is in softer skills such as communication, persuasion and teamwork. The research suggests managerial implications that may help staff improve these skills and therefore work more effectively within their roles.

Firstly it indicates how useful team building days may be to the management accountants to help improve teamworking and communication skills and the importance of arranging these for the relevant cross functional product teams. Secondly it suggests that other training to develop other softer skills may be useful. Training for example could include presentation skills to help management accountants to communicate the results of their analyses more effectively. It could also be an idea for managers to organise business lunches or social events to help management accountants integrate into the cross functional teams. Further managerial implications may become evident following the

accompanying study to highlight exactly which skills are the most essential for management accountants within their new roles. Managers will therefore be able to target training specifically to assist with the development of these skills.

With regards to the technical skills management accountants require, the research finds that there is in house training for the new IT system and refresher classes to help staff improve. It may be advisable for managers to periodically encourage their management accountants to attend such refresher courses even if the staff do not personally perceive a need to attend. This is because they may learn newer skills and ways of using their computers and systems through attending or find ways to improve their efficiency. Furthermore, the results highlight the importance of continual development and the updating of the management accountants actual finance skills. This may suggest that it may be useful for managers to periodically advise and encourage their management accountants to stay up to date with their relevant accounting bodies.

Finally with regards to business knowledge it appears that such a knowledge is gained through working within the cross functional teams and with time and experience. However, managers may compliment this by encouraging their accountants to remain up to date with events occurring company wide such as through reading the company newsletter. Furthermore, managers could lead by example ensuring that the accountants see them reading the newsletter.

7.6 Future Research Directions

The results of the current study also raise several additional issues that warrant further research. Suggestions for further research will now be outlined:

7.6.1 Research to further explore the change in role of management accountants:

Research into the individual role changes following the implementation of an ERP system may highlight differences rather than trying to generalise what changes occur to management accountants as a whole.

Longitudinal studies both pre and post implementation of the ERPS would allow the process of change to be explored rather than the input of the ERP system and

the output of a change in role. Such research could be undertaken on a yearly basis post implementation to capture the change in role at various periods and to map the time scale in change. By interviewing the same individuals over the time period, different changes in different roles could also be mapped.

7.6.2 Research to further explore the knowledge and skills management accountants need to fulfil these new roles and how well they cope within their new roles

Aside from the additional research that will be complementary to the research conducted here, other research could investigate:

The skills of management accountants with specific regards to the IT skills that are required and the IT training available. This is of huge importance if management accountants are able to apply their specialist knowledge in and increasingly IT orientated work environment.

The skills or core competencies employers are looking for within their graduate recruitment of new trainee management accountants could be looked at. Has this changed alongside the implementation of ERP systems in firms?

7.6.3 Research to explore the role of management accountants in relation to even more advanced technologies

Technology seems unlikely to stand still. James and Wolf (2000) consider ERPS as becoming increasingly old with newer technologies continually being developed that build upon the ERP systems. These include CRM (customer relationship management software) and SCM (supply chain management software) (Bhimani 2003). More research is needed to keep up with the development of such software to maintain the relevance and need for management accountants within global companies.

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Appendices

Appendix A: Information outlining the study for interviewees

This is an outline of the information given to the interviewees prior to the interview to explain the background to the research and the particular research interests.

Research background:

This research is being undertaken in part for a Masters in International Business and will be written up as a dissertation.

The firm and interviewees will remain anonymous as to the mutual agreement.

Previous Research:

Across the world firms are introducing ERP systems in an attempt to integrate all the departments and functions across the organisation. Much research has looked into various effects the implementation of the ERP systems are having on the organisations. For example whether they actually increase productivity and efficiency or whether their implementation are accompanied by the implementation of advanced management accounting techniques. This particular research is looking at whether they are accompanied by layoffs of accounting personnel or a change in role of management accountants.

Previous research has found examples of both. In the case of a change of role, results have also been varied. In some cases, the management accountants have become more involved with IT and the selection, design and implementation of the new software. In other cases, in the free time generated by the system automating many tasks the management accountants previously performed, the management accountants have adopted more advisory roles performing deeper analyses and assisting managers with decision making.

Research Interests:

This research is interested in further looking whether the implementation of the ERP system has been accompanied by layoffs or a change in accountants role within the firm?

If it is found that there has been a change in the role of the management accountants, this research will further investigate:

- What skills and knowledge are more important now for the management accountants to fulfil their new role successfully.
- How the management accountants have adapted to the new roles and coped with needing these new skills and knowledge.
- Whether the firm has helped the management accountants develop or gain these new skills and knowledge.

Appendix B: Graduate Finance Trainee Interview:

Approximate notes were taken during the interview and the following interview report written following from the notes and researchers memory.

The interview was conducted in August 2007 over the telephone following from the explanation of the study, previous research and the aims.

How long have you worked at Firm X?

Three years in September. I joined on the graduate finance scheme and have been supported through my CIMA qualification. I have now completed all my exams and am just coming to the end of the three years experience you need to fully qualify.

What has been your role over the last three years?

It has been very varied. The scheme is great as I have been moved around a lot between departments so I have got a good overview of the business and how it all works and links together.

So exactly have you been doing?

At the very start I did a month long operations placement. I wasn't even in the office but was out understanding the business from the very bottom, shadowing an operations manager. That was really helpful just to get me up to speed with the products and how they are made and distributed as I didn't know much about the industry as all. Following this I have done loads of other placements including marketing and pricing that have given me great exposure to all areas of the business as well as placements within the finance department in tax, payroll and the treasury and so on. That was for the first two years and then I have been working for a Junior Analyst for the last year before I qualify. So I assist managers in the various product streams with decisions by providing the financial analysis. After I qualify I have the opportunity to apply for managerial roles for different product groups.

Has there been much clerical work?

So I have been involved in clerical work but not as much as I thought and this was near the start in my first year. And I think this was really to familiarise me with the system and also I wasn't in a position to contribute to the analysis a great deal as I had only just started learning at college.

Do the graduates who join on the scheme still do this now?

Yes and then they move onto other placements as I did. It's very limited to what you can actually do in the first few months until you have a basic understanding.

So would you say your role has changed since the implementation of the J.D. Edwards platform a year ago?

No not as a direct result of it however my role changed because I reached the two year point in the graduate programme where I start working as Junior Analyst anyway and I knew that from when I started the scheme.

Has there been any layoffs of accounting staff since the implementation of the J.D. Edwards system?

Not that I am aware of.

So what would you say is the role you are being trained for over the three years?

Well it's up to me what exact path I decide to take. I could become a manager of the accountant clerks within the accounting department if I wished and so on however I think most of the graduates are recruited for eventually working in an analytical business support role to the management. That is generally what they want us to do, to add value as after all they are supporting us through our qualifications. Therefore they structure our programme in such a way that leads us naturally to such a role as we do a lot of placements within product teams not only shadowing the other management accountants but also being encouraged to make decisions from our own analysis using the techniques we learn at college and presenting the outcomes to the senior management. We ultimately do the job of an analyst after a year or so in the scheme but simply do not have the qualification yet. It gives us responsibility for our decisions early on which I really enjoy.

So what are the advantages of the scheme?

Moving around also helps me expand my contacts with people in different departments and to understand their job roles more thoroughly. It also helps me to improve my communication and inter personnel schemes as I have to quickly establish relationships with new members of a department as my placements change. It also allows me to develop a wide portfolio of skills as I am not just staying within one role and I can see where my technical knowledge I am learning at college during my CIMA qualification can be applied in different parts of the business.

What skills and knowledge do you think are important in your role?

Well during the graduate recruitment the firm stated they were looking for core attributes. They wanted someone with the academic skills to pass the exams although they didn't specifically want someone with a finance or business degree or background, just a minimum of a 2:1.

But with so many graduates with those requirements anyway, they want other core skills. These were:

- communication skills
- leadership
- business assertiveness
- persuasiveness
- decision making
- teamworking
- maturity

Throughout the recruitment process they emphasised that they wanted someone not only with the capabilities to analyse information and provide solutions but also to not be afraid to present these persuasively and clearly to the top management.

So do you think you already possessed those skills?

Well I certainly had to requirements to actually enrol on the accountancy course. Then during the recruitment process we had to do a variety of tasks including a presentation, business game, negotiation and so on and I guess from that the company saw I had the skills or at least the potential to develop the skills.

Why do you think that having those skills and knowledge are important in your role?

Obviously without the academic skills that allow me to train on my CIMA course I could not do my job successfully as I would be unable to analyse data and then my job would be pretty pointless. And you have to be really comfortable with numbers.

Communication skills are really important because I am moving around so often in the training course. I do placements within pricing, marketing, operations and many other departments and teams so I have to be able to introduce myself and establish relationships quickly to get the most out of my placements. And I also have to be able to work within these teams so you need those skills too. So you need to be able to work successfully alone but also within a team co operating with other members of staff and aware of the responsibility of your work and participation. Communications skills are also important because I have to convincingly put my ideas to higher members of staff and be able to tell them how they could be more effective. This is intimidating enough and without those skills I could not do it. That is why I also need to be persuasive. I have to be able to identify and interpret an idea for a strategy and the present to senior staff to convince them of its benefits.

Business assertiveness is also essential because to identify new ways in which the business could make savings or be more efficient. You have to be commercially minded and always thinking and trying to move forward.

Decision making skills are also very important as you have to analyse and then act on it and make the decisions how to do this. Without making these decisions there is no point analysing and you have to be confident in your decision and what you are putting forward. And obviously you have to be able to make the right decision based on the information to hand which takes us back to the academic skills to train for the qualification.

What about IT skills? Why do you think they are important?

Well all the work is done on the computer so they are essential skills to have.

Did they ask about your skills during the recruitment?

They never asked about my IT skills at the interview - I guess I had office experience on my CV and applied online so they assumed I had computer knowledge. Also in today's day and age, surely all graduates must have some IT skills to fulfil the necessary criteria?

What about IT training when you joined?

I had in house training on the system when I started. I also had intermediate and advanced courses on excel. I never had the basic course, I guess they assumed I had basic knowledge which I didn't really as I never had to use excel before this job but it was really simple to pick it up that it wasn't a problem.

What about IT training since?

I had the in house standard firm training on the new ERP system when it was implemented.

Have you been to any other courses?

There are refresher courses for the new system but I picked up on that pretty quickly compared to a lot of my colleagues so I haven't been. I guess being young and part of

the 'IT generation' gives me an immediate advantage. As simple things such as using Outlook for sending emails internally is sometimes a problem for some people but things like that I can pick up in a second.

Have you had any other training for skills and knowledge development?

Only my college course for my CIMA course. I go two nights a week but that's for more technical knowledge than skills development. I think that the firm do occasionally run team building courses and days like that but I would not attend anyway on the graduate scheme and I move around so much that their would not be much point.

Also I think I was selected for the job because they thought that I either possessed or had the potential to develop the skills during the training course and my whole three years is training I guess to develop the skills that I will need to be successful in the role of an analyst later in my career.

What do you see for the future of management accountants in the firm?

From what I have seen there is a lot more people working on projects and within product teams that there was before. It seem that the accountants will be working a lot more strategically to help the firm be more competitive and to increase profits and turnover. I think the future is looking very positive. There are lots of opportunities in the firm for me when I qualify and I cant see me leaving in the next couple of years at least! Im looking forward to having more responsibility and a role where I have a greater opportunity to really make a difference.

Appendix C: Interview of Analyst

Approximate notes were taken during the interview and the following interview report written following from the notes and researchers memory.

The interview was conducted in August 2007 over the telephone following from the explanation of the study, previous research and the aims.

How long have you worked at Firm X?

I have worked here for just coming up to six years

What do you do in your job?

I work as a management accountant analysing data to look at the financial implications of operating decisions and then I advise managers and other members of product steams accordingly.

Did you join as a graduate or qualified?

I joined as a graduate. But not on a graduate scheme as such as they didn't really exist then I the firm and were not so pushed for. More of a graduate job in finance and I did my qualification at night school.

What is the new IT system?

J.D. Edwards

Were you involved in the implementation of the new IT system?

No

Were any other management accountants?

No

Has your role changed in the past year since the implementation of the J.D. Edwards system?

Yes, since the implementation of the new IT system we have had a lot less clerical boring routine work to do as it automates it.

What sort of tasks does the system automate that you did before?

Well we no longer have to do the data inputting we had to before as the data is automatically captured from the primary processes. And the system automatically updates other areas such as the ledgers and so a lot of the work we did before compiling this data is automated. This means that tasks such as the month end reporting work for instance is also all computerised. Managers get the information for themselves as and when they want it. So we no longer have to provide it for them.

So what tasks have you been doing instead?

I have using my brain a lot more (laughs). I am doing more analysis and strategy work to help the managers assess the financial implications of operational decisions. We are looking into the financial implications of a lot more scenarios to inform out decision making better than before. So for example I have spent some time working with a

team that has responsibility for three main products helping assess implications for decision making and then advising the team and the managers accordingly.

Who works in that team and what do you do?

It a cross-functional team and I assist the manager and those in the team as I have the knowledge of how to analyse accounts and pinpoint ways to improve efficiency or to develop the strategies to increase revenue in both the long and short term. I allow the managers to make a better informed decision by assessing the financial implications of operational decisions and looking at operational performance from an accounting perspective. No one else in the team can analyse the data like I can and this analysis helps inform strategies. We really do have a central role. However, other members bring other attributes as the teams bring together people with different backgrounds and mindsets all working on a common project. People flit between the team and their departments depending on what the current project is and if they are of any use on the project. So if we are trying to cost cut by relocating some manufacturing process we may have the ops guys, I work out the financial implications and then someone from locations who finds the new alternatives but on that particular project it is unlikely that someone from marketing will be involved.

So do you work mainly out of the management accounting team?

Yes and no. I will work here for a couple of days (product team) and then work with the team (management accounting team) the rest of the time. That way I can see what other teams are doing from the other management accountants and we can work together to work from a better overview of the whole business. It's very varied. It's great though as in previous years I have spent most of my time with purely other management accounting staff and we have not had to really mix with other staff from other departments. Now I know a lot more people within the company and what they do. Its good as it gives you a sense of purpose like you are working towards something for the greater good on the whole company.

Have there been any layoffs that have accompanied the system implementation?

Not that I can think of however there was a large shake up many years ago and with recent acquisitions we have grown as a division. There has just been a reorganisation of the departments.

And anyway, from what I have seen we have actually had more to do. What with expansion and acquisitions plus as its still relatively young (the system) there were the usual teething problems on top of the work we were doing previously and it took a while for people to realise what the system actually did they you did previously. Plus more staff are involved in product teams so there are less people to do what was done before.

What skills and knowledge do you feel you need more now than you did before and why?

Well I am involved a lot more in project work so the need for time management skills and being focused to deadlines has increased as has team working so I need better communication skills. Before I spent more time on the computer doing my own work but as I no longer do so much routine work I work in a group of people with whom it is essential to communicate and keep in contact with. Communication skills have also been essential to build new relationships with the cross functional teams. Building

new relationships with others member of staff from other departments has been very important. I have had to find out what they do within their jobs. Obviously I had a vague idea but it was still a learning process as I didn't know what they actually did day to day when it got down to it and so I didn't know who to approach within a team if I had a problem or I needed to work with someone with certain knowledge on something. So yeah communication skills have become essential. Before we never really had much contact with people from other departments. Now we do on a day to day basis. Furthermore, we have more time for a thorough analysis of information. When we think something needs doing or changing we have to have the communications skills to put it across clearly and concisely in 'layman's' terms to the board, the managers or out teams. If we are not clear and persuasive, the managers will not act upon our analysis and then it is pointless. I guess it's a little like being a salesmen, as you have to sell your point and ideas. Often in can be quite confrontational but you have to be clear that not only is your recommendation the right one to follow but it IS the one that will prevail.

What about technical accounting skills and IT skills?

Well I obviously need better IT skills as we have the new system and over the part few years, not just because of JD implementation, its all become more computerised with emails and managers with their blackberries and the like. And as we are working in cross functional teams, you do not see people always day to day and so this is how we communicate and arrange meetings or discuss progress and so on. But because the system is still quite young I am learning new things every week. And I still need the same old Excel skills as quite often we do end up making a spreadsheet in excel to show some data that we can't download from the system but should be able to.

With my technical accounting skills I am doing deeper analyses so have been using more techniques than before that I learnt in college for my qualification that I haven't had to use before because we haven't had the time to consider using them. I'm enjoying that actually as I am having to refresh my knowledge of accounting and am finding it really interesting.

How well do you feel that you have coped with gaining those skills and knowledge?

I think I have coped really well. I have always been pretty good at communication and team work so although it has been a shift, I have coped. And also I am moving into a role that I have always wanted to do as I find the work a lot more interesting and engaging and like I am actually making some small difference to the firm.

What about your colleagues? How well do you feel that they have coped with gaining those skills and knowledge?

The majority have been fine. Some had issues with it and were not so keen at first being so much more involved in team working as before you could just get on with your own work and set your own deadlines and some people had got very used to that type of role. And also for some who have done the same sort of role for many years I don't think they were so willing to change as I have been. They wanted to stay doing the 'bean counting'. I guess they knew what was expected of them in that role and they knew that they could do it and they didn't want the challenge or want to fail. They were happy coming in day in day out 9-5 and knowing what they would be doing. They liked the routine.

Also we have to present our ideas now to senior management and teams who we are not yet comfortable with and a lot of people have found that very nerve-wracking as they lack confidence. Also some management accountants have mentioned to other management accountants how they think a decision or course of action took in their team is not what they think makes the most financial sense but there are strong people in their teams and they don't want to stand up to them or oppose the team. Another problem though is that I think in some of the multifunctional teams, they had become quite close knit and so when some of us joined there was some slight tension and resistance from the teams to us. So some have had a more difficult time slotting in than others however that sort of thing always irons itself out in the end.

Also it took a while for a lot of us to figure out exactly where we stood in the new teams and what was expected of us. Also what boundaries there were and whether we should challenge what was happening. We weren't sure whether we simply provided some data and bits of analysis and then stepped back as the decision was made. However, we now get involved with the decision as well, it doesn't just stop with providing information.

Have the company assisted with learning any of these skills and knowledge?

When the new system was implemented we all had an in house training course on how to use it, how to input data, process reports and find the appropriate information, those kinds of things. Most of the younger staff found the change over really easy and picked it up in no time at all however some of the older staff have not adapted so easily. But there are workshops that we can attend for those who need more help to get up to speed or those that want further knowledge for their particular needs. The IT department are really good with help you need. There hasn't been any other specific training with regards to us working in more analytical roles however we are qualified and did learn those skills and techniques then so I personally just read up on some new developments in management accounting. We are encouraged anyway to do this by CIMA and for continuous personal improvement and I wouldn't expect the company to train us because they employ us because we already have the qualification and therefore should have the skills to do a deeper analysis even if we didn't have the opportunity (to do a deeper analysis) before.

Then the company do do the usual team building workshops so that is more relevant to us now we are working more in teams. Also there are always other courses available to sign up for so I could attend a presentations workshop for instance if I wanted to.

And also if you find an external course or seminar or something like that that you think would help you improve your work, the company will often pay for you to go or give you the time off if you ask a manager and they agree it will be a benefit to your work.

Do you think the graduate scheme has changed in recent years?

They do a lot more business placements and get more hands on experience and responsibility quicker than we did. We did a lot more clerical work but then so did all the other management accountants. And we only really did placements within the finance department so in tax and payroll and so on.

What do you see for the future of management accountants?

I see us working more and more in cross functional teams as analysts and assisting strategy. The changes to my role have only been gradual and I can see my role

evolving and moving further and further away from processing and reporting. Its really good though as these are the type of tasks I have always enjoyed and wanted to do more of for years. I am finally getting the opportunity to really get my teeth into something that is really worthwhile.

Appendix D: Interview of Assistant Financial Director (AFD) of Building Supplies Division

Approximate notes were taken during the interview and the following interview report written following from the notes and researchers memory. Points are given when the exact phrasing was not noted.

The interview was conducted in August 2007 over the telephone following from the explanation of the study, previous research and the aims.

How long have you worked at Firm X?

About eleven years now.

What is your current position?

I am the regional finance director for aggregates.

Have you always worked in this position?

No I joined as an analyst within the bricks team but I have moved up through the ranks to my current position.

What ERP system does the firm use?

We use J.D. Edwards. It was initially trialled in the firm in the US before coming here.

When was the ERP system implemented?

The system was implemented a year ago and was fully operational in July 2006.

Who was responsible for the ERPS implementation?

It was undertaken by the IT department by a group specifically set up for it. They are now responsible for maintaining its operation.

And are they still responsible for it?

The IT department take all responsibility for the system. They are the ones who hook up other business's following a merger and configure their systems.

Who decided to implement it?

It was decided by the senior management to implement the system. Although our old system seemed to be working fine I think they saw that other companies were implementing such systems and they didn't want to lose any competitive edge and wanted to keep up with the competitors. It seemed like the thing to do. Whether its actually given us a competitive edge I don't know yet but as long as we were keeping up with our competitors, the board seemed happy.

So why do you think they wanted to implement it?

To try and gain a competitive edge or remain as competitive as we were at the time and to keep up to date with our competitors. It would allow us to be more competitive by allowing integration of applications that would allow cost cutting and the increase

in real time data would improve decision making and strategy development and so make the business more efficient and then keep our customers satisfied with the service we provide so that they do not go to our rivals instead.

Have any changes in the role of management accountants accompanied the implementation of the ERPS?

There is a lot less routine transaction processing and what is done now is not done by the qualified management accountants really. It is done by other accounting staff. We have the qualified management accountants working on strategy and projects as this is where their value lies.

A lot of our analysts we take on as graduates and pay for their training and qualifications and we do that so that they become assets to the business. We want them in analytical roles not doing jobs that anybody could do and want a return on the investment we put into their training.

So what do you expect of your management accountants?

Well I expect different things as they all have slightly different roles and priorities depending on their exact position. But mainly

- There's the obvious producing the periodic financial statements – P&L's, budgets etc as well as monthly forecasts however a lot of this is now automated.
- Others manage the finance clerks and the payrolls and sales etc
- Then there is monitoring budgets, trends, levels of performance, efficiency of production and use of resources and then advising managers accordingly to the analysis. This is really their primary task and where the majority of them work. They provide financial and analytical support to their relevant teams for the various product and process streams. There are different teams that manage particular groups of products within our unit and they will work for example the pricing strategies for the products and work with other staff from other functional areas within the team to provide financial information and analyses to show the financial implications of the operational decisions. They are integral parts of these teams now.

So they work in cross functional teams?

Yes. There were a number of changes to strengthen and realign the building products division's teams earlier this year. The departments have become more integrated than ever before and teams of different departments were put together to work on particular projects. We normally do this every couple of years anyway to keep our staff interested and to bring new ideas to different products and projects but this time it involved a lot more integration with other departments on our part and this has been since the implementation of J.D. Edwards.

Have there been any layoffs of management accountants that have accompanied the implementation of the ERPS?

None that have been since the system has been implemented or as a result of it. However we had a shake up two years ago now in both divisions. This coincided with the new executive team and over 300 jobs were rationalised of which nearly 100 were operational.

So the management accounting staff were pretty streamlined from that. And then as the ERP system has relieved the management accountants of some of their previous tasks, there has been reorganisation as I said before early this year with them moving into roles based in product teams rather than in more clerical roles. Plus with recent

acquisitions there was a need to retain the staff even though there is less transaction work than before.

It may well be that in a few years time when the system is working its optimum there may well be some layoffs but for now we need the staff we have while we adjust. And once all the teething problems are ironed out we will take the staff situation from there.

What sort of teething problems are they?

Just the usual, people are not working as fast as they could before as its all new and people lack the confidence and ask others for advice and it just slows it all down a bit. And people are figuring out what the system does and what their new roles are and so on.

What skills and knowledge do you think are important for your management accountants to have and why?

Well obviously they have to have the numeracy skills and the qualification to actually be able to do the job. They need analytical and interpretation skills and need to be able to work methodically and logically as well a keeping to deadlines submitting reports etc when requested and in line with the relevant standards.

IT skills are also essential – we do train new employees in house how to use the system but they are still needed, especially as everything is computerised now. Also we expect employees to be able to use email and our intranet through which we communicate through emails and schedule meetings and so on and this has become more important now we work in cross functional teams and you cant simply just pop and see someone.

Communication and team working skills are essential especially now they are working in more analytical roles closer to the management. They need to have the ability and confidence to report to senior management clearly and concisely. We also want our management accountants to be confident enough to challenge existing practices and promote potential changes to operations that they identify in their analyses. And also to look beyond the numbers to make changes that really do add value. Therefore they need the skills to be able to influence managers with their personal recommendations. For example if a management accountant has analysed an opportunity for an acquisition that really is of value, they need to be able to get this across to the management! So they have to be able to communicate the economic consequences.

They also have to possess the skills to understand the business. They have to be able to understand the technical processes and actually how things are made and distributed and so on to be able to fully understand the business and its processes if they are to change them for the better. It cannot just be a case of looking at a spreadsheet as they need to be able to produce realistic solutions.

And they have to be proactive in keeping up to date with management accounting and their personal development as well as keeping up to dat with their firm knowledge to make their anlyses and suggestions relevant.

What skills and knowledge do you think have become more important with the change in role of the management accountants?

Well as I just said, the communication skills and team working skills have become more important. As they are working a lot more in formulating strategies for growth they need these skills to be able to outline the financial implications of such projects to non finance personnel as well as senior management and even the board. They also need to be able to push their recommendations and convince and motivate other members of their team to implement them. So it is crucial that they can be independent as well as working in a team as they have to be strong minded enough to shoot down ideas that do not make financial sense and really push the ones that do.

Also they need to be forward thinking and innovative now than before and they are analysing information and assessing trends a lot more and this is with the motive of driving the company onwards and upwards.

Then IT skills have needed updating but that is more a case of them simply needed updating rather than they have become more important to the role as they were important before.

What about the graduates you take on? Are you training them to work in this type of role and is the reduction in routine work a problem for their training?

We are training the graduates with the aim of having them in analytical roles. As our trainee management accountants spend time in each department during their training programme, that there is less automated jobs to do now is not a problem. Previously, they would spend a large proportion of their time doing this and learning the business that way however now they learn the business by actually going into the various departments. We try to get the graduates as close to the business as possible rather than being just, you know, the stereotype - 'bean counters' in a back office. That is not what management accounting is about now here! We want our management accountants to be more proactive in helping us and to take their own initiatives and know their own minds. In fact, at the very beginning of the two year programme, the graduates undertake an operations placement for four weeks. They shadow an operations manager to see how the business works from the very bottom. We find that it is a great way of quickly getting the graduates up to speed with the business when they start and is a useful experience for later on in their development. It helps them identify in a practical way what can be improved.

Has your recruitment process changed at all?

We say that experience using an ERP system is useful but we don't say absolutely essential. Obviously if someone has it though its definitely a bonus. We also say that we are recruiting into a team based business advisory role so applicants know what they are in for and we do an assessment day so we can see who has the communication and team working skills for the job.

How do you think you staff have adapted to this change in role?

Most have adapted fine. They are used to being moved around anyway every couple of years so are used to adapting to slightly different roles. This has been a bigger leap with a wider and more strategic focus to their role, most seem to be really wanting to make the most of the opportunity as it is a role that they get more fulfilment from.

I think some of the older staff were not so willing to work within teams and in a more analytical role as others as they have been with us a number of years simply working

in their roles within the accounting department and so they were pushed out of their comfort zone. They are not performing as well with their wider roles as others and are not making much impact within their relevant teams. However times are changing and they simply couldn't remain in the roles they were in if they wanted to keep their jobs.

Would you say most already possess the skills to fulfil those needed for this wider role?

Yes or at least most possess them to the degree that they can fulfil their roles and then develop those skills as they do their new roles. We were always quite a social company and department anyway so they all possess the communication and interpersonal skills to work in cross functional teams. And while you can have team working skills, it is also a preference of whether you like it or not and if they like it, great, if they don't, there isn't a lot that can be done and it would be their decision to move on if the role isn't for them.

What support and training have you provided for your staff?

When the system was implemented all of the staff in the division underwent in house IT training.

What about any training for the management accountants to fulfil their wider role and to develop the skills and knowledge they need?

There hasn't been any specific training as such. As they are all qualified they all possess the knowledge anyway to do the deeper analysis, they just didn't use as much of it before. They are encouraged to keep up to date with any new developments in the field of management accounting anyway and if new techniques were implemented they would obviously be informed.

They can also attend workshops if they wish to but that is company wide and not specifically for the management accountants. Most have the drive and capabilities anyway to fulfil the wider role as if is a shift to work that they have always wanted to be doing more of.

And then the managers aim to lead by example so we get involved with their work and the analyses they are doing.

Who is responsible for the success of management accountants in these wider roles?

I am as their manager. But it's not really a case of whether they are successful or not because they will be successful in these roles as before the managers had no help in this way.

What do you see for the future of management accountants?

I think that they will become increasingly involved in the work of other divisions but with specialist accounting knowledge. Management accounting is becoming more essential within strategy and ways to increase profit margins and productivity. The accountants will become more involved to help the company maximise this. I can also see them working a lot more on long term strategies and investment decisions. In the increasingly competitive world market companies have to be on the ball and stay on their toes a lot more than they used to.

Do you see the company placing a lot of value and importance on the management accountants?

Well I certainly think they will be playing an extremely important role in the process teams and assisting the managers. The managers have increasing responsibility for their particular areas. They have to keep making money and keep doing their jobs well. Its cut throat! Managers have to keep their areas consistently producing results and they will be looking to the management accountants to help them do this.

I think that the importance of the skills the management accountants have is shown by the value the firm places on them. For example one of the ops (operations) graduates on the scheme expressed an interest in management accounting as they all do a short placement with us, similarly to out finance graduates doing a placement with their managers, and the company has subsequently supported the graduate through the costly CIMA qualification. If an employee has the drive and motivation the company will assist as at the end of the day, if they can add value to us, its worth it.